THE MULTIPLE FACES OF GLOBALIZATION

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(*) Extract of Francisco González's text (p. 11).

This book is the second in a series published by BBVA Group as part of its effort to promote and spread knowledge. As such, it is in keeping with our group's slogan, "BBVA, working for a better future for people."

For this project, we have sought out the finest researchers and creators worldwide so that, with the greatest rigor and objectivity, and in a language and approach accessible to non-specialists, they can explain and inform us of the advances in knowledge and the subject of the debates that are permanently active on the frontiers of science.

In this second book we have chosen to present a panorama of globalization, a very complex and controversial phenomenon that is characteristic of present-day society and decisively influential in the daily lives of all the world's citizens at the beginning of the 21st century.*

THE COMPLEX DYNAMICS OF GLOBALIZATION AND THE FINANCIAL CRISIS

FRANCISCO GONZÃLEZ
BBVA Chairman

This book is the second in a series published by BBVA Group as part of its effort to promote and spread knowledge. As such, it is in keeping with our group's vision statement, "BBVA, working for a better future for people."

Our work for people rests on two pillars: principles and innovation. Principles can be summed up as behaving in accordance with firm values of honesty, integrity, and transparency, and with the conviction that ethics are essential for establishing a lasting bond of trust with shareholders, clients, collaborators, regulating bodies, and society. Therefore, at BBVA, we believe that ethics are not only desirable, but also profitable. Moreover, a society in continual evolution, where change is a constant, not only in science and technology but also in values and lifestyles, obliges all organizations, especially those in close contact with their clients, to capture, develop, and apply the best knowledge in its quest for new solutions and processes, that is, to innovate.

Naturally, our fundamental contribution to the improvement of life for people has to come from our daily activity. That is why BBVA works on a daily basis to offer more and better solutions to our clients and to facilitate access to financial services for more people. By helping to make people's aspirations possible, we create more value in a sustainable way for our shareholders and a richer and more gratifying professional life for our collaborators. As such, we also contribute to the development and improvement of the wellbeing of all those societies in which we carry out our work.

But our commitment extends beyond the purely financial field, because we believe that economic and social development and stability in the societies where we are present are keys to BBVA Group's sustained growth. In order to achieve this, it is necessary to broaden the horizon of peoples' possibilities. In essence, that means broadening and deepening both individual and collective knowledge.

That is why BBVA is intensely active in social matters, fostering education and knowledge.

In the area of knowledge, BBVA Group works mainly through its Foundation to develop broad and recurrent programs in support of scientific research and the spread of scientific knowledge, with special emphasis on the social sciences, biomedicine, environmental, and basic sciences, as well as culture and the arts.

This line of work takes form in the two books from the series dedicated to knowledge that BBVA has published: books that broaden society's access to knowledge and debate on the leading questions shaping our time. For this project, we have sought out the finest researchers and creators worldwide so that, with the greatest rigor and objectivity, and in a language and approach accessible to non-specialists, they can explain and inform us of the advances in knowledge and the subject of the debates that are permanently active on the frontiers of science.

Our first book, *Frontiers of Knowledge,* was linked to the first edition of the awards of the same name awarded by the BBVA Foundation. It offered a broad view of the state of the art in the eight areas addressed by those prizes: the basic sciences, biomedicine, ecology and conservation biology, climate change, information and communications technologies, economics, finance and business administration, cooperation and development, and the contemporary arts.

In this second book we have chosen to present a panorama of globalization, a very complex and controversial phenomenon that is characteristic of present-day society and decisively influential in the daily lives of all the world's citizens at the beginning of the 21st century.

GLOBALIZATION AND ITS EMERGENCE AS A MULTIDIMENSIONAL PHENOMENON

When the term "globalization" first entered use in the 1960s, its meaning was limited to the field of economics. Even today, Spain's Royal Academy defines it as "the tendency of markets and companies to expand, reaching a worldwide dimension that surpasses national frontiers" (DRAE 2006).

In the last two decades, the word "globalization" has passed from economic jargon to the status of universal cliché. *The Economist* has called it "the most abused word in the 21st Century." It is used in all fields and applied to all sorts of phenomena. Thus, it is hardly strange to find it misused, unclear, or confusing.

All the same, its ubiquitous use and the interest it sparks lead us to conclude, first, that it reflects a very general perception that something fundamental is changing in the world; and second, that it is a complex, multidimensional, and characteristic phenomenon of our time.

To a large degree, globalization corresponds to a secular tendency. Understood as a deepening and an expansion of the scope of the exchange of goods, ideas, and people, this process is almost as old as humanity itself, dating back

THE UBIQUITOUS USE OF THE TERM "GLOBALIZATION" LEAD US TO CONCLUDE, FIRST, THAT IT REFLECTS A VERY GENERAL PERCEPTION THAT SOMETHING FUNDAMENTAL IS CHANGING IN THE WORLD; AND SECOND, THAT IT IS A COMPLEX, MULTIDIMENSIONAL, AND CHARACTERISTIC PHENOMENON OF OUR TIME.

to the spread of homo sapiens across the globe some 50,000 years ago. In that sense, the discovery of America could also be considered a milestone in globalization, marking an acceleration of the process as well as the beginning of the transition to the modern age. A more immediate precedent would be the final decades of the nineteenth century and the beginning of the twentieth, a period of rapid expansion in global exchange that was only temporarily slowed by the First World War and the ensuing Great Depression.

It could be said that we are now witnessing a new and intense acceleration of globalization on our way to a new "global age" that transcends the concept of "nation," a concept that has ruled the history of humanity for the last five centuries.

Peter Worsley,[1] observed in the late 1980s that the map of a middle-class citizen's socioeconomic, political, and cultural reality in any developed country was built on the basis of nations. National borders served to define cultural systems, economic, social and political institutions, and even ways of life: "It is natural enough that most of us should be mainly concerned with the country in which we live. We also tend to think of the 'country'—the particular nation state—we live in as the maximal social unit not only of economic and political life, but also of social organization and culture, the 'way of life' we are part of" (Worsley 1987).

Stephen Toulmin emphasized the links between "modernity" and "nation state." And, following Peter Drucker in *Landmarks for Tomorrow,* he drew our attention to the breakdown of continuity between the structures of modernity and those from the last third of the twentieth century: "Drucker pointed out radical differences between current economic, social, and political conditions and those typically associated with the term 'Modernity'.... The times that we live in demand institutions of new and more functional kinds: institutions that overlap national boundaries and serve transnational social and economic needs" (Toulmin 1990).

During the first half of the last century, national institutions, structures and actors were at the center of activity; but after the Second World War the familiar landscape has filled with actors, organizations, structures, and problems that cannot be reduced to a national scale. This new situation has been driven by two decisive events: the decolonization movement in the 1960s and, two decades later, the collapse of the socialist bloc. In both cases, the number of sovereign nations increased but at the same time, a dynamic of greater integration grew out of strong demographic shifts, the creation of large shared economic spaces and political cooperation all over the planet.

Notwithstanding the importance that nation states and other smaller units still have, it is now recognized that there are major challenges and opportunities that can only be addressed in the context of the global system or, from another perspective, in the ecological-natural setting that Boulding labeled early on as "Spaceship Earth" (Boulding 1970). These expressions point up two connected questions: a) the emergence of political, socioeconomic, and environmental structures, organizations and problems that surpass national contexts and constitute the most finished expressions of globalization and the new ordering of social and economic reality; and b) the fact that even organizations and questions belonging, prima facie, to a local or national setting cannot operate or be fully understood outside the context of the natural "whole" to which they belong, that is, the global system of which they are a part.

To understand the process leading from these early notions to the current state of globalization we should at least briefly mention some of the factors that have promoted its unstoppable advance in the last two or three decades.

First, we must mention the variable of technology, especially information technology. The last decades of the twentieth century were characterized by sustained technological growth derived from the interaction between advances in telecommunications and computing, leading to the Internet and the World Wide Web. The advance of these "technologies without borders" brought the possibility of "communities without borders," as Ithiel de Sola Pool predicted even before wide-ranging use of the Web began (de Sola Pool 1990). Since then, an enormous amount of literature has appeared about the potential of these technologies. One of the main focuses of these analyses has been the virtual constitution of McLuhan's "Global Village." The reinforcement of the first communications infrastructure—transportation systems—with a second layer of information technology—mass media, the press, radio and television, but also the worldwide telephone network—has blurred the borders between social frameworks of various territorial dimensions.[2] At the same time, information technologies themselves, especially

1
Peter Worsley has been one of the pioneers at shifting the study of social problems to a global scale or space. Along with demographer, Alfred Sauvy, he was the first author of the conceptual scheme of the so-called "Third World."

2
As Marshall McLuhan wrote in *Understanding Media*: "...after more than a century of electronic technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet is concerned."

the Internet, have been accelerating this process, bringing not only a few large organizations, but also smaller ones and individuals into "global society."

Secondly, we should mention the growing supranational and global *integration* of organizational modes of economic activity.[3] Many multinational corporations that still had strong cultural, organization, and directive roots in their home countries in the 1970s have metamorphosed into "global corporations" with capital, management, technology, and workers all over the planet, and with worldwide vertical and horizontal links. Their culture has also become global, spanning multiple local facets. At the same time, banking institutions have become global, with a very thick network of "real-time" connections between financial markets worldwide. This process has been parallel to the rapid supranational economic integration of much of Europe and, to a lesser degree, other regions of the world.

Thirdly, the process of political unity among the mosaic of Western European countries (traditionally separated by linguistic barriers, the diversity of their democratic political institutions, socioeconomic barriers, and even territorial conflicts and wars), along with the reunification of Germany and the collapse of the socialist countries, constitute one of the most radical transformations of the last century, with enormous impact on the 21st century's "new world order."[4]

Fourthly, since the final decades of the twentieth century, science, which has always transcended national borders, has experienced an unprecedented level of global integration. In this sense, current scientific society is both global and distributed, characterized by the active participation of research groups from a growing number of countries. As Professor Shankar points out in his contribution to the present book, information and Web technologies are making it possible for researchers from less-developed countries to take an active part in cutting-edge research. Moreover, many present-day scientific and technological research programs require a level of financial and technological resources that far surpass the possibilities of even the most developed countries. Supranational cooperation that includes designing shared projects and collaborating on the construction of large scientific installations has become the rule rather than the exception, especially in "cutting-edge" areas with the greatest techno-economic potential. What Derek de Solla Price called "big science" now involves global structures and resources (de Solla Price 1986). The adequate management of this "distributed" knowledge poses new and difficult problems on a global scale, which Brian Kahin addresses in his article in the present book.

Globalization has also been driven by growing awareness of planet-wide ecological problems that arose in the final decades of the twentieth century, including the hole in the ozone layer, global warming, the loss of biodiversity, and increasing difficult access to energy sources capable of sustaining the development of the most advanced countries as well as the rapidly emerging ones, like China.

Major ecological problems surpass analytical frameworks exclusively focused on national settings and, of course, any possible solution to them can hardly be viable without the adoption of *global perspectives* capable of preventing both *free rider* behavior by nations or national actors, and the imposition of excessive charges on insufficiently developed countries. These problems occupy the foreground of the agendas of leading governments and various organisms for international cooperation and government, adding significant impetus to new political forces and associations outside the profile of conventional political movements that aspire to promote decisions in a global setting (Keck and Sikkink 1998).

Finally, advanced information technologies, "compunications" (computing + telecommunications), along with the expansion of means of transportation and access to them, have significantly contributed to the *universalization* of culture and a broader consensus on a constellation of basic values that surpass national, ethnic, linguistic, or religious divisions. As Morgenthau pointed out over two decades ago, "When we say that this is 'One World,' we mean not only that the modern development of communications has virtually obliterated geographical distances with regard to physical contacts and exchange of information and ideas among the members of the human race. We mean also that this virtually unlimited opportunity for physical and intellectual communication has created that community of experience, embracing all humanity, from which a world public opinion can grow" (Morgenthau and Thompson 1985).

World studies of values carried out by Inglehart (one of the authors in the present book) over the last three decades document a significant process of convergence in the structure

3
All of these changes are the basis for an area of study halfway between economics, international relations, and sociology called *Gobal Political Economy* (Gill and Law 1988).

4
See Maier (1997) and Zelikow and Rice (1997).

MANY OF THE "LOCALLY" OR "REGIONALLY" GENERATED PROBLEMS CAN BE FELT ALL OVER THE PLANET. AND YET THAT DOES NOT IMPLY THE EXISTENCE OF A SINGLE, HOMOGENOUS, AND MONOLITHIC WORLD.

of individual values in large areas of the globe, overlapping divisions that organized and sometimes violent minorities seek to maintain on the basis of religious-moral credos (Inglehart *et al*. 2004).

But not all variables point to the constitution of a global community and polity. Morgenthau himself pointed out important limitations that we are still largely bound by: "Those who believe that world public opinion is the direct result of the free flow of news and ideas fail to distinguish between the technical process of transmission and the thing to be transmitted."

There are still societies or countries in which the principles of "traditional authority" continue to predominate over those of a "secular-rational" character (to use Inglehart's term), blocking the development of democracy, the market, and individual freedoms and rights. Another relevant obstacle to the construction of globalization's institutional structure on balanced foundations is the obsolescence of our ethical repertoire, which must be adapted to face the global problems of today, especially poverty and environmental management on a planetary scale, as has been pointed out by another of the authors of this book, Peter Singer (Singer 2009).

While a technological vector driving globalization and "remote presence" anywhere on the planet does exist, it is impossible to ignore the simultaneous presence of vectors in the opposite direction: national political controls and barriers and the cultural coordinates of a world that is still partially fragmented lead to different conclusions about what are, prima facie, the same items of information. These dissimilar experiences underlying how the "same" information is "read" or "interpreted" illustrate the difficulties involved in the development of global public opinion and the maintenance of the sort of radically opposing "worldviews" that eventually lead to the grave problem of global terrorism—a terrorism of unprecedented shape and scale that has emerged with the brutal attacks of September 11, 2001, March 11, 2004, and July 7, 2005 (in New York, Madrid, and London, respectively).

In sum, while much ground has already been covered and some of the dividing lines have faded, there are still too many major challenges to be resolved before the slogan "a single world" definitively displaces the duality to which Alfred Sauvy's trilogy has been reduced: the *first world* of highly developed and democratic countries, the *second world* of the socialist regimes (which have practically been extinguished), and the *third world* of underdeveloped nations.

In the final analysis, the fundamental barrier is the lack of correct understanding of our new reality, a failure on the part of public and private agents to the integrate facts and data on globalization into their mindscapes. Helping to correct these deficiencies should become a systematic objective of sciences—in particular, of social sciences.

In this sense, the modeling of what is global, which grew during the 1970s and 1980s, is receiving renewed attention with the advent of more powerful computers and conceptual and statistical algorithms and tools, as well as present-day economic models and sociological and political theories. While global models of climate change are now subject to mass media attention, there is less public awareness of the efforts of the pioneers of global modeling, to whom we must pay at least brief tribute.

The 1970s and 1980s saw a considerable development of "world" or "global" models based mainly on systems methodology. This generation of models had three characteristics that continue to be necessary today: a globalizing or all-encompassing character, a projection into the future (medium and even long-term), and a practical-technological vocation (furnishing instruments for changing policies and constellations of values in the present in order to prevent the occurrence of regional or global catastrophes).

Among these first-generation models, we should mention the Rome Club studies, *World Dynamics* and *The Limits to Growth.* The second report to the Rome Club, M. Mesarovic and E. Pestel's *Mankind at the Turning Point* (1974), contributed to the spreading of a "global" sensibility in public opinion, transcending systems with national coordinates but also establishing "regional" distinctions. In other words, correcting the excessively uniform view of the planet presented in the first report. The trends estimate undertaken by Mesarovic and Pestel's *World Integrated Model* (WIM) was based on two postulates: firstly, that human societies are subsystems of a worldwide "totality," notwithstanding its conservation of identity in "regional" frameworks or aggregates; and secondly, that the world had reached "the current condition in which nations and regions around the globe are not only mutually influential, but also strongly depend on each other. The new global problems characteristic of our current era, such as worldwide dependence on shared amounts of raw materials, energy and food sup-

ply problems, the shared use of the physical environment on land, sea and the atmosphere, etc., as well as traditional political, ideological, and economic ties, have contributed to this transition. The world community seems to be a 'system,' by which we mean a group of interdependent parts rather than a group of practically independent entities as in the past." Consequently, many of the "locally" or "regionally" generated problems can be felt all over the planet. And yet that does not imply the existence of a single, homogenous, and monolithic world, as the facts clearly show.

The methodological caution of early modeling efforts must be maintained today, in a context where an excessive emphasis on the standardizing tendencies of globalization can hide the existence of both "local" processes and structures with high "degrees of freedom," and their mutual interaction.

New knowledge offered by the environmental and social sciences, along with the formidable power of current statistical and computational instruments, should foster a greater understanding of global dynamics, offering robust frameworks that can be carried over to the sensibilities of the citizenry and the worldviews of public decision makers. Specifically, one of our Foundation's initial guidelines will be support for multidisciplinary research and dialog on the questions of global society.

GLOBALIZATION AND CRISIS: TOWARDS A NEW DYNAMIC OF GLOBALIZATION?

As we have seen, globalization is not, strictly speaking, a new phenomenon, although in our time it has reached a previously unknown magnitude. Nor are financial crises anything new; they are as old as money itself. And ever since financial systems reached a certain level of development they have invariably manifested characteristics that Minsky (1972) described as "abrupt drops in the price of assets (financial and/or real), bankruptcies of companies (financial and/or non financial ones), deflation (or rapid disinflation), and strong perturbations in foreign exchange markets." Those elements can combine in different forms and proportions.

Financial crises are actually quite common. In his now classic *Manias, Panics & Crashes* (1978), Charles Kindleberger lists over 30 significant crises in Western Europe and the United States in the two centuries between 1729 and the Great Depression. One of the first analyses of the Asian crisis (IMF 1998) pointed out that between 1975 and 1997 there had been some 240 financial crises in different countries around the world.

Despite the considerable frequency of such crises (around 20 a year) at a time when globalization is rapidly advancing, there is no evidence (Bordo *et al*. 2001) that globalization "causes" crises. There is, however, abundant evidence that it favors their expansion or contagion and multiplies their impact. But that is inevitable since, as historian Niall Ferguson concluded: "Globalization is about connectivity and integration" (Ferguson 2003).

If today's high degree of globalization is a key to explaining the virulence and breadth of the current crisis, then it makes sense to ask what effect this crisis will have on the globalization process.

That is the question addressed by Raimo Väyrynen and Jordi Canals in their contributions and it also underlies other articles in the present book. Nevertheless, in this introduction I would like to offer a few observations based on my experience at the helm of a transnational bank, that is, as an active agent for globalization in an industry at the heart of the crisis and deeply affected by it.

Many analysts hypothesize that the crisis will signify a strong step backward for globalization, as occurred with the Great Depression in the 1930s.

Of course there is already proof that the crisis has had a strongly negative initial impact: international financial flows have dwindled and, for the first time in many years, the volume of international trade shrank in absolute terms in 2008 and will continue to do so in 2009.

There is also a noticeable increase in protectionism: various countries are applying different tariffs and authorities in many places have called for the consumption of "national" products.

The difficulties experienced by some large multinational companies due to the crisis have triggered other political reactions to favor national interests over foreign ones: support for banks on the condition that credit increases within the country, help with industrial restructuring in order to shift factory closings and/or cutbacks in the workforce to other countries, etc.

Definitively, national political influence has gained much greater weight among transnational companies, and that phenomenon is most significant in the banking sector. Today, governments participate in the capital of banks that

represent over 75% (in the US) or 40% (in Europe) of the capitalization of the sector before the crisis. This state power is reinforced by other public aid mechanisms that do not involve public ownership but nevertheless constitute very powerful instruments of control.

Moreover, many geopolitical analysts are worried by growing global instability stemming from the worsening of general economic conditions and the weaknesses of the United States and other developed Western countries, which have been brought out by the crisis.

Even before the crisis, despite extraordinarily favorable economic conditions, globalization was the object of strong criticism in certain sectors of opinion and the crisis has given new force to its adversaries.

Still, there are also reasons to think that this wave of globalization is different than earlier ones: there are differences in the absolute and relative volumes of international loans, trade, and investment flows, as well as in the magnitude and degree of integration of financial markets, the number and proportion of people living and working in foreign countries, and so on.

Even more relevant are the qualitative differences, which I can sum up in two fundamental aspects:

Firstly, the existence of organizations and mechanisms for international coordination that, no matter how imperfect or insufficient, help govern international financial and economic activity. In fact, unlike what happened during the Great Depression, in the present crisis different countries have reacted decisively and their fundamental actions have been coherent on a global level.

Secondly, and certainly more importantly: this is the globalization process that has spread throughout the world with the greatest speed, breadth, and depth.

Globalization has had a transforming effect on the economy, culture, and society with unprecedented intensity and speed. Global prosperity over the last twenty years, with high, sustained growth almost worldwide, has a common denominator: the participation of a larger number of countries in the global economy and their integration in international trade and financial flows.

Globalization has contributed to improving the living conditions and opportunities for prosperity of many world citizens, bettering health, education, and, in the broad sense, the spread of information and knowledge, as has even been recognized by fierce critics of globalization, such as Joseph Stiglitz: "Globalization has given many people in the developing world access to knowledge well beyond the reach of even the wealthiest in any country a century ago" (Stiglitz 2003).

Over the two decades before the crisis, the percentage of people living in extreme poverty (less than one US dollar a day) in developing countries has been cut in half. And those areas where poverty has not dropped (especially sub-Saharan Africa) are precisely those where globalization has been least present. In that respect, see, for example, Dollar and Kraay (2002 and 2004).

Even more differentiation can be seen in the fact that globalization has become "individualized" thanks to the telecommunications revolution and computing. The Internet has become a "personal" tool to integrate the life of each individual into a universe of information, contacts, and possibilities for developing all sorts of activities. This is no longer a mere economic change, it affects culture and many ways of life, making the present process of globalization far more rapid, complex, and uncontrollable than any previous one.

Nowadays, globalization is such a multiform process, with such a broad base and such depth that no political force in the world is able to "shield" its society from external influences.

Now, this process that offers so many opportunities is not without its risks. One is undoubtedly a greater risk of contagion and another is the greater speed with which crises can spread, thus broadening their impact with the ensuing aftereffects such as recession, increased poverty, and inequality.

And cultural and social changes occurring over very different bases and at different speeds in different parts of the world also increase the possibility of conflict.

In this context, globalization fosters the spread of problems on a scale that no country or organization can address single handedly: climate change and the deterioration of the environment, nuclear proliferation, illegal immigration, organized crime, terrorism, and pandemics.

Therefore, the most adequate reaction to the crisis is not to combat globalization nor to passively accept its unwanted consequences, but rather to try to develop policies that make it possible to strengthen its advantages and prevent or limit its negative impact.

First and foremost, we need to manage our emergence from the crisis in the best possible way for everyone. And we must build the foundations for an economic and financial order less vulnerable to imbalances—one that will allow sustained and high levels of growth while articulating solutions to major global problems.

As we emerge from the crisis, it is essential that international organizations—especially the G-20, but also the multilateral institutions (IMF, WTO, etc.) avoid acts that would hinder commercial integration. Economic stimulus programs and national aid to companies or sectors must be sufficiently coordinated to avoid "beggar-thy-neighbor" exchange programs that encourage competitive devaluations and exacerbate currency instability. No less important is the coordination of "exit strategies" (returning interest rates to more "normal" levels in the middle and long terms and a gradual correction of the enormous fiscal deficits that are being generated).

As to the major global questions mentioned above, this book offers a broad and authoritative spectrum: Loayza focuses on the fight against poverty; Broecker, Lovejoy, and Laurance address climate change and environmental deterioration, while Tomlinson, Gumbrecht, Inglehart, and Singer bring different viewpoints to the complexity of our time's cultural, religious, and ethical values.

Facing all these questions demands, in turn, better and more participative mechanisms for designing and applying solutions, that is, a renewal and strengthening of schemes for global government. In this volume Scholte offers an ambitious proposal.

The configuration of the G-20 as the main forum for discussing global subjects has been an important step. But this is only a first step in a long, difficult path towards a new global order that will have to function on the basis of a very complex multilateralism, balancing "global" interests with national ones, and with those of many other geographic or delocalized networks being generated by "virtual" civil society. One of the fundamental characteristics of globalization, as Dicken points out in his essay for this book, is that, far from "flattening" or simplifying the world, globalization creates multiple relevant geographies, some of which are supranational, others subnational—though highly globalized—such as global cities, to which Saskia Sassen dedicates an essay in this volume. In this context, it is only possible to move forward on the basis of recognizing interdependence, respect for all parties, and work for the common good.

Changing attitudes, values and strategies at a geopolitical level will only be sustainable and will only lead to positive results if they coincide with equally profound changes in the attitudes, values, and strategies of the leading private agents of globalization, that is, large transnational companies, including banks.

GLOBALIZATION, CRISIS, AND CHANGE IN THE FINANCIAL INDUSTRY

A very important chapter of the immediate global agenda concerns the financial industry in general and the banking sector in particular.

This is so because the financial sector is a fundamental motor for development, making outstanding contributions to growth and improvements in global wellbeing in recent decades. And also, unfortunately, because the financial sector has played a fundamental role in the genesis and development of the crisis.

Many financial institutions have certainly committed grave errors in their analysis and control of risk, leading to what has clearly been excessive leveraging; greed and the desire for large short-term profits have taken the fore, often fostered by incorrectly designed incentives.

But all of this was possible because, at the same time, there were serious errors in the regulation and supervision of financial entities.

And, of course, very important errors of judgment in macroeconomic policies: it should have been obvious that a long period with extraordinarily low interest rates, rapid growth of liquidity, and the accumulation of balance of payment imbalances would lead, at some point, to very grave problems.

None of this is new: it would be hard to find a crisis in which there were no imprudent financial intermediaries, insufficient or inefficient regulation and supervision, or errors of microeconomic management.

But this crisis had a key differential factor: the very high degree of internationalization (globalization) of the financial industry, which led, among other things, to an elevated exposure of many banks around the world to a set of assets that turned out to be highly "toxic."

The fall of those assets' prices on the market triggered a vicious circle that constitutes what we could call the first phase of the crisis: losses led to decisions to sell those assets but the lack of liquidity made this impossible. That, in turn,

even farther depressed the prices of toxic and also some non-toxic assets, further increasing losses and lack of liquidity. The final outcome was the global "credit crunch" that is the main factor triggering this recession, the worst in the last seventy years.

The danger of a generalized banking crisis with devastating effects for the global economy was the first concern for authorities all over the world. Their reaction has been rapid and unprecedented it its forcefulness: we have seen drastic cuts in official interest rates, massive injections of liquidity, a generalized extension of deposit guarantees, and substantial public reinforcement of the capital of many entities, some of which had to be rescued in extremis.

All of this prevented the collapse of the international finance system, marking the end of the first part of the crisis.

We now find ourselves in the second "economic" phase, in which the predominant negative effect is the recession's impact on banks in the form of a drop in activity and, most of all, a deterioration of the quality of their credit portfolios, with a sustained increase in defaulted loans.

We are now looking at a greatly weakened global financial system that is facing a very unfavorable economic situation. Right now, cyclical indicators show the beginning of a recovery, but this recovery is of very uncertain size and duration, given the global economy's accumulated imbalances—especially high public deficits and an enormous volume of public debt, mainly on the part of developed nations.

This is the setting in which the global financial industry will have to deal with the third, essentially "banking," phase of the crisis: a radical transformation to adapt to the profound industrial and technological changes that have taken place in recent decades.

Technological advances have affected all industries, but their most disruptive effects are in those whose "products" are susceptible to digital storage, processing, and transmission.

We have, for example, seen important changes in the automobile industry over the last two decades, but its products and its production and distribution processes remain essentially unchanged. Let us compare this to what has occurred in the music industry, where the last five years have seen a revolutionary shift from DVDs sold in stores to Spotify, which allows access at any moment to an almost infinite variety of recordings for less than what an hour of music used to cost.

Of course the banking industry's product is much closer to that of the music industry: its raw materials are money and information, both of which can be reduced to bits (in the case of money, this is called "book entries") transmitted instantaneously at almost no cost.

And yet, if we look at banking's distribution processes—especially those of retail banking—we find them much closer to those of automobiles than to those of music. Banks still depend on networks of physical offices distributing products and services whose uniformity makes them practically identical for all clients. Of course there are remote channels, but they are used mostly for carrying out everyday transactions and, to a much lesser degree, for selling "commoditized" products and services.

In banking today, there is potential for incalculable gains in efficiency (and thus in price), in convenience for customers, and in the possibility of personalizing products to meet specific needs.

Until now, this transformation has not taken place for a variety of reasons, including specific regulation of banking and the sector's own burgeoning profits in recent years. Now, however, it will be inevitable: firstly, because at any moment a financial business model could appear on the web with absolutely disruptive effects for the banking sector and, secondly, because the financial crisis itself has changed, and will continue to change, the status quo.

Moreover, a predictably lower growth rate to that of the past decade (even when the global economy recovers) and a tendency towards more rigorous regulation—especially requirements affecting capital and backup, consumer protection, etc.—will tend to reduce growth and profitability in the financial industry. This context makes a radical improvement of the industry's efficiency levels even more necessary.

Part of that improvement may come from consolidation of the sector, as there is, in fact, a significant excess of installed capacity in the global banking system. This has been clearly brought out by the crisis, whose effects have already begun to correct it.

But this will only lead to limited improvements in efficiency. It therefore becomes essential to move the industry towards a much more technology-based model that will radically lower production and distribution costs.

This will be a difficult transformation but its success will be of fundamental import because the construction of a more robust, efficient, and

"inclusive" global financial system is essential not only for recovery after the crisis but also for a sustained improvement in wellbeing for people all over the world.

What can authorities do to favor this result?

Clearly, over the next few years we will be advancing in the direction of greater regulation and control of financial activity. I believe this is justified, given the problems generated by the extremely permissive atmosphere of recent years and its ensuing cost to taxpayers of many of the world's countries, and to global growth and wellbeing.

But it is most important that there be better regulation rather than just more of it. In my opinion, there are three fundamental needs:

Firstly, that the requirements imposed by regulation and supervision be sufficiently uniform and coordinated on an international level.

Secondly, that government decisions, as well as those by regulators and supervisors, promote, or at least do not hinder, the consolidation of the industry, as this is a necessary condition—though not sufficient by itself—for attaining a more efficient and stable global financial system.

Thirdly, we must make sure that incentives are aligned with value created in the middle and long terms.

Public policies and regulations will be an important element in determining the future of the banking industry, but the decisive factor will be the behavior of civil society (which includes finance companies themselves).

LOOKING AHEAD: VALUES AND INNOVATION IN BANKING FOR PEOPLE

Until now, all large transnational companies, including banks, have prospered in a world characterized by three basic elements: technological advance; the growing power of increasingly well-informed consumers; and increasingly global markets that nevertheless coexist with by very different regulations, cultures, and social structures (what Ghemawat calls "semiglobalization").

The success of those companies has rested on their capacity to efficiently manage those three elements to create more value.

The crisis has raised new elements of uncertainty about how the globalization process will evolve, and thus about how company strategies should be adjusted.

In this book, Pankaj Ghemawat's article focuses on this question. And if I can add anything it will be on the basis of my direct experience in the banking field, a sector with significant peculiarities that nevertheless represents an industry in the process of accelerated globalization whose competitive and operating conditions have been especially altered by the crisis.

Banking activity is based on client trust. This is also the major competitive advantage of banks over possible newcomers to this business, mainly those companies capable of constructing alternative models free from the "legacies" of banks, which makes them much more agile and efficient.

Client trust is reflected in the information about themselves that they allow banks access to. Using increasingly sophisticated technology, banks can turn this information into knowledge that, in turn, can be used to offer clients solutions to a widening range of needs—solutions that are better, that is, more opportune, convenient, and adapted to their personal conditions.

This means that trust is at the base of banking today and it provides the leverage for its transformation.

But the same clients that have historically placed their trust in banks have grown increasingly demanding because they are aware that banks have more information and more capacity to exercise the power that comes with such information. Technology offers enormous possibilities for coordinating the actions of people who can now exercise much more powerful activism. In that sense, maintaining our users' trust increasingly requires not only quality products and services, but also a good reputation in ethical terms.

All companies must be managed within an increasingly demanding framework of ethical principles and values. But this demand is especially important for banks. The inexcusable behavior of many banks and bankers during the recent crisis, and the enormous cost this behavior has generated for the general citizenry have eroded the reputation of the entire sector.

Banks and bankers need to take a hard look at themselves. Concepts such as ethical values, transparency, prudence, awareness of social problems, and sustainability must become an integral part of the culture, strategies, and daily management of banks. They must also be a key vector in internal and external communication.

This will require revising certain basic aspects of the paradigm of banking activity, beginning with the very concept of "value created for shareholders" as the final objective and

CONCEPTS SUCH AS ETHICAL VALUES, TRANSPARENCY, PRUDENCE, AWARENESS OF SOCIAL PROBLEMS, AND SUSTAINABILITY MUST BECOME AN INTEGRAL PART OF THE CULTURE, STRATEGIES, AND DAILY MANAGEMENT OF BANKS. THEY MUST ALSO BE A KEY VECTOR IN INTERNAL AND EXTERNAL COMMUNICATION.

yardstick for management. The views of other stakeholders must be included, as must a greater consideration of the long-term interests of shareholders.

Corporate government, incentive and bonus schemes, as well as the contents and forms of interaction with society also need a profound revision.

Along with these values and their application to banking activity and communications, innovation should also be a key element in the new banking paradigm. None of the above will make any sense if banks are incapable of drastically improving the service they offer to their clients and to society as a whole. Banks must understand and use technology intelligently to generate useful solutions that satisfy peoples' needs.

The transformation of banking during the third phase of the crisis mentioned above will be what allows banks to help their markets expand. Only with superior technological capacity and a degree of efficiency that far surpasses present levels will banks be able to offer new products and services to their clients, as well as furnishing services to those—over 80% of the world's population—for whom current models of conventional banking are unaffordable.

This great leap forward will also require values and innovation, an absolute focus on people.

Banks need technology, but they also need the talent of people who can configure a new organizational and cultural model centered on the people that are its clients. They need people capable of understanding the cultural differences, habits, and interests of others all over the world. The transformation of banking will only be achieved through a search for the talent, diversity, and flexibility needed to understand differences and adapt to them.

Some of these paradigm shifts are already under way; others have yet to be precisely formulated. The most important thing is to understand that the banking industry is not facing a mere financial or technical adjustment; it is at a philosophical crossroads.

All of these changes represent a formidable threat to existing banks, but also a great opportunity for those that emerge from the crisis with sufficient financial solidity and, most of all, capacity and will to adapt and innovate.

At BBVA we are determined to be a part of the latter category. For the last five years we have been following a strategy based on three pillars (principles, people, and innovation). We are working to construct a bank with values, one capable of creating value in a sustained manner, generating and offering useful, real innovations to people.

This strategy is what sets our behavior apart from most of the sector in the midst of the crisis; and it is what underlies our effort to take the lead in transforming the banking business into a much more efficient model that brings far more value to people and to society as a whole.

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QINGSONG WANG ▸
COMPETITION. 2004

THE WORLD IS "NOT" FLAT: THE INTENSE GEOGRAPHICAL UNEVENNESS OF GLOBALIZATION

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WHAT IN THE WORLD IS GOING ON? GLOBALIZATION AS MYTHOLOGY

Globalization is everywhere—or that is how it seems. A Google search on the topic reveals around 28 million entries! Hardly a day goes by without it being invoked by politicians, by academics, by business or trade union leaders, by journalists, by commentators on radio and television, by consumer and environmental groups, as well as by ordinary individuals. However, although it is a concept whose roots go back at least to the nineteenth century, notably in the ideas of Karl Marx, it has only been in the last twenty five years or so that globalization has entered the popular imagination in a really big way.

The explosion of interest in globalization reflects a pervasive feeling that something fundamental is happening in the world; that there are lots of big issues that are somehow interconnected under the broad umbrella term of globalization. Such feelings of uncertainty are intensified by an increased awareness that what is happening in any one part of the world is deeply—and often very immediately—affected by events happening in other parts of the world. Most recently, for example, a crisis originating in an obscure financial market (the US sub-prime housing market) spread almost instantaneously to far distant places to create the worst global economic crisis for many decades. Nowadays, we hear about events on the other side of the world virtually as they happen—in real time. But also many of the things we use in our daily lives are derived more and more from increasingly complex geographies of production, distribution, and consumption, whose scale has become, if not totally global, at least vastly more extensive, and whose choreography has become increasingly intricate. Many products, indeed, have such complex geographies—with parts being made in different countries and then assembled somewhere else—that labels of origin no longer have much meaning.

Unfortunately, although globalization has become one of the most widely used, it is also one of the most misused and one of the most confused terms in current circulation. Indeed, it has spawned a plethora of universalizing myths about what is supposedly happening. As Strange (1995, 293) argues, it is too often "used by a lot of woolly thinkers who lump together all sorts of superficially converging trends… and call it globalization without trying to distinguish what is important from what is trivial, either in causes or in consequences." Among the most egregious of the many globalization myths that continue to circulate are those relating to its geography, in particular, the claims that we are experiencing "the death of distance" and "the end of geography." According to Friedman (2005) "the world is flat"; according to Ohmae (1990) the world is now "borderless."

Such claims undoubtedly contain a grain of truth. Technological innovations in transport and communications have, indeed, compressed time-space. But although the world has shrunk in relative terms, such shrinkage has been, and continues to be, highly uneven. While the world's leading national economies and the world's major cities are being pulled closer together in relative time or cost terms, others—less industrialized countries or smaller towns and rural areas—are, in effect, being left behind. The time-space surface is highly plastic; some parts shrink whilst other parts become, in effect, extended in relative terms. By no means everywhere benefits from technological innovations in transportation. In that sense, the world is certainly not flat.

The same may be said about developments in communications technologies, arguably the key technologies transforming global economic relationships. Technological developments in satellite and cable technologies have dramatically transformed the relationship between geographical distance and the cost of transmitting and receiving information. However, as in the case of transport innovations, not all places are equally connected and nor are they likely to be. New investments in communications technology, as in transport technology, are primarily market-related; they go to where the returns are likely to be highest. The cumulative effect is to reinforce both certain communications routes at the global scale and to enhance the significance of the nodes (cities/countries) on those routes. Even the Internet has a very uneven geography (Zook 2005). It is certainly not flat.

Similar conclusions need to be drawn about the idea of a "borderless world." Although there has certainly been a progressive lowering of political barriers to the flows of commodities, products, and finance (though far less to flows of people), national borders remain immensely significant. Not only has there been a major increase in the number of states in the past twenty years but also states themselves continue to be major actors in the global economy: as containers of distinctive institutions, practices, and cultures; as regulators of economic activities within and across their territories; as competitors and collaborators with other states, in the latter case

TECHNOLOGICAL INNOVATIONS IN TRANSPORT AND COMMUNICATIONS HAVE, COMPRESSED TIME–SPACE. WHILE THE WORLD'S LEADING NATIONAL ECONOMIES AND THE WORLD'S MAJOR CITIES ARE BEING PULLED CLOSER TOGETHER IN RELATIVE TIME OR COST TERMS, OTHERS ARE BEING LEFT BEHIND.

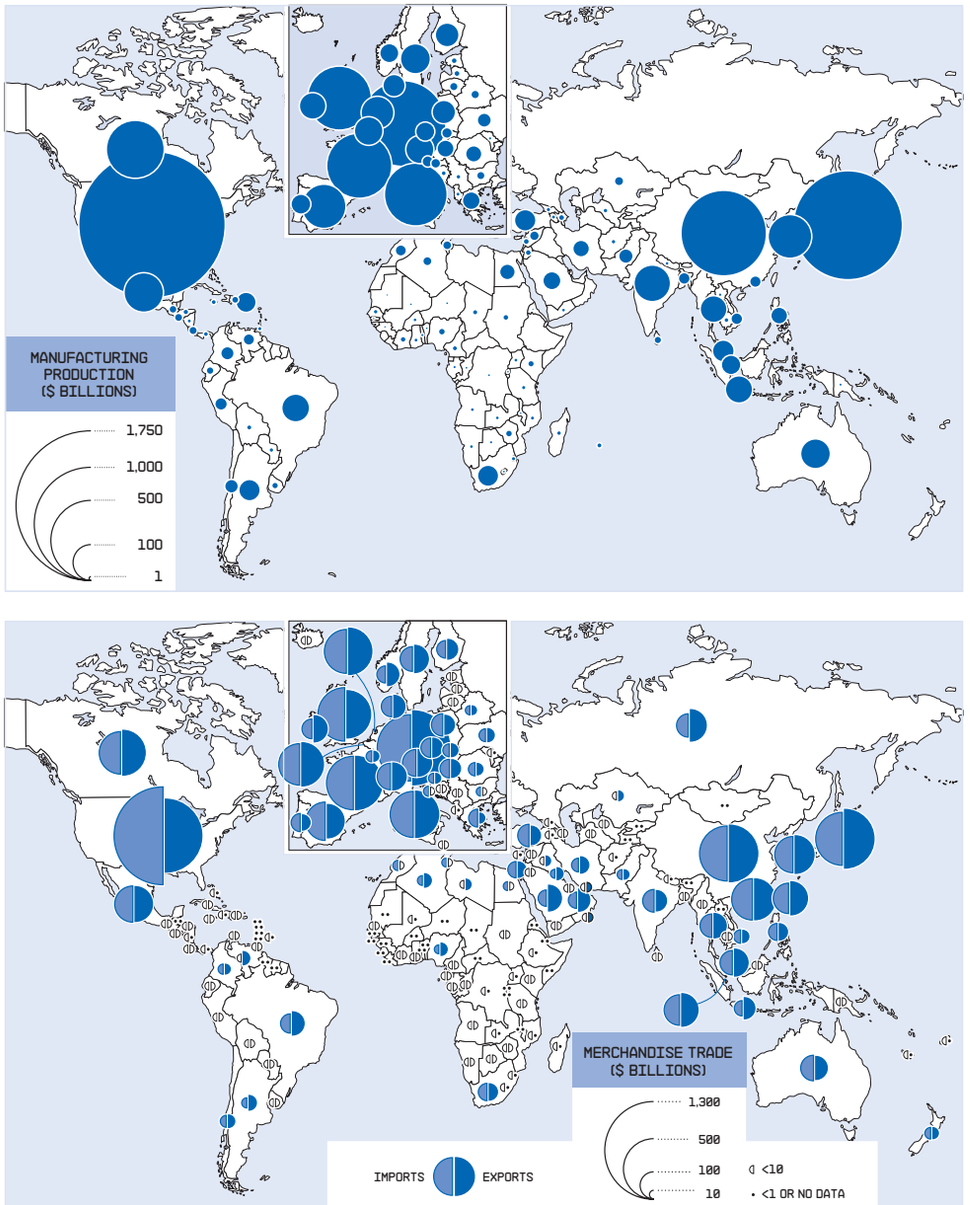


FIGURE 1

The global maps of manufacturing production and trade.
Source: Dicken 2007: Figures 2.6 and 2.12.

within international governance institutions (like the IMF and the WTO) as well as in regional economic groupings like the EU, the NAFTA, and ASEAN. State boundaries, therefore, act as major discontinuities on the global economic map. The world is emphatically not borderless.

Such myths as the flat/borderless world are, therefore, indeed myths. Unfortunately, they represent very powerful discursive images that play a highly influential role in the ways in which key economic and political actors make decisions that affect all our lives. But they are wrong. Globalization does not mean the end of geography. In a very real sense, globalization *is* geography. It consists of a whole syndrome of processes (economic, social, cultural, political) that occur in highly uneven and geographically differentiated forms. It involves both a stretching and an intensification of processes and relationships across a spectrum of spatial scales, which are, themselves, being continuously reconfigured through processes of spatial switching (at the same geographical scale) and scalar switching (as processes are switched between different spatial scales). Globalization, in fact, is both a product and a creator of multiple geographies of immensely complex and dynamic scalarity (Dicken 2007).

GEOGRAPHIES OF ECONOMIC GLOBALIZATION

I use the term "geographies" deliberately because the map we see depends fundamentally on the geographical lens we use. Taking a long shot, we see the dominance of what has been called the "triad": the concentration of economic activities in the three world regions of North America, Europe, and East Asia. Taking a close-up shot, we see a highly differentiated mosaic of individual cities and localities. The default scale in most analyses of the global economy is somewhere in between these two because it is only at the national scale that comprehensive data on production, trade, and investment are produced. But there are other intermediate scales at which distinctive geographies can be identified; for example, clusters of economic activity that are aligned with national boundaries and where the scale and type of economic activity is actually defined and created by the existence of the political boundary itself. Examples of such trans-border clusters include the US-Mexico border.

THE NATIONAL SCALE

Figure 1 shows the highly uneven geographical distribution of manufacturing production and trade, while Figure 2 shows an even greater unevenness in foreign direct investment (FDI). Around four-fifths of global manufacturing and services production, and almost two-thirds of world agricultural production, are concentrated in just fifteen countries. Between one-fifth and one-quarter of world trade in goods, services, and agriculture is accounted for by the leading two countries in each sector. The picture is similar in the case of foreign direct investment: almost 90% of outward FDI stock originates from 15 countries; the leading two source countries—the United States and the United Kingdom—account for one-third of the world total. More than half of all the inward FDI in developing countries is concentrated in just five

host countries; almost one-third is concentrated in China (including Hong Kong) alone.

Although the United States remains the dominant presence on the global map, its relative significance has declined markedly as new competitors have emerged. In particular, the United States' share of world merchandise exports has fallen from 17% in 1963 to around 8%. At the same time, its share of world merchandise imports has surged from less than 9% to almost 15%. As a result, the United States has an enormous merchandise trade deficit. Europe, as a region, is the world's biggest trading area. However, despite being the most politically integrated region in the world, the European economy is actually very diverse, experiencing highly uneven rates of economic growth over the past two decades. In recent years Europe's economic geography has become even more complicated—and made far more uneven —by the emergence of the "transitional economies" of Eastern Europe, following the collapse of the Soviet system in 1989.

The United States and Europe made up the core of the global economy for many decades. But their position is clearly under threat. Without any doubt, the most significant global shift in the geography of the world economy during the past forty years has been the resurgence of East Asia. This resurgence reflects several processes: the rise of Japan after World War Two; the rapid growth in the 1980s of the Newly Industrializing Economies of Hong Kong, South Korea, Singapore, and Taiwan, followed by the emergence of a "second tier" of East Asian developing economies.

The most recent—and potentially the biggest—development within East Asia is, without question, the (re-)emergence of China. China has rather suddenly become a hugely significant presence in the global economy. Between 1980 and 2006, China's growth rate (of GDP as a whole and of manufacturing) was the highest in the world: annual average rates of around 10%. Its average annual rate of growth of merchandise exports was 13% in the 1980s and 14% between 1990 and 2006. As a result, China is now the world's fourth largest manufacturing producer, the second largest agricultural producer, the second largest exporter of merchandise (having overtaken Japan) and the world's third largest importer. Despite all the current hype, India lags far behind China in most respects, although it has huge potential for development.

In contrast, the story of Latin America is largely one of unfulfilled potential. Latin American countries are among the most resource-rich in the world. Several also have a long history of industrialization. Some, like Brazil and Mexico are, in population terms, very large indeed. And yet, most of the Latin American economies have not figured very prominently in the redrawing of the global economic map. Certainly, their modest economic performance contrasts markedly with that of East Asia. None of these countries punches its weight as exporters; over the past twenty years,

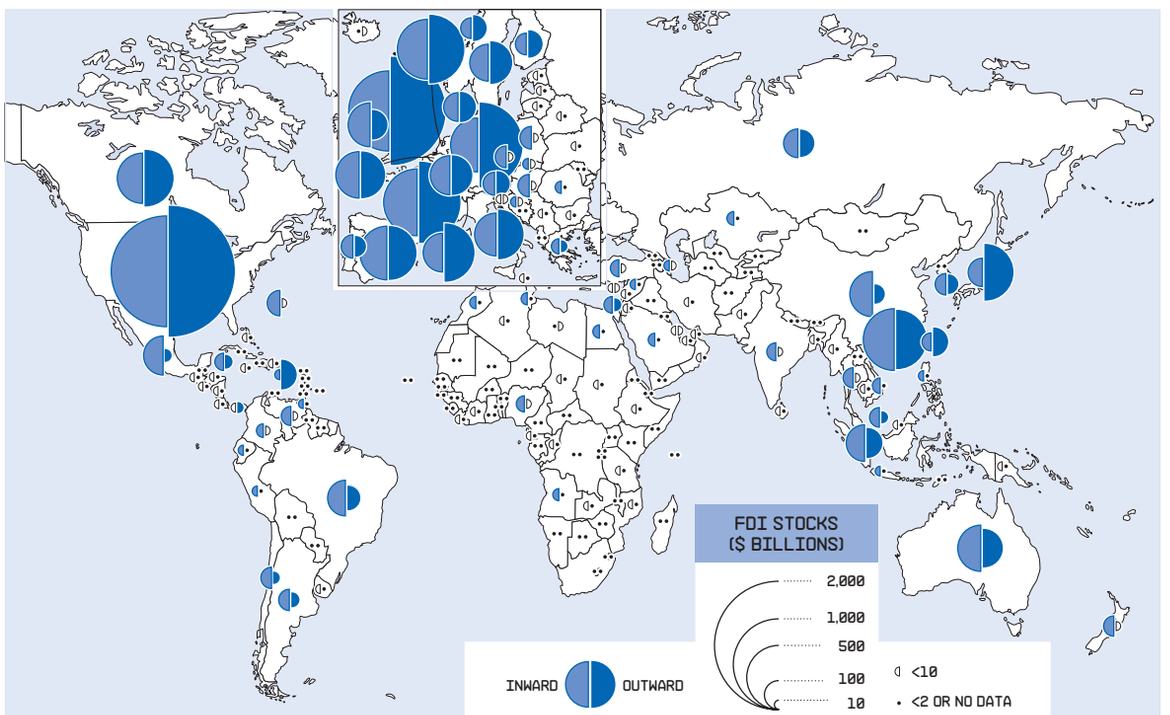


FIGURE 2

The global map of foreign direct investment. Source: Dicken 2007: Figure 2.22.

ALL OF THE MAPS TELL MORE OR LESS THE SAME STORY: MOST OF THE CONTINENT OF AFRICA, PARTS OF ASIA, PARTS OF LATIN AMERICA CONSTITUTE THE "TROUGHS" OF THE GLOBAL ECONOMIC MAP.

their average export growth has been significantly lower than that of the East Asian economies.

Alongside the areas of strong, though differential, economic growth in the global economy—the peaks, as it were—are those parts of the world whose economic growth remains very limited. These are the "persistent peripheries." All of the maps tell more or less the same story: most of the continent of Africa, parts of Asia, parts of Latin America constitute the "troughs" of the global economic map. Sub-Saharan Africa, as is so often noted, is the largest single area of economic peripherality. These are the parts of the world enmeshed in the deepest poverty and deprivation and whose existence poses one of the biggest social challenges of the twenty-first century. The map of per capita income [Figure 3] shows in stark terms the extreme geographical inequality in the global economy.

THE MICROSCALE: CITIES AS THE FOCI OF ECONOMIC ACTIVITY

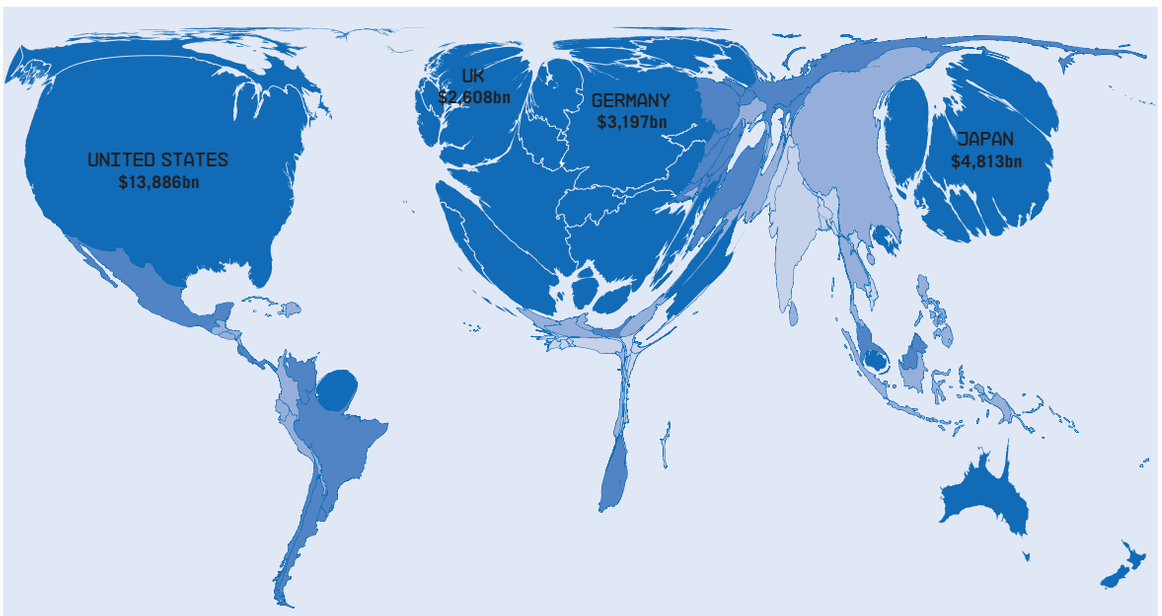
If we could observe the Earth from a very high altitude and look at its "economic surface" we certainly would not see the kinds of national economic boxes we have had to use as the basis of our analysis of the global economic map in the preceding discussion. Particularly if we were making the observation at night what we would see are distinctive *clusters*, picked out by the lights of localized agglomerations of activity. Unfortunately, data disaggregated in this way, showing details of production, trade, and investment, are simply not available. But it is vital to stress this most fundamental fact of economic life: *the place-specific and clustered nature of most economic activity.* The most widely available micro-scale indicator of the localized clustering of economic activity is the map of the world's cities [Figure 4], as virtually all manufacturing and business service activity is located in urban places.

It is these cities, and their associated local regions, which contain a nation's economic activity, not some national statistical box. Within any individual country, there will almost certainly be considerable diversity between cities/local regions, not only in terms of their particular economic specializations but also in terms of their growth rates. In most cases, this reflects their specific historical trajectory. In others, however, such differentials may be the outcome of very specific political decisions to develop one particular part of a country rather than another. In some countries, just one, or perhaps two, major cities dominate; in other countries there is a flatter urban hierarchy and a wider spread of activity among more evenly-sized cities.

Increasingly, however, it is necessary to think of cities as being involved in *global networks* that transcend national boundaries. "The city is embedded in a global economy.... All cities today are world cities" (King 1983, 7, 15). Cities differ in importance not only in terms of their population size but also—and more importantly—in terms of the functions they perform and the influence they exert. In particular, observers of world cities (Sassen 2001; Taylor 2004) emphasize the role of high-level service functions (financial and business services, in particular) and their uneven concentration in certain cities,

FIGURE 3

An uneven world: the geography of income. Source: Dicken 2007: Figure 4.1.



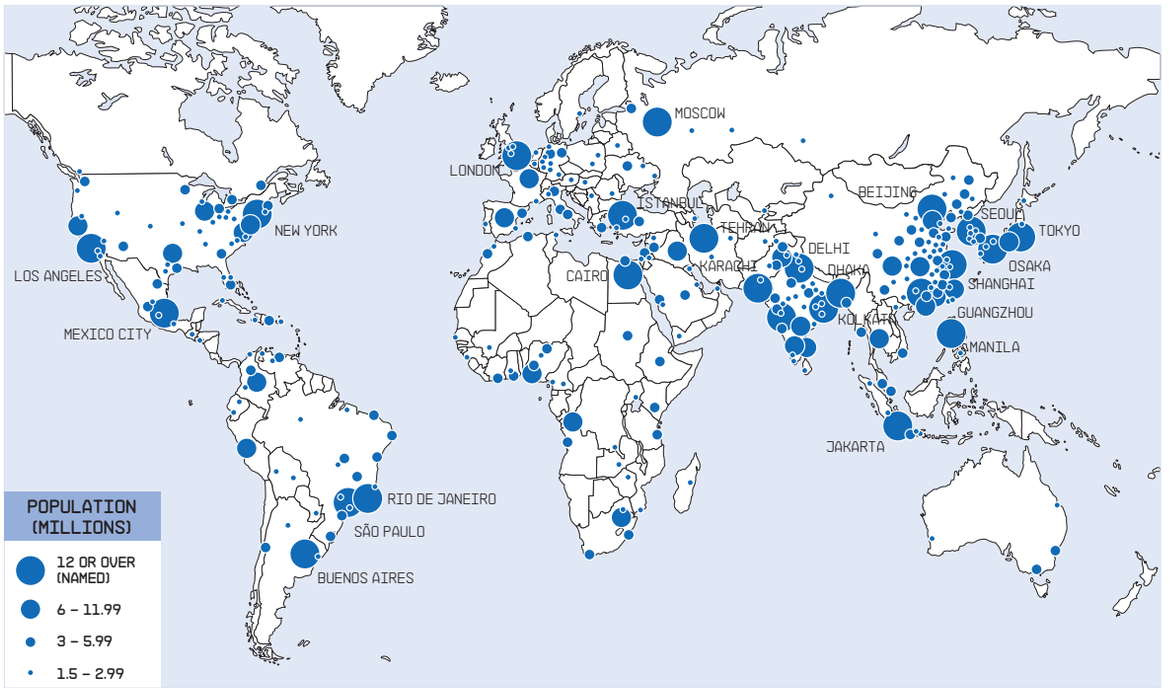


FIGURE 4

The world's major cities by size of population. Source: Dicken 2007: Figure 2.26.

creating a global hierarchical network. At this micro-scale, the world is not just flat; it is positively "spiky" (Florida 2005).

THE IMPRINT OF PAST GEOGRAPHIES

Figures 1 to 4 are merely snapshots at one point in time of what is, of course, a continuously evolving process of shaping and reshaping the global economic map. Old geographies of production, distribution, and consumption are continuously being disrupted; new geographies are continuously being created. But the new does not simply obliterate the old. On the contrary, there are complex processes of path dependency at work. What already exists constitutes the preconditions on which the new develops.

Today's global economic map, therefore, is the outcome of a long period of evolution during which the structures and relationships of one historical period help to shape the structures and relationships of subsequent periods. Traces of earlier patterns of geographical specialization continue to influence what is happening today. Over a period of three hundred years or so—from around the sixteenth century—a global division of labor developed, and intensified with industrialization, in which the newly industrialized economies of the West (led by the "Atlantic" economies, notably Britain, some Western European countries, and later the United States) came to constitute the dominant "core." Over time, of course, the situation became more complex and more geographically differentiated. Some core economies experienced a progressive decline to semi-peripheral status and new economies emerged, especially in the late nineteenth and early twentieth centuries.

The broad contours of this core-periphery global economic map persisted until the outbreak of the Second World War in 1939. At that time, manufacturing production remained strongly concentrated in the core: 71% of world manufacturing production was concentrated in just four countries and almost 90% in only eleven countries. Japan produced only 3.5% of the world total. The group of core industrial countries sold two-thirds of its manufactured exports to the periphery and absorbed four-fifths of the periphery's primary products. Since then, there has been a truly fundamental transformation of the world economy. A new geo-economic map has come into being, which, although bearing traces of the contours of the old map, is far more complex than it was even a few decades ago.

Geographically, the global economy has become increasingly *multi-polar*. New centers of production—new geographical divisions of labor—have emerged in parts of what had been, historically, the periphery and semi-periphery of the world economy. The most notable development is, of course, the (re-)emergence of Asia, and especially China, as the world's most dynamic region. In 1700, Asia's share of global GDP had been 62% compared with the West's 23%. By 1950 those positions had been almost exactly reversed: the combined GDP of Western

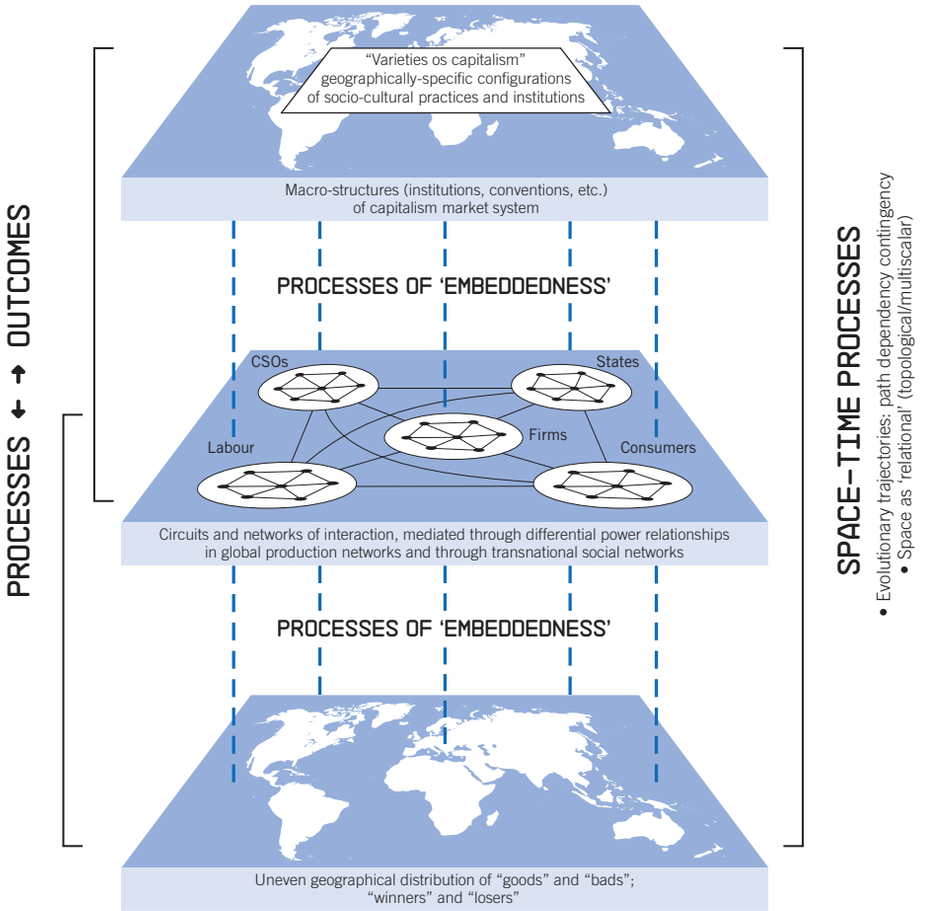


FIGURE 5

A synoptic geographical perspective on globalization actors and processes.
Source: Dicken 2007: Figure 1.3.

economies was almost 60%; that of Asia (including Japan) was a mere 19%. Much of this was due to the relative economic decline of China and India. In 1700, their combined share of global GDP was almost 50%; by 1950, it was only 9%. Today, it is on the way back up again at seemingly breakneck speed. At the same time, many parts of the world remain, to a greater or lesser degree, disarticulated from the engines of economic growth. The contours of the global economic map, therefore, depict a landscape of staggeringly high peaks of affluence and deep troughs of deprivation interspersed with plains of greater or lesser degrees of prosperity. "Not only is the world not flat: in many ways it has been getting less flat" (Stiglitz 2006, 57).

Today's multi-polar economic map displays two key tendencies. First, we can identify increasing *geographical dispersal*, as new centers of production, trade, and investment have emerged. But the extent of such dispersal remains relatively limited and extremely uneven. Globalization has not resulted in a universal evening out of economic activities. The second tendency, therefore, is the persistence of a high level of *geographical concentration*. Processes of localization of economic activities remain very powerful. Indeed, the clustering or geographical concentration of activities not only persists; it is the norm. Even such activities as financial services that, from a purely technological point of view, could be located anywhere, remain highly geographically concentrated in a small number of major global cities.

SHAPING THE MAP: UNRAVELING THE PROCESSES OF ECONOMIC GLOBALIZATION

In the previous section, we explored the changing contours of the global economic map, noting its immense geographical unevenness and temporal volatility. Such dynamic geographies of globalization are the outcome of extremely complex actions and relationships between economic, political, and social institutions and actors, all of which are deeply grounded and embedded in specific geographical structures. The nature of that grounding—the contexts in which they are created—is highly significant in influencing (though not determining) how such processes develop and how actors behave.

Figure 5 provides a synoptic perspective on the major actors and processes involved. It emphasizes the essentially networked nature of the global economy, one that conceives of economic processes (production, distribution, and consumption) in terms of connections of activities, linked through flows of both material and nonmaterial phenomena (like services) into circuits and networks.

INSTITUTIONAL MACRO-STRUCTURES OF THE GLOBAL ECONOMY

Of course, such networks do not exist in isolation. They are embedded within the broader macro-structures of the global economy as well as grounded in the prevailing geographical structures of the real world. The macro-structures of the global economy are the institutions, conventions and rules of the capitalist market system. During the past half-century or so a "thickening web of multilateral agreements, global, and regional institutions and regimes, and transgovernmental policy networks and summits" (Held and McGrew 2007, 137) has emerged. The International Monetary Fund (IMF), the World Trade Organization (WTO), and the World Bank, together with the various "G" meetings (such as the G8, G20), and the many international standard-setting organizations are the most obvious manifestations of such global institutions.

These global governance institutions are, themselves, only a part of the broader socio-cultural matrix of practices, rules, and conventions that shape how the capitalist market economy works on the ground. These rules and conventions relate to, for example, private property, profit-making, resource allocation on the basis of market signals, and the consequent commodification of production inputs (including labor). Such institutions and conventions continue to be manifested in specific configurations in specific places (notably within national-states, but not only at that scale). In other words, they are territorially embedded. The geography of capitalism in the global economy, therefore, is highly *variegated*. It is emphatically not the same everywhere.

GLOBAL PRODUCTION NETWORKS

Within this geographically differentiated macro-structural framework, it is primarily the actions of, and especially, the interactions between, the five actor-centered networks shown in the central section of figure 5 that shape the changing geographical configuration of the global economy at different spatial scales. Such interactions are sometimes conflictual, sometimes collaborative but, overall, the system is one in which power relationships tend to be asymmetrical. Some actors are, without doubt, more influential and powerful than others, notably transnational corporations and states.

The production of any commodity, whether it is a manufactured product or a service, involves an intricate articulation of individual activities and transactions across space and time. Such production networks—the nexus of interconnected functions and operations through which goods and services are produced and distributed—have become both organizationally and geographically more complex. Figure 6 presents a highly simplified picture of a basic production circuit. Note that it encompasses not only the "goods" of production (the value added at each stage) but also the "bads" of production (the negative values of environmental impacts). Individual production circuits are, themselves, enmeshed in broader *networks* of inter- and intra-firm relationships. Such networks are, in reality, extremely complex structures with intricate links—horizontal, vertical, diagonal—forming multi-dimensional, multi-layered lattices of economic activity. They reflect the fact that many production processes can be fragmented and separated out, either organizationally, geographically, or both.

Global production networks (GPNs) not only connect firms into broader organizational structures (including alliances and customer-supplier relationships) but they also integrate national and local economies into such networks. Such interconnections have huge implications for the economic well-being of particular places. At the same time, the specific characteristics of national and local economies influence the operation and form of larger-scale processes. In that sense "geography matters" a lot. The process is especially complex because, while states and

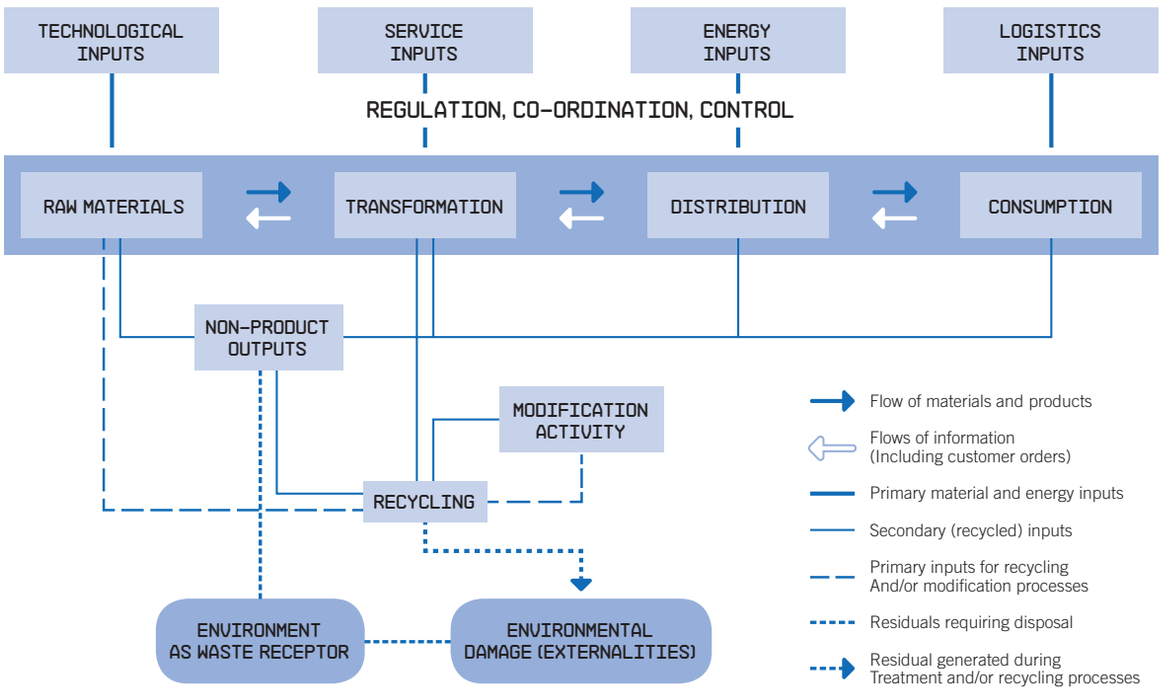


FIGURE 6

Basic elements of a production circuit. Source: based on Dicken 2007: Figures 1.4, 1.9.

local economies are essentially territorially specific, production networks themselves are not. Production networks slice through boundaries in highly differentiated ways, influenced in part by regulatory and non-regulatory barriers and by local socio-cultural conditions, to create structures that are discontinuously territorial. This has major implications for the relative bargaining powers of the actors involved. The geo-economy, therefore, can be pictured as a geographically uneven, highly complex, and dynamic web of production networks, economic spaces, and places connected together through threads of flows. It involves the linking together of two sets of networks: *organizational* (in the form of production circuits and networks) and *geographical* (in the form of localized clusters of economic activity at different geographical scales).

Global production networks are coordinated and regulated primarily by *transnational corporations* (TNCs). These are firms that have the power to coordinate and control operations in more than one country, even if they do not own those assets. In fact, TNCs generally do own such assets but they are also typically involved in intricate and multiple spider's webs of collaborative relationships with other legally independent firms across the globe. Hence, much of the changing geography of the global economy is shaped by TNCs' decisions to invest, or not to invest, in particular geographical locations. It is shaped, too, by the resulting flows—of materials, components, finished products, technological, and organizational expertise, finance—between their geographically dispersed operations. Although the relative importance of TNCs varies considerably—from sector to sector, from country to country, and between different parts of the same country—there are now very few parts of the world in which TNC influence, whether direct or indirect, is not important. In some cases, indeed, TNC influence on an area's economic fortunes can be overwhelming.

The nature of the coordination process within a TNC's production network depends, in part, on where the firm draws the boundary between those functions it *internalizes* (i.e., performs "in-house") and those it *externalizes* (i.e., outsources to other firms). Theoretically, at one extreme, the whole TNC production network may be internalized within the firm as a *vertically-integrated* system crossing national boundaries. In this case, the links consist of a series of *internalized transactions*, organized hierarchically through the firm's internal organizational structure. At the other extreme, each function may be performed by separate firms. In this case, the links consist of a series of *externalized transactions*, organized either through "the market" or in collaboration with other firms in a kind of "virtual" network.

This dichotomy—between externalized, market-governed transactions and internalized, hierarchically-governed transactions—grossly simplifies the richness and diversity of the governance mechanisms in the contemporary economy. In fact, there is a *spectrum* of different forms of coordination, consisting of networks of interrelationships within and between firms. Such networks increasingly consist of a mix of intra-firm and inter-firm structures. These networks are dynamic and in a continuous state of flux; the boundary between internalization and externalization is continually shifting. They are also affected by the shifting *power relationships* between firms within a GPN. In some cases, one dominant actor calls all the shots; in other cases, power may be more widely dispersed with a greater degree of collaboration involved.

TERRITORIAL EMBEDDEDNESS OF PRODUCTION NETWORKS

Capital, it is often argued, has become hypermobile, freed from the tyranny of distance and no longer tied to place. In other words, economic activity is becoming "deterritorialized" or "disembedded." The sociologist Manuel Castells (1996) argues that the forces of globalization, especially those driven by the new information technologies, are replacing this "space of places" with a "space of flows." Anything can be located anywhere and, if that does not work out, can be moved somewhere else with ease. But such seductive ideas are highly misleading. The world is *both* a space of places *and* a place of flows. Global production networks do not just float freely in a spaceless/placeless world.

Every component in a global production network—every firm, every economic function—is, quite literally, grounded in specific locations. Such grounding is both physical (in the form of the built environment) and also less tangible (in the form of localized social relationships and in distinctive institutions and cultural practices). Hence, the precise nature and articulation of firm-centered production networks are deeply influenced by the concrete socio-political, institutional, and cultural contexts within which they are embedded, produced, and reproduced.

For example, a transnational corporation's country of origin exerts a big influence on how it behaves in different geographical contexts,

although, of course, such firms must also adapt to local conditions. Even so, distinctive differences persist between TNCs from different countries simply because such firms are "produced" through an intricate process of embedding, in which the cognitive, cultural, social, political, and economic characteristics of the national home base continue to play a dominant part. This is not to claim that TNCs from a particular national origin are identical. This is self-evidently not the case. Within any national situation there will be distinctive corporate cultures, arising from each firm's own specific corporate history, which predispose it to behave strategically in particular ways. But, in general, the similarities between TNCs from one country will be greater than the differences between them (Dicken 2000, 2003).

The *national state* continues to be the most important bounded territorial form in which production networks are embedded. *All* the elements in a GPN are regulated within some kind of political structure, whose basic unit is the national state, but which also includes such supra-national institutions as the IMF and the WTO, regional economic groupings such as the EU or the NAFTA, and "local" states at the sub-national scale. The international institutions themselves exist only because they are sanctioned by national states; sub-national institutions are commonly subservient to the national level, although the situation is more complex in federal political systems. As we have seen, the number of national states has grown markedly in the past twenty years.

Global production networks, by definition, have to operate within *multi-scalar* regulatory systems. They are, therefore, subject to a multiplicity of geographically variable political, social, and cultural influences. On the one hand, TNCs attempt to take advantage of national differences in regulatory regimes whilst, on the other hand, states attempt to minimize such "regulatory arbitrage." The result is a very complex situation in which firms and states are engaged in various kinds of power play: a triangular nexus of interactions comprising firm-firm, state-state, and firm-state relationships. In other words, the geo-economy is essentially being structured and restructured not only by the actions of either firms or states alone but also by complex, dynamic interactions between the two sets of institutions.

Of course, TNCs and states are not the only actors involved in the operation of global production networks. They are continuously engaged in relationships with other major actors—labor, consumers, civil society organizations—some of which also have strong territorial bases. Each of the actors and institutions involved has their own agendas. The extent to which these can be realized depends on the relative power configuration in specific situations. Significant variables in determining relative power are, first, control over key assets (such as capital, technology, knowledge, labor skills, natural resources, consumer markets) and, second, the spatial and territorial range and flexibility of each of the actors. The two are not unconnected. Ability to control access to specific assets is a major bargaining strength. Where such assets are available virtually everywhere, then the power gradient is shallow or even non-existent. But where assets are "localized," whether geographically, organizationally, or even personally, then the power gradient may be very steep. However, actors able to tap into localized assets across geographical space have a significant advantage over those without such spatial flexibility. Power relationships within global production networks are highly asymmetrical.

But there is a further dimension. Each of the major actors in GPNs is involved in *both* cooperation and collaboration on the one hand, *and* in conflict and competition on the other. Such apparently paradoxical behavior warns us against assuming that relationships between certain actors are always of one kind: for example, that those between, TNCs, or between TNCs and states, or between TNCs and labor, or between TNCs and CSOs are always either conflictual or competitive. Or, conversely, that relationships between groups of workers or labor organizations are always cooperative (in the name of class solidarity). Not so. These various actor-networks are imbued with an ever-changing mixture of both conflict and collaboration. Thus, although power relationships within global production networks are asymmetrical they are not fixed.

So, for example, TNCs in the same industry are fierce competitors but also, invariably, enmeshed in a complex web of collaborative relationships. States compete in cut-throat fashion with other states to entice internationally-mobile investment by TNCs or to find ways to keep out certain types of imports whilst, at the same time, increasingly engaging in preferential trading arrangements, including bilateral and multilateral agreements, often within broader regional groupings. Labor unions in one country engage in competition with labor unions in other countries in the scramble for new, or to protect existing, jobs whilst, at the same time, unions strive to create international alliances with unions in other

THE RESHAPING OF THE GLOBAL ECONOMIC MAP IS BEING DRIVEN INCREASINGLY BY THE EMERGENCE OF EXTREMELY COMPLEX ORGANIZATIONAL AND GEOGRAPHICAL NETWORKS OF PRODUCTION, DISTRIBUTION, AND CONSUMPTION.

countries, especially those involved in the geographically-dispersed operations of major TNCs. They also increasingly attempt to negotiate international framework agreements with TNCs to protect workers' rights. Civil society organizations, likewise, are not immune from these conflicting actions. In the context of the anti-globalization protests, for example, CSOs have developed collaborations across national boundaries but, at the same time, the goals and values of individual CSOs are not always compatible, to say the least.

CREATING (AND DESTROYING) VALUE IN GLOBAL PRODUCTION NETWORKS

My central argument is that the reshaping of the global economic map is being driven increasingly by the emergence of extremely complex organizational and geographical networks of production, distribution, and consumption. The precise form of such networks—how they are controlled and coordinated, as well as the shape and extent of their specific geographies—varies enormously. A key question, therefore, is the extent to which a place's insertion (or non-insertion) into GPNs affects its developmental prospects.

Each stage in a production circuit [Figure 6] each node in a global production network, *creates* value through the combined application of labor skills, process and product technologies, and the organizational expertise involved in coordinating complex production and logistical processes and in marketing and distribution. But when we turn to *value capture* the situation is far more complicated. "Who" captures the value created within production networks? Who benefits from value creation and enhancement? This raises issues way beyond the narrow confines of firm competitiveness and profitability to encompass all the different *stakeholders* involved in global production networks in different geographical locations. The key issue is the configuration of *power* within GPNs, which, as we have seen already, tends to be highly asymmetrical and subject to complex bargaining processes. One dimension of this is the relationship between capital and labor. In general over the past few decades, there has been a pronounced shift in which capital has gained massively at the expense of labor. This is shown, for example, in the increased unevenness in the distribution of incomes in many developed economies. Another dimension is the relationship between lead firms and their multi-layered tiers of suppliers; the extent to which lead firms are able to squeeze their first-tier suppliers who, in turn, try to squeeze their suppliers and so on through the entire production network.

The fact that GPNs have become the predominant mode within which production is organized means that it is very difficult indeed for local firms/economies to prosper outside them. Being there—as an insider—is virtually a prerequisite for development. Both the ability of local firms to participate in GPNs and of a local economy's ability to capture value created in those parts of a GPN located there depend, therefore, on far more than just what happens in a firm. The *local context* itself matters enormously. In effect, this means that to participate in a GPN successfully a local economy needs to develop institutions and practices (including training and education, support for local entrepreneurial activities, development of high quality physical infrastructure, etc.) that meet the needs of GPNs.

Of course, this will not guarantee success in capturing GPN value. TNCs have enormous potential flexibility in deciding where to locate their operations or source their inputs. The relative bargaining power of firms versus local economies is critical. This poses a huge dilemma for local economic development in a GPN-dominated world. Not to try to create the "right" conditions to attract GPN activities will, undoubtedly, close off a major avenue for economic development. On the other hand, to try to couple local assets too closely to specific GPNs also has its dangers, not least being left stranded if the local operation is relocated elsewhere, or of becoming too tightly locked in.

The value created at each point within a GPN takes on different forms for different actors: firms make profits, workers are paid wages or salaries. In a developmental context, what matters is how much—and what kinds of—value are "captured" for the benefit of the local community. However, there is another—darker—side to the picture as Figure 6 shows. There are unintentional external effects (*negative externalities* or *spillovers*) involved in all economic activities. In other words, just as production creates value it also has the capacity—albeit unintentionally—to *destroy value*. Three aspects of such environmental damage are especially important:

- over-use of non-renewable and renewable resources (including exploitation of fossil fuels, water resources, clearance of forests)
- over-burdening of natural environmental "sinks" (for example, the increasing concentration of greenhouse gases in the Earth's atmosphere and of heavy materials in the soil)

- destruction of increasing numbers of ecosystems to create space for urban and industrial development.

The key point of all production processes is that what goes in has to come out again, albeit transformed, but without being reduced. Thus, even after all efforts are made to recycle the unused energy and materials involved in production, there will still be leftovers in the form of residual waste and environmental damage. The fundamental laws of thermodynamics cannot be overruled.

Human life is only made possible by a complex, and extremely delicate balance of processes: atmospheric, hydrological, and biological. As the history of the Earth clearly shows, such a critical balance may be disturbed by natural forces. Periods of widespread freezing and glaciation, drought and high temperatures, rises and falls in sea level, are all evident in the Earth's geological record. Until relatively recently, it was generally assumed that human activity would have little effect on natural processes; it was simply too small in relative terms to influence such enormous natural forces. It is now widely accepted that this is not the case. Indeed, the evidence of not only large-scale, but potentially irreversible, damage to the natural environment by human activity is accumulating day by day. By far the most contentious aspect of negative environmental externalities relates to potential *atmospheric damage*, that is, damage to the gaseous membrane that sustains all life on Earth.

The processes of material transformation involve the use of massive quantities of energy, especially of fossil fuels whose combustion products are the major source of damage to the Earth's atmosphere. The problems arise because some of the key gaseous components of the Earth's atmosphere—notably carbon dioxide, methane, and ozone—are becoming excessively concentrated in the atmosphere. The issue is one of balance. Without these, and other, gases the Earth would have a surface temperature like that of the planet Mars; that is, it would be uninhabitable. The Earth's surface remains habitable precisely because of their presence in the atmosphere. In combination, they act like a "greenhouse," preventing both excessive solar heating and excessive cooling. But it is a very delicate balance. It is now abundantly clear that this balance is dangerously disturbed by human action.

Predicting the precise effects of climate change is, like all predictions of the outcome of highly complex processes, far from easy. However, it is abundantly clear that the current upward trend in temperatures is potentially catastrophic for many parts of the world. But the effects will be far from geographically evenly spread. Shifting climatic zones will create intensified drought in some areas but higher rainfall and increased frequency of flooding in others. The geography of food production will be very different from that of today. Rising sea levels produced by the melting of polar ice will drastically change the shape of coastlines, with especially serious effects on those cities located on low-lying land. The global economic map will be drastically reshaped.

The highly uneven incidence and impact of climate change and atmospheric pollution, in conjunction with the immense geographical variations in global economic well-being, creates what has been called the "double exposure" problem (O'Brien and Leichenko 2002, 227):

> Both climate change and economic globalization are ongoing processes with uneven impacts, and both include implicit winners and losers… Double exposure refers to cases where a particular region, sector, ecosystem, or social group is confronted by the impacts of both climate change and economic globalization. It recognizes that climate impacts are influenced not only by current socioeconomic trends, but also by structural economic changes that are reorganizing economic activities at the global scale… different outcomes emerge when the two processes are considered together.

GEOGRAPHICAL FUTURES IN A GLOBALIZING WORLD

We are rather poor at making predictions. Every year (at least), new books or articles appear claiming to set out what the world will be like in X years time. Most are soon forgotten—usually for the very good reason that what was predicted hasn't actually happened. It is very difficult indeed to identify which contemporary events and circumstances are likely to have long-lasting effects. For example, when the East Asian financial crisis broke with such suddenness in 1997, the literature was full of predictions of doom: the end of the East Asian "miracle" had arrived. The future of the region was dire. Few would make those same predictions today. That should make us wary of making rash predictions about the effect of the current economic and financial crisis on the future shape of the global economy. We are still too close to events.

Similarly, looking a little further back in time, who, from the standpoint of 1960 would have predicted that Japan would soon challenge the United States as an economic power and, in some respects, overtake it to the extent that, in the 1980s, doomsayers in the US were lamenting the demise of the United States as the world's leading economy? Japan bashing became a national pastime (and not only in the US—there were outbreaks in Europe, too, especially in France). Who would have predicted that the Japanese economy itself would then suddenly find itself deep in economic recession lasting for more than a decade and a half? Who would have predicted that South Korea would become one of the world's most dynamic economies within the space of twenty years or so? After all, in 1960 South Korea was one of the poorest countries in the world, with a per capita income comparable with that of Ghana. Which observer in the early 1970s would have predicted that China would open up its economy and become, in a very short time, the most dynamic economy in the world? Or that the command economies of the Soviet Union and Eastern Europe would, by the end of the 1980s, begin to be transformed into capitalist market economies or that Germany would be reunited? Such examples should make us wary of prediction. But we don't learn. Today's big bets are on Chinese world economic dominance within the next few decades. Maybe. However, we tend to be seduced, far too easily, by big numbers based on simplistic projections. We focus too eagerly on the quantitative, rather than the qualitative, dimensions and processes of change.

The big question is: will the tendency towards an increasingly highly interconnected and interdependent global economy intensify? Will the geographical centre of gravity really shift to East Asia? Will the appalling degrees of unevenness in economic well-being be significantly reduced? Is globalization an inexorable and unstoppable force? Not inevitably, as the period between 1919 and 1939 shows. During that time, the unprecedented openness of the world economy that had come into being in the period between 1870 and 1913 was largely reversed through the actions of states responding to recession through increased protectionism. It took several decades to return to a similar degree of openness, by which time the world was a very different place.

Although barriers to barriers to trade and investment have fallen dramatically over the past five decades, it is by no means certain that this will continue. Indeed, there are signs of increasing concern that the nature and the degree of liberalization may have gone too far. In the United States, as well as in Europe, falling living standards among middle- and low-income groups are increasingly being seen as arising, at least in part, from the emergence of new geographical centers of production—notably China and India. It is no coincidence that much of the current concern, especially in the United States, is over what is seen as being unfair competition from China (which has become the US *bête noir* in the way that Japan was in the 1980s). At the same time, many developing countries find themselves under increasing pressures to meet the needs of their rapidly growing populations and are concerned about missing out on the fruits of globalization, not least because of what they regard as unfair developed country policies. As recent opinion polls in the United States have shown, the openness of markets—one of the pillars of globalization, as we have seen—is now widely questioned by many people fearful for their livelihoods.

Of course, the interconnections within the global economy are now much deeper—and faster—than in the past because of the ways in which the processes of production and distribution have been transformed. Development of the highly complex, geographically-extensive, transnational production networks epitomizes this. But such increased interdependence may, itself, be a source of vulnerability. Unforeseen damage to one part of the system will inevitably have implications for the other parts. The sources of such potential damage are many and varied, ranging from natural phenomena like earthquakes to the human-made phenomena of geo-political and religious conflicts.

There are also wider geo-political problems, both directly and indirectly related to the economy. In the former case, there is undoubtedly a threat of a trade war between the United States and China. The Doha Round of trade negotiations is in serious trouble and it is unlikely that anything other than a second-best agreement will be achieved. Not least, this is because of deep tensions that cut across the developed/developing country divide. In particular, there is continuing friction between the world's biggest trading areas, the United States and the European Union. Within parts of the EU, notably in France and Italy, as well as in some the new Eastern European member states, there are renewed calls to protect national companies from foreign takeover (even from other EU firms).

In the United States, the bid by the Dubai Port Authority to purchase P&O and its port facilities in the United States in 2006 was withdrawn in the face of intense US opposition, partly fuelled by security fears in a post 9/II world.

A second major geo-political problem is connected to the rise of China and, more broadly, to political developments in East Asia as whole. Ever since the end of the Second World War in 1945, the United States has been deeply involved in the Asia-Pacific for both security and economic reasons. Until 25 years ago, this was very much in the context of the Cold War. Indeed, the post-1945 economic revitalization of Japan, Korea, Taiwan, and other parts of East Asia was strongly facilitated by US activities and financial aid. With the collapse of the Soviet empire, and the opening up of China economically, the position has changed. Significant geo-political problems remain in what is now the world's most dynamic economic region. The US still sees China as a potential military threat (as well as an economic rival). The question of Taiwan is always there as a source of potential conflict, even though economic relations between China and Taiwan have improved markedly and there is huge Taiwanese investment in China. Relations between Japan and China remain extremely sensitive, not least because of Japan's reluctance to recognize some of the atrocities it perpetrated when it occupied China in the Second World War. More broadly, Japan's own future geo-political intentions within East Asia are far from clear. Lastly, there is the intractable question of relationships between North and South Korea, especially the nuclear issue.

A third big geo-political problem is that of failed, dysfunctional, or inadequate states. Although many of the problems facing developing countries—especially the poorest—arise from their position in the global economy and their very weak power base in international negotiations, other problems are undoubtedly domestic in origin. There are substantial internal problems of governance, corruption, inhuman treatment of minority populations in some developing countries that cannot be ignored. The issue is how the world community deals with these problems to ensure the enhanced welfare of the populations of such failed states and to bring them fully, and effectively, into the world community and economy.

Finally, of course, there is the issue of the environmental costs of continued global integration and dispersal of production. The environmental problems that are inherent in all aspects of production, distribution, and consumption raise serious questions about the future sustainability of the economy and society as we know them. They raise big questions relating to the future of the world's economic and trading system and, indeed, to most aspects of contemporary economic life.

For all kinds of reasons, therefore, the future map of the global economy is far from clear. We should not simply extrapolate from past trends. Most of all, we need to think about the *kind* of world we, and our children, would want to live in. The key question is not so much what the world *might* be like in the future but what it *should* be like. There are choices to be made.

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PABLO LÓPEZ

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THE GLOBAL CITY:
INTRODUCING A CONCEPT

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Each phase in the long history of the world economy raises specific questions about the particular conditions that make it possible. One of the key properties of the current phase is the ascendance of information technologies and the associated increase in the mobility and liquidity of capital. There have long been cross-border economic processes—flows of capital, labor, goods, raw materials, and tourists. But to a large extent these took place within the inter-state system, where the key articulators were national states. The international economic system was ensconced largely in this inter-state system. This has changed rather dramatically over the last decade as a result of privatization, deregulation, the opening up of national economies to foreign firms, and the growing participation of national economic actors in global markets.

It is in this context that we see a rescaling of what are the strategic territories that articulate the new system. With the partial unbundling or at least weakening of the national as a spatial unit due to privatization and deregulation and the associated strengthening of globalization, come conditions for the ascendance of other spatial units or scales. Among these are the sub-national, notably cities and regions; cross-border regions encompassing two or more sub-national entities; and supra-national entities, i.e., global digitalized markets and free trade blocs. The dynamics and processes that get terrritorialized at these diverse scales can in principle be regional, national or global.

I locate the emergence of global cities in this context and against this range of instantiations of strategic scales and spatial units (Sassen 2001; 2006a). In the case of global cities, the dynamics and processes that get territorialized are global. Here I examine the general conceptual and empirical elements that can be applied to a large number of very diverse cities, each with its own empirical specificities.

ELEMENTS IN A NEW CONCEPTUAL ARCHITECTURE

The globalization of economic activity entails a new type of organizational structure. To capture this theoretically and empirically requires, correspondingly, a new type of conceptual architecture.[1] Constructs such as the global city and the global-city region are, in my reading, important elements in this new conceptual architecture. The activity of naming these elements is part of the conceptual work. There are other closely linked terms which could conceivably have been used: the old and by now classic term world cities,[2] "supervilles" (Braudel 1984), informational city (Castells 1989). Thus choosing how to name a configuration has its own substantive rationality.

When I first chose to use global city (1984), I did so knowingly—it was an attempt to name a difference: the specificity of the global as it gets structured in the contemporary period. I did not chose the obvious alternative, world city, because it had precisely the opposite attribute: it referred to a type of city that we have seen over the centuries (e.g., Braudel 1984; Hall 1966; King 1990; Gugler 2004), and most probably also in much earlier periods in Asia (Abu-Lughod 1989) or in European colonial centers (King 1990) than in the West. In this regard it could be said that most of today's major global cities are also world cities, but that there may well be some global cities today that are not world cities in the full, rich sense of that term. This is partly an empirical question; further, as the global economy expands and incorporates additional cities into the various networks, it is quite possible that the answer to that particular question will vary. Thus, the fact that Miami has developed global city functions beginning in the late 1980s does not make it a world city in that older sense of the term.

THE GLOBAL CITY MODEL: ORGANIZING HYPOTHESES

There are seven hypotheses through which I organized the data and the theorization of the global city model. I will discuss each of these briefly as a way of producing a more precise representation.

Firstly, the geographic dispersal of economic activities that marks globalization, along with the simultaneous integration of such geographically dispersed activities, is a key factor feeding the growth and importance of central corporate functions. The more dispersed a firm's operations across different countries, the more complex and strategic its central functions—that is, the work of managing, coordinating, servicing, financing a firm's network of operations.

Secondly, these central functions become so complex that increasingly the headquarters of large global firms outsource them: they buy a share of their central functions from highly specialized service firms: accounting, legal,

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Here Arrighi's analysis is of interest (1994) in that it posits the recurrence of certain organizational patterns in different phases of the capitalist world economy, but at higher orders of complexity and expanded scope, and timed to follow or precede particular configurations of the world economy. On the other hand, for a variety of less system-centered view of cities see, e.g., Amin and Thrift (2002), Herzog (2006), Neuwirth 2005, and Short (2005).

2
Originally attributed to Goethe, the term was relaunched in the work of Peter Hall (1966) and more recently re-specified by John Friedmann (Friedmann & Goetz, 1982). See also Stren (1996).

public relations, programming, telecommunications, and other such services. Thus while even ten years ago the key site for the production of these central headquarter functions was the headquarters of a firm, today there is a second key site: the specialized service firms contracted by headquarters to produce some of these central functions or components of them. This is especially the case with firms involved in global markets and non-routine operations. But increasingly the headquarters of all large firms are buying more of such inputs rather than producing them in-house.

Thirdly, those specialized service firms engaged in the most complex and globalized markets are subject to agglomeration economies. The complexity of the services they need to produce, the uncertainty of the markets they are involved with either directly or through the headquarters for which they are producing the services, and the growing importance of speed in all these transactions, is a mix of conditions that constitutes a new agglomeration dynamic. The mix of firms, talents, and expertise from a broad range of specialized fields makes a certain type of urban environment function as an information center. Being in a city becomes synonymous with being in an extremely intense and dense information loop.

A fourth hypothesis, derived from the preceding one, is that the more headquarters outsource their most complex, unstandardized functions, particularly those subject to uncertain and changing markets, the freer they are to opt for any location, because less work actually done in the headquarters is subject to agglomeration economies. This further underlines that the key sector specifying the distinctive production advantages of global cities is the highly specialized and networked services sector. In developing this hypothesis I was responding to a very common notion that the number of headquarters is what specifies a global city. Empirically it may still be the case in many countries that the leading business center is also the leading concentration of headquarters, but this may well be because there is an absence of alternative locational options. But in countries with a well-developed infrastructure outside the leading business center, there are likely to be multiple locational options for such headquarters.

Fifthly, these specialized service firms need to provide a global service which has meant a global network of affiliates or some other form of partnership, and as a result we have seen a strengthening of cross border city-to-city transactions and networks. At the limit this may well be the beginning of the formation of transnational urban systems. The growth of global markets for finance and specialized services, the need for transnational servicing networks due to sharp increases in international investment, the reduced role of the government in the regulation of international economic activity and the corresponding ascendance of other institutional arenas, notably global markets and corporate headquarters—all these point to the existence of a series of transnational networks of cities.

A related hypothesis for research is that the economic fortunes of these cities become increasingly disconnected from their broader hinterlands or even their national economies. We can see here the formation, at least incipient, of transnational urban systems. To a large extent major business centers in the world today draw their importance from these transnational networks. There is no such thing as a single global city—and in this sense there is a sharp contrast with the erstwhile capitals of empires.

A sixth hypothesis, is that the growing numbers of high level professionals and high-profit making specialized service firms has the effect of raising the degree of spatial and socio-economic inequality evident in these cities. The strategic role of these specialized services as inputs raises the value of top-level professionals and their numbers. Furthermore, the fact that talent can matter enormously for the quality of these strategic outputs and, given the importance of speed, proven talent is an added value, the structure of rewards is likely to experience rapid increases. Types of activities and workers lacking these attributes, whether manufacturing or industrial services, are likely to get caught in the opposite cycle.

A seventh hypothesis is that one result of the dynamics described in hypothesis six is the growing informalization of a range of economic activities that find their effective demand in these cities yet have profit rates that do not allow them to compete for various resources with the high-profit making firms at the top of the system. Informalizing part or all production and distribution activities, including of services, is one way of surviving under these conditions.

RECOVERING PLACE AND WORK PROCESS

In the first four hypotheses, my effort was to qualify what was emerging in the 1980s as a

dominant discourse on globalization, technology, and cities that posited the end of cities as important economic units or scales. I saw a tendency in that account to take the existence of a global economic system as a given, a function of the power of transnational corporations and global communications.

My counter argument is that the capabilities for global operation, coordination, and control contained in the new information technologies and in the power of transnational corporations need to be produced. By focusing on the production of these capabilities we add a neglected dimension to the familiar issue of the power of large corporations and the capacity of the new technologies to neutralize distance and place. A focus on the production of these capabilities shifts the emphasis to the *practices* that constitute what we call economic globalization and global control.

Further, a focus on practices draws the categories of place and work process into the analysis of economic globalization. These are two categories easily overlooked in accounts centered on the hypermobility of capital and the power of transnationals. Developing categories such as place and work process does not negate the centrality of hypermobility and power. Rather, it brings to the fore the fact that many of the resources necessary for global economic activities are not hypermobile and are, indeed, deeply embedded in place, notably places such as global cities, global-city regions, and export processing zones.

This entails a whole infrastructure of activities, firms, and jobs that are necessary to run the advanced corporate economy. These industries are typically conceptualized in terms of the hypermobility of their outputs and the high levels of expertise of their professionals rather than in terms of the production or work process involved and the requisite infrastructure of facilities and non-expert jobs that are also part of these industries. Focusing on the work process brings with it an emphasis on economic and spatial polarization because of the disproportionate concentration of very high- and very low-income jobs in these major global city sectors. Emphasizing place, infrastructure, and non-expert jobs matters precisely because so much of the focus has been on the neutralization of geography and place made possible by the new technologies.

The growth of networked cross-border dynamics among global cities includes a broad range of domains: political, cultural, social, and criminal. There are cross-border transactions among immigrant communities and communities of origin, and a greater intensity in the use of these networks once they become established, including for economic activities. We also see greater cross-border networks for cultural purposes, as in the growth of international markets for art and a transnational class of curators; and for non-formal political purposes, as in the growth of transnational networks of activists around environmental causes, human rights, and so on. These are largely city-to-city cross-border networks, or, at least, it appears at this time to be simpler to capture the existence and modalities of these networks at the city level. The same can be said for the new cross-border criminal networks.

Recapturing the geography of places involved in globalization allows us to recapture people, workers, communities, and more specifically, the many different work cultures, besides the corporate culture, involved in the work of globalization. It also brings with it an enormous research agenda, one that goes beyond the by now familiar focus on cross-border flows of goods, capital, and information. It opens up the global city as a space for a new type of politics, one that claims rights to the city.

Finally, by emphasizing the fact that global processes are at least partly embedded in national territories, such a focus introduces new variables in current conceptions about economic globalization and the shrinking regulatory role of the state. That is to say, the space economy for major new transnational economic processes diverges in significant ways from the duality global/national presupposed in many analyses of the global economy. The duality, national versus global, suggests two mutually exclusive spaces—where one begins the other ends. One of the outcomes of a global city analysis is that it makes evident that the global materializes by necessity in specific places, and institutional arrangements, a good number of which, if not most, are located in national territories.

WORLDWIDE NETWORKS AND CENTRAL COMMAND FUNCTIONS

The geography of globalization contains both a dynamic of dispersal and of centralization. The massive trends towards the spatial dispersal of economic activities at the metropolitan, national, and global level that we associate with

globalization have contributed to a demand for new forms of territorial centralization of top-level management and control functions. Insofar as these functions benefit from agglomeration economies even in the face of telematic integration of a firm's globally dispersed manufacturing and service operations, they tend to locate in cities. This raises a question as to why they should benefit from agglomeration economies, especially since globalized economic sectors tend to be intensive users of the new telecommunications and computer technologies, and increasingly produce a partly dematerialized output, such as financial instruments and specialized services. There is growing evidence that business networks are a crucial variable that is to be distinguished from technical networks. Such business networks have been crucial long before the current technologies were developed. Business networks benefit from agglomeration economies and hence thrive in cities even today when simultaneous global communication is possible. Elsewhere, I examine this issue and find that the key variable contributing to the spatial concentration of central functions and associated agglomeration economies is the extent to which this dispersal occurs under conditions of concentration in control, ownership, and profit appropriation (Sassen 2001, ch. 2 & 5).

This dynamic of simultaneous geographic dispersal and concentration is one of the key elements in the organizational architecture of the global economic system. While there is no space to discuss it here, this systemic feature also enables particular types of struggles and implementations linked to environmental sustainability (Sassen 2006b; Marcotullio and Lo 2001). Let me first give some empirical referents and then examine some of the implications for theorizing the impact of globalization and the new technologies on cities.

The rapid growth of affiliates illustrates the dynamic of simultaneous geographic dispersal and concentration of a firm's operations. By 1999 firms had well over half a million affiliates outside their home countries, and by 2005 they had well over a million such affiliates (for details see Sassen, 2006a: chapter 2). Firms with large numbers of geographically dispersed factories and service outlets face massive new needs for central coordination and servicing, especially when their affiliates involve foreign countries with different legal and accounting systems.

Another instance today of this negotiation between a global cross-border dynamic and territorially specific site is that of the global financial markets. The orders of magnitude in these transactions have risen sharply, as illustrated by the US$300 plus trillion for 2007 in traded derivatives, a major component of the global economy and one that dwarfs the value of global trade which stood at US$14 trillion. These transactions are partly embedded in electronic systems that make possible the instantaneous transmission of money and information around the globe. Much attention has gone to this capacity for instantaneous transmission of the new technologies. But the other half of the story is the extent to which the global financial markets are located in an expanding network of cities, with a disproportionate concentration in cities of the global north. Indeed, the degrees of concentration internationally and within countries are unexpectedly high for an increasingly globalized and digitized economic sector. Inside countries, the leading financial centers today concentrate a greater share of national financial activity than even ten years ago, and internationally, cities in the global north concentrate well over half of the global capital market.

One of the components of the global capital market is stock markets. The late 1980s and early 1990s saw the addition of markets such as Buenos Aires, Sao Paulo, Mexico City, Bangkok, Taipei, Moscow, and growing numbers of non-national firms listed in most of these markets. The growing number of stock markets has contributed to raise the capital that can be mobilized through these markets, reflected in the sharp worldwide growth of stock market capitalization, which reached well over US$30 trillion in 2007. This globally integrated financial market, which makes possible the circulation of publicly listed shares around the globe in seconds, is embedded in a grid of very material, physical, strategic places.

The specific forms assumed by globalization over the last decade have created particular organizational requirements. The emergence of global markets for finance and specialized services, the growth of investment as a major type of international transaction, all have contributed to the expansion in command functions and in the demand for specialized services for firms.[3]

By central functions I do not only mean top level headquarters; I am referring to all the top level financial, legal, accounting, managerial, executive, planning functions necessary to run a corporate organization operating in more than one country, and increasingly in several countries.

3
A central proposition here, developed at length in my work, is that we cannot take the existence of a global economic system as a given, but rather need to examine the particular ways in which the conditions for economic globalization are produced. This requires examining not only communication capacities and the power of multinationals, but also the infrastructure of facilities and work processes necessary for the implementation of global economic systems, including the production of those inputs that constitute the capability for global control and the infrastructure of jobs involved in this production. The emphasis shifts to the *practice* of global control: the work of producing and reproducing the organization and management of a global production system and a global marketplace for finance, both under conditions of economic concentration. The recovery of place and production also implies that global processes can be studied in great empirical detail.

These central functions are partly embedded in headquarters, but also in good part in what has been called the corporate services complex, that is, the network of financial, legal, accounting, advertising firms that handle the complexities of operating in more than one national legal system, national accounting system, advertising culture, etc., and do so under conditions of rapid innovations in all these fields (see generally Bryson and Daniels 2005). Such services have become so specialized and complex, that headquarters increasingly buy them from specialized firms rather than producing them in-house. These agglomerations of firms producing central functions for the management and coordination of global economic systems, are disproportionately concentrated in the highly developed countries—particularly, though not exclusively, in global cities. Such concentrations of functions represent a strategic factor in the organization of the global economy, and they are situated in an expanding network of global cities.[4]

It is important analytically to unbundle strategic functions for the global economy or for global operation, and the overall corporate economy of a country. These global control and command functions are partly embedded in national corporate structures, but also constitute a distinct corporate subsector. This subsector can be conceived as part of a network that connects global cities across the world through firms' affiliates or other representative offices.[5] For the purposes of certain kinds of inquiry this distinction may not matter; for the purposes of understanding the global economy, it does.

This distinction also matters for questions of regulation, notably regulation of cross-border activities. If the strategic central functions—both those produced in corporate headquarters and those produced in the specialized corporate services sector—are located in a network of major financial and business centers, the question of regulating what amounts to a key part of the global economy will entail a different type of effort from what would be the case if the strategic management and coordination functions were as distributed geographically as the factories, service outlets, and affiliates generally. We can also read this as a strategic geography for political activisms that seek accountability from major corporate actors, among others concerning environmental standards and workplace standards.

National and global markets as well as globally integrated organizations require central places where the work of globalization gets done. Finance and advanced corporate services are industries producing the organizational commodities necessary for the implementation and management of global economic systems. Cities are preferred sites for the production of these services, particularly the most innovative, speculative, internationalized service sectors. Further, leading firms in information industries require a vast physical infrastructure containing strategic nodes with hyper-concentration of facilities; we need to distinguish between the capacity for global transmission/communication and the material conditions that make this possible. Finally, even the most advanced information industries have a production process that is at least partly place-bound because of the combination of resources it requires even when the outputs are hypermobile.

Theoretically this addresses two key issues in current debates and scholarship. One of these is the complex articulation between capital fixity and capital mobility and the other, the position of cities in a global economy. Elsewhere, I have developed the thesis that capital mobility cannot be reduced simply to that which moves nor can it be reduced to the technologies that facilitate movement (Sassen 2008, ch. 5 & 7). Rather, multiple components of what we keep thinking of as capital fixity are actually components of capital mobility. This conceptualization allows us to reposition the role of cities in an increasingly globalizing world, in that they contain the resources that enable firms and markets to have global operations.[6] The mobility of capital, whether in the form of investments, trade, or overseas affiliates, needs to be managed, serviced, coordinated. These are often rather place-bound, yet are key components of capital mobility. Finally, states, place-bound institutional orders, have played an often crucial role in producing regulatory environments that facilitate the implementation of cross-border operations for their national and for foreign firms, investors, and markets (Sassen 2008, ch. 4 & 5).

In brief, a focus on cities makes it possible to recognize the anchoring of multiple cross-border dynamics in a network of places, prominent among which are cities, particularly global cities or those with global city functions. This in turn anchors various features of globalization in the specific conditions and histories of these cities, in their variable articulations with their national economies, and with various world economies across time and place (e.g., Abu-Lughod 1999;

4
We are seeing the formation of an economic complex with a valorization dynamic that has properties clearly distinguishing it from other economic complexes whose valorization dynamic is far more articulated with the public economic functions of the state, the quintessential example being Fordist manufacturing. Global markets in finance and advanced services partly operate through a "regulatory" umbrella that is not state-centered but market-centered. This in turn brings up a question of control linked to the currently inadequate capacities to govern transactions in electronic space.

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In this sense, global cities are different from the old capitals of erstwhile empires, in that they are a function of cross-border networks rather than simply the most powerful city of an empire. There is, in my conceptualization, no such entity as a single global city as there could be a single capital of an empire; the category global city only makes sense as a component of a global network of strategic sites. The corporate subsector which contains the global control and command functions is partly embedded in this network.

6
There are multiple specifications to this argument. For instance, and going in the opposite direction, the development of financial instruments that represent fixed real estate repositions the latter in various systems of circulation, including global ones. In so doing the meaning of capital fixity is partly transformed and the fixed capital also becomes a site for circulation. For a fuller elaboration see Sassen 2001, ch. 2.

Allen *et al*. 1999; Gugler, 2004; Amen *et al*. 2006; Taylor 2004; Lo and Yeung 1996; Harvey 2007; Orum and Chen 2004). This optic on globalization contributes to identifying a complex organizational architecture that cuts across borders, and is both partly de-territorialized and partly spatially concentrated in cities. Further, it creates an enormous research agenda in that every particular national or urban economy has its specific and inherited modes of articulating with current global circuits. Once we have more information about this variance we may also be able to establish whether position in the global hierarchy makes a difference and the various ways in which it might do so.

IMPACTS OF NEW COMMUNICATION TECHNOLOGIES ON CENTRALITY

Cities have historically provided national economies, polities, and societies with something we can think of as centrality. In terms of their economic function, cities provide agglomeration economies, massive concentrations of information on the latest developments, a marketplace. How do the new technologies of communication alter the role of centrality and hence of cities as economic entities?

As earlier sections have indicated, centrality remains a key feature of today's global economy. But today there is no longer a simple straightforward relation between centrality and such geographic entities as the downtown, or the central business district (CBD). In the past, and up to quite recently in fact, the center was synonymous with the downtown or the CBD. Today, partly as a result of the new communication technologies, the spatial correlates of the center can assume several geographic forms, ranging from the CBD to a new global grid of cities (see, for instance, Herzog 2006; Burdett 2006; Short 2005; Marcuse 2003).

Simplifying one could identify three forms assumed by centrality today.[7] Firstly, while there is no longer a simple straightforward relation between centrality and such geographic entities as the downtown, as was the case in the past, the CBD remains a key form of centrality. But the CBD in major international business centers is one profoundly reconfigured by technological and economic change.

Secondly, the center can extend into a metropolitan area in the form of a grid of nodes of intense business activity, a case well illustrated by recent developments in cities as diverse as Buenos Aires (Ciccolella and Mignaqui 2002), Chicago (Lloyd 2005), Shanghai (Chen and Jianming 2007), and Paris (Veltz 1996; Landrieu *et al*. 1998). One might ask whether a spatial organization characterized by dense strategic nodes spread over a broader region does or does not constitute a new form of organizing the territory of the "center," rather than, as in the more conventional view, an instance of suburbanization or geographic dispersal. Insofar as these various nodes are articulated through cyberroutes or digital highways, they represent a new geographic correlate of the most advanced type of "center." The places that fall outside this new grid of digital highways, however, are peripheralized, with the most dramatic instance that of shrinking cities (Giesecke 2005). This regional grid of nodes represents, in my analysis, a reconstitution of the concept of region. Far from neutralizing geography the regional grid is likely to be embedded in conventional forms of communications infrastructure, notably rapid rail and highways connecting to airports. Ironically, perhaps, conventional infrastructure is likely to maximize the economic benefits derived from telematics. I think this is an important issue that has been lost somewhat in discussions about the neutralization of geography through telematics.

Thirdly, we are seeing the formation of a transterritorial "center" constituted via telematics and intense economic transactions. The most powerful of these new geographies of centrality at the inter-urban level binds the major international financial and business centers: New York, London, Tokyo, Paris, Frankfurt, Zurich, Amsterdam, Los Angeles, Sydney, Hong Kong, among others.[8] But this geography now also includes cities such as Sao Paulo and Mexico City. The intensity of transactions among these cities, particularly through the financial markets, trade in services, and investment has increased sharply, and so have the orders of magnitude involved. Finally, we see emergent regional hierarchies, as is illustrated by the growth corridors in southeast Asia (Lo and Yeung 1996), the case of São Paulo in the Mercosur free-trade area (Schiffer 2002), and by the relation between the participating entities in the Iran-Dubai corridor (Parsa and Keivafin 2002). (For a general overview see the MasterCard International Global Hearts of Commerce Report on 70 Cities, 2008)

Besides their impact on the spatial correlates of centrality, the new communication technologies can also be expected to have an impact on

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There is a fourth case which I have addressed elsewhere (Sassen 2001, ch. 4 & 5), which is represented by new forms of centrality constituted in electronically generated spaces.

8
In the case of a complex landscape such as Europe's, we see in fact several geographies of centrality, one global, others continental and regional. A central urban hierarchy connects major cities, many of which in turn play central roles in the wider global system of cities: Paris, London, Frankfurt, Amsterdam, Zurich. These cities are also part of a wider network of European financial/cultural/service capitals, some with only one, others with several of these functions, articulate the European region and are somewhat less oriented to the global economy than Paris, Frankfurt, or London. And then there are several geographies of marginality: the east-west divide and the north-south divide across Europe as well as newer divisions. In Eastern Europe, certain cities and regions, notably Budapest, are rather attractive for purposes of investment, both European and non-European, while others will increasingly fall behind, notably in Rumania, Yugoslavia, and Albania. We see a similar differentiation in the south of Europe: Madrid, Barcelona and Milan are gaining in the new European hierarchy; Naples, Rome, and Marseille are not. For a general overview of European cities see Kazepov 2005.

inequality between cities and inside cities. There is an expectation in much of the literature on these technologies that they will override older hierarchies and spatial inequalities through the universalizing of connectivity that they represent. The available evidence suggests that this is not quite the case. Whether it is the network of financial centers and foreign direct investment patterns discussed in this chapter, or the more specific examinations of the spatial organization of various cities, the new communication technologies have not reduced hierarchy nor spatial inequalities (Graham 2004; Graham and Marvin 2001; Castells 1996; Rutherford 2004; *Journal of Urban Technology*, various issues). And this is so even in the face of massive upgradings and state-of-the-art infrastructure in a growing number of cities worldwide. There is little doubt that connecting to global circuits has brought with it a significant level of development of expanded central urban areas and metropolitan grids of business nodes, and considerable economic dynamism. But the question of inequality has not been engaged.

Further, the pronounced orientation to the world markets evident in many of these cities raises questions about the articulation with their nation-states, their regions, and the larger economic and social structure in such cities. Cities have typically been deeply embedded in the economies of their region, indeed often reflecting the characteristics of the latter; and they still do. But cities that are strategic sites in the global economy tend, in part, to disconnect from their region. This conflicts with a key proposition in traditional scholarship about urban systems, namely, that these systems promote the territorial integration of regional and national economies. There has been a sharpening inequality in the concentration of strategic resources and activities between each of these cities and others in the same country, though this tends to be evident only at fairly disaggregated levels of evidence. For example, Mexico City today concentrates a higher share of some types of economic activity and value production than it did in the past,[9] but to see this requires a very particularized set of analyses (Parnreiter 2002).

THE GLOBAL CITY AS A NEXUS FOR NEW POLITICO-CULTURAL ALIGNMENTS

The incorporation of cities into a new cross-border geography of centrality also signals the emergence of a parallel political geography. Major cities have emerged as a strategic site not only for global capital, but also for the transnationalization of labor and the formation of translocal communities and identities (Smith 2006; Kloosterman and Rath 2003; Bartlett 2007; Hagedorn 2007; Sandercock 2003). In this regard cities are a site for new types of political operations and for a whole range of new "cultural" and subjective operations (Krause and Petro 2003; Sennett 1992; Peterson 2007; King 1996). The centrality of place in a context of global processes makes possible a transnational economic and political opening for the formation of new claims and hence for the constitution of entitlements, notably rights to place. At the limit, this could be an opening for new forms of "citizenship" (e.g., Holston 1996; Torres *et al*. 1999; Sassen 2008: ch. 6).

The emphasis on the transnational and hypermobile character of capital has contributed to a sense of powerlessness among local actors, a sense of the futility of resistance. But an analysis that emphasizes place suggests that the new global grid of strategic sites is a terrain for politics and engagement. (Allen *et al*. 1999; Brenner and Theodore 2002; Copjek and Sorkin 1999; Berner and Korff 1995; INURA 2003). The loss of power at the national level produces the possibility for new forms of power and politics at the sub-national level. Further, insofar as the national as container of social process and power is cracked (Taylor 1995; Beck 2006; Marcuse 2003) it opens up possibilities for a geography of politics that links sub-national spaces across borders (Sassen 2008: ch. 7 & 8). Cities are foremost in this new geography. This engenders how and whether we are seeing the formation of a new type of transnational politics that localizes in these cities.

Immigration, for instance, is one major process through which a new transnational political economy and trans-local household strategies are being constituted. It is one largely embedded in major cities insofar as these concentrate most immigrants, certainly in the developed world, whether in the US, Japan, or Western Europe. It is, in my reading, one of the constitutive processes of globalization today, even though not recognized or represented as such in mainstream accounts of the global economy. (Sassen 2008: Part 2; Ribas-Mateos 2005; Farrer 2007; Ehrenreich and Hochschild 2003).

Global capital and the new immigrant workforce are two major instances of transnationalized

THE LEADING FINANCIAL CENTERS TODAY CONCENTRATE A GREATER SHARE OF NATIONAL FINANCIAL ACTIVITY THAN EVEN TEN YEARS AGO, AND INTERNATIONALLY, CITIES IN THE GLOBAL NORTH CONCENTRATE WELL OVER HALF OF THE GLOBAL CAPITAL MARKET.

9
This also holds in the highly developed world. For instance, the Paris region accounts for over 40% of all producer services in France, and over 80% of the most advanced ones. New York City is estimated to account for between a fourth and a fifth of all US producer services exports though it has only 3% of the US population. London accounts for 40% of all exports of producer services in the UK. Similar trends are also evident in Zurich, Frankfurt, and Tokyo, all located in much smaller countries.

actors that each have unifying properties across borders internally, and find themselves in contestation with each other inside global cities (Bonilla *et al*. 1998; Sassen 2006a: ch. 8; 2008: ch. 6; Brenner and Theodore 2002; Gugler 2004). Researching and theorizing these issues will require approaches that diverge from the more traditional studies of political elites, local party politics, neighborhood associations, immigrant communities, and so on through which the political landscape of cities and metropolitan regions has been conceptualized in urban studies.

One way of thinking about the political implications of this strategic transnational space anchored in global cities is in terms of the formation of new claims on that space. The global city particularly has emerged as a site for new claims: by global capital that uses the global city as an "organizational commodity," but also by disadvantaged sectors of the urban population, frequently as internationalized a presence in global cities as capital. The "denationalizing" of urban space and the formation of new claims by transnational actors, raise the question: Whose city is it?

The global city and the network of these cities is a space that is both place-centered in that it is embedded in particular and strategic locations; and it is transterritorial because it connects sites that are not geographically proximate yet are intensely connected to each other. If we consider that global cities concentrate both the leading sectors of global capital and a growing share of disadvantaged populations—immigrants, many of the disadvantaged women, people of color generally, and, in the megacities of developing countries, masses of shanty dwellers—then we can see that cities have become a strategic terrain for a whole series of conflicts and contradictions. We can then think of cities also as one of the sites for the contradictions of the globalization of capital, even though, heeding Katznelson's (1992) observation, the city cannot be reduced to this dynamic.

CONCLUSION

An examination of globalization through the concept of the global city introduces a strong emphasis on strategic components of the global economy rather than the broader and more diffuse homogenizing dynamics we associate with the globalization of consumer markets. Consequently, this also brings an emphasis on questions of power and inequality. It brings an emphasis on the actual work of managing, servicing, and financing a global economy. Secondly, a focus on the city in studying globalization will tend to bring to the fore the growing inequalities between highly provisioned and profoundly disadvantaged sectors and spaces of the city, and hence such a focus introduces yet another formulation of questions of power and inequality.

Thirdly, the concept of the global city brings a strong emphasis on the networked economy because of the nature of the industries that tend to be located there: finance and specialized services, the new multimedia sectors, and telecommunications services. These industries are characterized by cross-border networks and specialized divisions of functions among cities rather than inter-national competition per se. In the case of global finance and the leading specialized services catering to global firms and markets—law, accounting, credit rating, telecommunications—it is clear that we are dealing with a cross-border system, one that is embedded in a series of cities, each possibly part of a different country. It is a de facto global system.

Fourthly, a focus on networked cross-border dynamics among global cities also allows us to capture more readily the growing intensity of such transactions in other domains—political, cultural, social, and criminal.

Global cities around the world are the terrain where a multiplicity of globalization processes assume concrete, localized forms. These localized forms are, in good part, what globalization is about. Recovering place means recovering the multiplicity of presences in this landscape. The large city of today has emerged as a strategic site for a whole range of new types of operations—political, economic, "cultural," subjective. It is one of the nexi where the formation of new claims, by both the powerful and the disadvantaged, materializes and assumes concrete forms.

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JAUME PLENSA
THE CROWN FOUNTAIN. 2004

IS GLOBALIZATION DEAD AND IS IT A GOOD THING?

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The current financial and economic crisis has led many pundits to suggest that the end of globalization as we know it is nigh. One of the more seasoned observers, Dani Rodrik of Harvard, asked in May 2009 whether we are heading towards a "de-globalized world". His answer was that the risk exists, but it does not need to be fatal. Those countries that have based their growth primarily on foreign borrowing or commodity booms are coming to a bad end. The former types of economies have been living beyond their means and have now to tighten their belts, while the latter suffer from the cyclical changes in commodity prices and their failure to diversify the economy in good times. Thus, the impact of both globalization and its slowdown affects individual countries in different ways depending on their model of economic growth.

Rodrik argues, as most other experts also do, that a precondition for the recovery from the crisis is the reduction of macroeconomic imbalances between the surplus and deficit countries, especially between China and the United States. The Chinese should increase their domestic spending and the Americans their savings. On the other hand, the economic recovery of the peripheral countries can only be based on the expansion of their modern sectors and the growing supply of tradables to the world market. But how the leading economies are able to absorb these tradables in their markets if they have to limit imports to restore the external imbalances? Rodrik's solution to this dilemma is that the second- and third-tier countries have to apply explicit policies to promote and diversify their industrial production and exports, and undervalue their currencies. One should realize, though, that such a strategy contains a risk of growing trade protectionism and countermeasures by the World Trade Organization (WTO).

THE PRIMACY OF FINANCE

The current crisis has revealed the reality of globalization, especially the deep integration of the international financial markets. As we will discuss below, it is often maintained that protectionism in international trade is the biggest risk for economic globalization. The case can be made, however, that the failures in the international financial system are an even greater peril both for globalization and many national economies. Recent experiences also suggest that people are more prone to protest against the failures of the financial systems as street demonstrations in Hamburg, Hong Kong, Reykjavik, Riga, and elsewhere show. Crises in the banking system touch upon people more directly and rapidly than, for instance, shrinking exports.

The International Monetary Fund (IMF) has developed a financial stress index for emerging economies which was published for the first time in April 2009 in its *World Economic Outlook*. The index starts from 1996 and shows, not surprisingly, that the level of stress in 2008 was both in advanced and emerging economies higher than in any preceding year (only in 1998, when the Long-Term Capital Management, LTCM, collapsed was the stress near the present level).

The important point in the IMF index is that it shows show "how linkages fuel the fire", i.e. how rapidly and pervasively financial stress is transmitted from advanced to emerging economies. Theories of "decoupling" of the national financial systems and of the financial and the real economy turned out to be unfounded. If "shadow banking", based on unregulated institutions and networks, was a major problem in advanced economies, traditional banks were the main culprits in transmitting the crisis to emerging economies. Economies in Central and Eastern Europe (CEE) stand out as borrowers from the banks in West European countries. The net flow of private capital to CEE countries increased from $20-30 billion in the beginning of the 2000s to $340 billion in 2007 to decrease to $250 billion in 2008.

This is shown by the fact that when at the end of 2007 the assets of banks in all emerging economies accounted for 2.5 per cent of the GDP in Canada, Japan, and the United States, the corresponding share in Western Europe was 10 per cent. In Austria, the credit exposure of banks to the CEE countries reached at the end of 2008 an incredible 77 per cent of its GDP and in Switzerland 13 per cent. In concrete terms, banks such as Reiffeisen of Austria and Swebank of Sweden, have risked their own existence by the reckless borrowing to Central Eastern Europe and the Baltic countries, respectively. Only the precautionary measures taken by the owners of these banks have prevented, so far, the realization of the nightmare.

Obviously, economic globalization has always been supported, or arrested, by politics. The twenty-five year wave of globalization, that is now in jeopardy, was released by the liberalization of international capital flows in the 1980s and the separation of most central banks from the governmental control. Instead of supporting

IT IS MAINTAINED THAT PROTECTIONISM IN INTERNATIONAL TRADE IS THE BIGGEST RISK FOR ECONOMIC GLOBALIZATION. THE CASE CAN BE MADE, HOWEVER, THAT THE FAILURES IN THE INTERNATIONAL FINANCIAL SYSTEM ARE AN EVEN GREATER PERIL.

the national economic policy and employment, the main task of the central banks became to prevent inflation by monetary means in the conditions in which money became abundant and cheap. The liberalization of the capital account has been expected to offer new opportunities for efficiency and productivity as the market becomes the driver in allocating capital. There is, of course, no guarantee that the money will go to purposes that would promote a long-term sustainable growth of the economy.

If the national regulatory institutions are not up to the task, the sudden inflow of international capital will in all likelihood create a bubble in which overvalued currency and the diversion of resources into non-tradable goods and services, including spas and golf courses, that sap the lifeline of the productive economy. This happened in Finland in 1990-93 when the country lost 13 per cent of its GDP and the unemployment rate climbed to 20 per cent. Policy-makers and regulatory institutions were unprepared to the looming crisis and the Finnish economy went into a free fall. From this decline it could be rescued only by bold political measures that saved the economy but produced also long-term damage in terms of chronic unemployed and a lost generation among the youth. It appears that the present economic crisis in Spain, or the Asian crisis in the late 1990s, resembles in some important ways the Finnish financial and economic predicament in the early 1990s.

As a heavily export-dependent country, Finland is suffering from the present crisis more than almost any other EU countries; its GDP is expected to decline by 6-7 per cent in 2009. On the other hand, because of the lessons learned from the previous crisis, the Finnish macroeconomic and fiscal systems are much more resilient to the downturn. In fact, the Finnish and Swedish experiences in the early 1990s are used by many governments as a blueprint for their actions. The Finnish and Swedish cases also show that it is possible to recover rather successfully from a deep economic disaster that has now befallen on most economies of the earth.

THE US PRECEDENT

During the years of expansion and growth, a lot of liquidity was pumped into the world economy and the resulting boom increased the opportunities of some to get rich while others remained poor. It was widely felt that globalization favored capital rather than labor and the wealthy rather than the poor. Globalization was promoted by political decisions to liberalize and deregulate the economy under the assumption that the market will stabilize itself without having to suffer from inflation and downturn. Alan Greenspan, who served for almost two decades as the Chairman of the FED, is often regarded as the father of these relaxed policies. It is true that he has been a staunch advocate a liberal form of capitalism in which private ownership and competition in the market is the key element.

In his memoirs, *The Age of Turbulence* (2007), Greenspan admits all this, but laments, however, that in the administration of George W. Bush "political operation was dominant"; i.e. public money should be used in the first place to enhance the political prospects of the Republicans. It is clear in the memoirs, though, that Greenspan went along with Bush on his extensive tax cuts expecting, in vain, them to be followed by decrease in public spending. Greenspan is duly concerned with the rapidly growing federal deficit in the Bush era and praises Clinton for his budget surplus, but sees the deficit only as one factor contributing to the current account imbalance. He sees that balance as a complex category instead of it being "a sovereignty-delineated national measure". In spite of the caveats made, it is clear that the Bush Administration, and the FED headed by Greenspan, were in charge in the United States when money supply was ample and the twin deficits exploded.

The ultraliberal trend was spearheaded by the United States and most other industrial countries followed the suit. Some of the emerging economies resisted the extreme forms of liberalization and deregulation because they had benefited earlier from the use of state power for industrial policy to promote their export-driven model of development. The main effort to break the resolve of leading Asian countries to retain the political control of the economy was made during the Asian economic crisis in the late 1990s. Then the United States and the IMF put strong pressure on them to open up the financial markets and give up capital controls. As a result, in South Korea and Taiwan politics is now less in command of the economy than before the crisis (and their domestic politics has become more volatile).

In China, political power is still centralized but only because the government has continued to comply in its economic policies with the

demands of the market. Like other trade-driven economies, China has suffered in the present crisis from a major setback in its export performance. In May 2009 exports plunged by 26 per cent compared with the previous year. Yet, its economy is expected to grow by 8 per cent in 2009 that is obviously the highest national figure in the world. This is possible for the reason that the domestic demand in China has been modest and the savings rate as high as 40 per cent of the GDP. The external debt burden, at 20 per cent of the GDP, is also very low in China and the currency reserve of roughly $2000 billion offers a comfortable cushion.

Using the economic leverage available to the government, Beijing initiated in 2008 a stimulus package of $585 billion which accounts 13 per cent of the GDP. A main part of the stimulus package comprises infrastructural investments, especially the construction of 16.000 miles of high-speed rail tracks. This is the largest construction project in the world which not only will underpin economic growth in the future but will also employ workers who have been laid off from export industries. Thus, in an open economic system, the state is needed to stimulate the economy but also prevent political instability. It is feared more than anything else by the Chinese one-party government as it would possibly threaten its monopoly of power. The Chinese case shows that capitalism and autocracy can be combined with each other, but in the conditions of the global economic crisis it also has to turn inward in the policies to stem the political opposition to the regime.

THE POLITICS OF GLOBALIZATION

The recent wave of economic globalization has been in many ways beneficial. It is, however, shortsighted to attribute all positive developments, ranging from economic growth to peace, to it. In effect, economic globalization reached its new heights only in the 1990s as a result of freer trade and capital flows. The postwar economic miracle is more due to the structural transformation of most economies. In the old industrial countries manufacturing boomed first and then came the transition to the service economy. The rapid rise of basic industries, especially in East Asia, and equally rapid transition from low-end to high-end manufacturing helps to explain their economic boom. No doubt globalization was a necessary but not a sufficient condition for unprecedented economic growth. Both of those conditions were met by the quantitative and qualitative breakthrough in manufacturing, supported by the rapid technological change.

One should not, of course, deny the fact globalization has stimulated productivity and economic growth and has thus helped to alleviate poverty. Before the present crisis erupted, the world was on the way to achieve a Millennium Development Goal (MDC) to halve the poverty rate by 2015. Although absolute poverty remains a pervasive problem especially in South Asia and Africa, the economic boom has lifted many boats. Now the record is becoming more mixed and, as a result of the crisis, at least 60 million more people will fall into absolute poverty, according to the estimate of the United Nations Development Programme (UNDP). Much of the decrease in poverty has been due to the economic growth in China, but also other parts of Asia and Latin America have seen improvement in this regard.

If the world had been organized only by the nation states, competing, and occasionally cooperating with each other, we would have probably witnessed lower rates of economic growth and more frequent interstate wars. Such counterfactual claims are difficult to prove, but the humankind has obviously benefited from abandoning traditional balance-of-power and protectionist policies and moving into more market-centric arrangements. This argument implies that various hegemonic and unipolar theories of international cooperation are inadequate in today's world. They suggest that the predominant United States can provide leadership and public goods in organizing international cooperation and without its central role the world would be in a chaos. It is widely believed that due to the transition from the Bush Administration to Obama's, the United States is again taking its rightful and necessary role as the organizer of multilateral cooperation.

However, thinking of relevant examples across various domains—ranging from free trade through climate change to peace and stability—it is clear that the United States is unable to provide hegemonic benefits for the international community. This conclusion is not dependent only on the failures of the Bush Administration, but is also a structural condition; Washington has neither the sufficient relative capability nor enough "smart power" to persuade other key actors to fully accept its priorities. This is not to deny that in economic and military terms, the United

States is the leading power in the world which any likely coalition of other powers can overtake. The United States continues to be a pivotal actor in international relations, but it does not have the veto power it previously had.

Economic globalization, technological breakthroughs in communication, and the expansion of the global political agenda to new subject matters have made politics so complex that no single power is able to provide consistent leadership. Effective global governance must be both more representative (more countries must be involved), more pluralistic (business and civil society must play a role), and more effective (in terms of achieving results). States are needed to improve global governance as their budgets provide resources and their parliaments are needed to ratify international treaties, but the process of governance must be increasingly plurilateral in character.

NEW ECONOMIC REALITIES

On the other hand, the opening up and integration of national economies and the ensuing transition to a global economy have influenced heavily the *modus operandi* of transnational corporations and facilitated the huge expansion of an autonomous transnational financial sector. Industrial companies establish production networks that cross routinely borders on the basis of the transnational comparative advantage that cannot be defined any more in national terms. The transnational organization of production permits greater flexibility and secure more lucrative profits, but it also demands new ways of making decisions and managing the company. Technological revolutions in computing and communication have facilitated the decentralization of corporate management without sacrificing significantly its efficiency.

Now the tide may be turning, however. No doubt business will continue to move to those regions of the world where the economy and consumer demand are growing because it makes sense to produce closer to the customers. Electronic gadgets and paper are just two examples of product categories in which consumption is growing especially in Asia's emerging economies but also in Latin America. The innovative capacity of China and India is also growing. In most sectors of the economy, transnational companies do not have an option to stay away from the growing Asian markets. In particular in the present situation, inability to keep or capture markets shares there is tantamount to a business failure.

The regional dimension of the world economy is being emphasized by the present crisis; even though the leading Asian countries cannot alone pull the world economy out of the crisis, their quick recovery is drawing international attention. The point is not only the continuing rapid growth of China and India, but also countries like Singapore and South Korea have returned to a growth trajectory. An important reason for the quick recovery appears to be the expansion of the intra-regional trade in East and Southeast Asia. It has been duly warned that this expansion builds on trade in parts and components that are converted into finished goods for markets in old industrial countries. The continuation of the robust growth in the emerging economies would require, then, the recovery of the capitalist core of the world economy as well. This counterargument seems to miss, though, the point that the domestic consumption and infrastructure investments in several Asian countries are creating a genuinely new growth dynamic in the region.

The trend towards the regionalization of production and trade is affected also by extra-business factors. The fuel prices will probably continue to rise discouraging the reliance on integrated global supply chains and favoring subcontracting in near-by countries. The demands posed by the climate change control will also favor spatially more concentrated supply chains in which proximity may also reduce political and business risks as a report from the World Economic Forum recently claimed. The reorganization of Opel's production chain, in which the Russian carmaker Gaz became one of its owners, seems to reflect this broader change in supply networks. The German and Russian auto industries will become more closely integrated as has happened already in the Czech Republic and Slovakia. The global market integration will no doubt continue, but its national and regional tones will be more pronounced in the future. This trend may increase disparities between regions as the large transnational companies will probably squeeze the prices paid to the subcontractors to support their own return to profitability.

THE RISK OF PROTECTIONISM

The spatial reorganization of supply chains is closely associated with the problem of protectionism which is not any more only a trade

issue, but touches upon also foreign direct investment and financial systems. Political leaders of the world have repeatedly committed themselves—as they did in the London summit of G-20 in April 2009—not to resort to protectionist measures in their trade policies. According to a recent World Bank study, practically all governments have done so in the last couple of years. Many still remember the shrinking spider web that Charles Kindleberger draw to describe the contracting volume of the world trade in the 1930s as a result of Smoot-Hawley tariff and other protectionist measures. In reality, in the current crisis, the world trade has been shrinking more rapidly than it did in the start of the Great Slump.

Therefore, the risk of protectionism, which easily leads to retaliatory responses, should not be underestimated, Its spread can contribute to economic deglobalization. There is no lack of examples of protectionist measures undertaken by individual countries. The United States has imposed tariffs on the Chinese exports of cheap car tires, Mexican trucks cannot any more use American roads despite the provisions of NAFTA, the South Korean government has doubled the import tariffs of several raw materials, and India is restricting the imports of Chinese goods. These individual examples should not cloud, however, the bigger picture. Yes, there is a protectionist trend in the world trade, but it is still rather moderate and more obvious in the policies of the developing than developed countries. In the European Union, it is repeatedly emphasized that the single internal market, which is its major accomplishment, should not be jeopardized by protectionist measures and subsidies that distort competition.

In a crisis, international trade is increasingly shaped by extra-economic factors. Traditionally, national security has been the main constraint on free trade in strategic industries, but the gradual integration of the defense markets across borders has reduced its impact on trade policies. Now climate change is creeping into trade policy. In particular France and the United States have expressed concerns about the deterioration of their economic competitiveness if the costs created by the restrictions on greenhouse gas emissions for the industry are exploited by the emerging economies opting for less stringent limitations. If the restrictions on greenhouse gas emissions are not universal, there is a risk of "environmental shopping" by transnational companies, especially in the energy-intensive sectors.

Indeed, it has been suggested that the green economy could become the next trade battleground. To put this claim in the context, it has to be realized that the threat of "green protectionism" is for the time being used mostly as a bargaining chip in the great game leading to the Copenhagen summit and the eventual post-Kyoto agreement. It is exploited by the old industrial countries as a counterargument to the claims by some emerging economies that their restrictions on the emissions should be compensated by the old industrial countries. After all, these countries have created the entire problem in the first place. In Copenhagen, the main political issues will obviously concern the redistribution of economic burdens and political responsibilities in coping with the global climate change. Hardly ever before have the global needs and national priorities confronted each other in an equally intense manner.

A serious new phenomenon is the spread of protectionism from trade relations into other spheres of the economy. Developing countries, including Argentina and 15 other governments, have asked the WTO whether the stimulus packages and bail-out plans in the North amount to protectionism against which they have the right to initiate retaliatory measures. This query is justified as many stimulus measures have no doubt contained protectionist elements. The cases range from "Buy American" clause introduced by the Obama Administration through the demand by the Sarkozy regime that the bail-out money for the French auto industry should not be extended to its subsidiaries in Eastern Central Europe to the decision by the Indonesian government that all of its 4 million civil servants should wear only locally made shoes.

While many of the demands for domestic preference have been diluted under international pressure—coming in the case of "Buy American" especially from Canada but also the EU—the stimulus packages will probably distort international trade and investment patterns for years to come. For instance, Canadian and European companies are barred from participating in the American stimulus program whose value amounts to $800 billion. The inward turn of economic policies in many countries is sometimes due to a simple fact that even though governments may want to avoid—in the fear of retaliation and due to their international commitments—protectionist measures, many of the decisions to spend stimulus money are in the hands of local authorities. Their natural

preference is to favor local contractors as only the EU has regional rules to stipulate and enforce open rules for competitive bidding.

TOWARDS A NEW INTERNATIONAL CURRENCY?

An even more indirect way of practicing so-called home bias relates to the efforts to improve the resilience of the national financial systems. There are mainly two variants to do so; either that governments invest in banks and effectively nationalize parts of them over a short term or they infuse money into banks to strengthen their capital base. In both cases, the national element in banking, in which transnational operations have been in recent times dominant, will accentuate. It is not difficult to imagine that in nationally supported banks, financial needs of domestic companies and private citizens will receive a more serious consideration. Of course, there is little doubt that the global element in the financial system will remain strong in the future and actors in the area will find new means to operate across the borders. However, it is difficult to avoid the tendency towards fragmentation of the financial systems along national and regional lines. Gillian Tett of *Financial Times* has put this matter succinctly: "the concept of an integrated global capital market is coming under renewed strain".

One aspect of this strain is the intensification of the debate on the future of the U.S. dollar as the leading reserve currency. This is not a new topic, but it has surfaced, as Jonathan Kirshner has shown, with surprising regularity since the 1960s when de Gaulle started his effort to diminish the role of the dollar. So far, the dollar has been able to retain, however, its preeminence, but the growing U.S. imbalances may take the dollar to a trajectory of a long decline. The process will be as much political as financial and the outcome will not be the replacement of the dollar by another single currency. Politically, it would be useful to keep in mind the observation by the Nobel laureate Robert Mundell that "great powers have a great money". If the dollar declines significantly, the status of the United States as a great power is under challenge, but neither there is any alternative great power with "great money" in the horizon. Therefore, any serious alternative to the dollar as the international reserve and anchor currency is some kind of a "negotiated currency".

Recently, the head of the People's Bank of China and the summit of the BRIC countries held in June 2009 in Yekaterinburg, Russia, have demanded the creation of a new international money to replace the dollar. These demands are motivated by at least two concerns. First, the emerging economies want to send a signal to the United States that the era of monetary unipolarity will soon be over. They want to gradually convert their economic success into tangible changes in the global political, institutional, and financial arrangements. The redistribution of the voting power in the decision-making bodies of the IMF, whose capital base is about to be tripled to $750 billion, will be one of the first political tests of the success of this transformation. A key issue will be whether the leading Western powers are ready to give up their de facto veto power in the IMF and who will be ready to reduce their own influence to satisfy the legitimate demands of the emerging economies.

Another reason for calling for an alternative international reserve currency is that those surplus countries, such as China and Russia, which hold significant dollar holdings are worried about the future of their investment. The deep imbalances in the U.S. current account and federal budget, amounting now to 12-13 per cent of the GDP, will very likely lead to the weakening of the dollar that would, in turn, damage the international holders of the federal bonds. The Chinese sovereign wealth funds (SWFs) have already seen their international investments to melt down and have become much more cautious and inward oriented in their operations.

The surplus countries have a natural interest to diversify their dollar holdings into other currencies. The problem is, however, that there is no real alternative in that regard; the euro comes closest to an alternative, but it is not ready to take over the dollar yet. The EU itself is too fragmented and it also seems to be late to recover from the economic malaise. The Special Drawing Rights (SDRs) of the IMF have been suggested as an embryo of the new international money, but it has several drawbacks. Even the replenished SDRs account only for a maximum of 5 per cent of the world currencies and they are held only by the central banks. Business cannot use them as a medium of exchange and there is no stock or bond market organized around SDRs.

A positive aspect of SDRs is that they are in effect a basket of currencies in which the share

of the dollar, 44 per cent, is less than in the global currency market where it hovers around the three-thirds. The share of the euro is 34 per cent and the rest is divided evenly between the yen and the pound. The prospect for SDRs becoming a new international currency would require that the IMF becomes a much more powerful institution, essentially the central bank of the world. That change should be acceptable to major economic powers but it seems to be highly unlikely to pass in the U.S. Senate and other pivotal places. The United States has been benefiting for decades from the unique role of the dollar as the international reserve currency that has permitted Washington to transfer its own economic failures to the shoulders of others. It is far-fetched to think that in the current crisis the United States would give up this privilege unless it is forced to do so under the growing pressure of economic realities.

This does not exclude some sort of a negotiated settlement. A big risk, emanating from the deep macroeconomic imbalances in the world economy, is the increasing volatility of exchange rates. As long as the Chinese yuan continues to be pegged to the weakening dollar, the main victim of such volatility would be the euro. The *Trade and Development Report 2009* of the UN Conference on Trade and Development (UNCTAD) suggests that the key governments should aim at a pact on the stability of real exchange rates. Such a pact has been reached before in the 1980s in the Plaza and Louvre accords and might well make sense even in the current circumstances. Other old ideas have been revived as well, including the so-called Tobin tax on international financial transactions. The idea has received much scorn and skepticism, especially in the business community, but it has been seriously proposed by such serious people as Bernard Kouchner, the French Foreign Minister, and Lord Turner, chairman of the British Financial Services Authority.

THE DISTRIBUTION OF BENEFITS AND LOSSES

In a globalized economy, political costs imposed by the state regulations are considered by companies as a disadvantage in spite of the fact that they often serve a common good. Partly as a result of the present crisis, the discrepancy between the public interest and the private gain seems to be growing. In a deregulated market economy, the benefits of risks taken by business actors usually benefit them, while in the case of a business failure the costs are born by the taxpayers. As will be discussed below, it is no wonder that people are becoming more critical of the business and its leaders. As *Fortune* recently pointed out, there has been for quite some time a growing tension between the Wall Street and the Main Street. In the public debate, "robber barons" are back in vogue and there is a widespread feeling that their "greed" must be limited.

While globalization fosters productivity and growth, which in turn help to alleviate poverty, its competitive mechanisms lead to the uneven distribution of material results. Practically every empirical study shows that the degree of economic and social inequality is growing in the world. The specific results depend much on the methods and data used; whether, for instance, macroeconomic data or household surveys are used and whether countries are considered single units or intra-country distributions are taken into account. Because of the higher growth rates in the emerging economies and the lower rates in the old industrialized countries, the international distribution of wealth is becoming more even (which does not, of course, mean that some countries are relative and even absolute losers).

A somewhat greater equality among the nations does not mean, however, that the people of the world are becoming more equal; to the contrary both within countries and among the entire humankind economic inequality is growing. This is more due to the rise of a new class of rich and even superrich people both in the old and emerging economies and less to the absolute deprivation of masses. There is an ongoing debate on whether the growing economic disparities are due to rapid technological changes, distributing its benefits unequally, or economic globalization that makes the entire world a market place. Probably these changes interact in reality, but the impact of globalization should not be neglected. It has clearly tilted the balance in favor of capital income instead of wages which in a deregulated economy has favored the educated and wealthy urban classes. No doubt, the meltdown of the stock market has made a tent in the wealth of the rich, but its recent recovery has brought back some of the earlier gains.

The reality of economic inequality among the people predated the current financial and economic crisis, but it has exacerbated both the reality and perceptions of inequality. The polls

ANY SERIOUS ALTERNATIVE TO THE DOLLAR AS THE INTERNATIONAL RESERVE AND ANCHOR CURRENCY IS SOME KIND OF A "NEGOTIATED CURRENCY".

conducted both by the BBC World Service and the Financial Times/Harris over the last several years corroborate these perceptions. In the samples, there were a few countries—such as Brazil, Indonesia, the Philippines, and Turkey—where respondents felt that globalization was progressing too slowly. Significantly enough, there was not, however, a single old industrialized country in which people would have been worried about the slow advance of globalization; to the contrary, especially in France and Spain, some two-thirds of the people felt that globalization is growing too quickly. To make the picture more complex, also respondents in China and Egypt felt pretty much in the same way despite the fact that in China 84 per cent of the people perceived a major improved in their lot (the data are from 2007). The most widespread perception of the worsening economic conditions appeared, not surprisingly, in Italy where 86 per cent subscribed to this view.

In all surveys, the majority of people in almost all countries felt that social and economic inequality was increasing and that the captains of business were receiving too generous rewards. It needs to be stressed that these results were obtained before the eruption of the present crisis and indicate thus the existence of a deep-rooted social phenomenon. It appears to be associated with the relative deprivation of many segments of the middle class which have not been able to befit from globalization and who have felt the squeeze on the welfare state (teachers, researchers, nurses, etc.). The middle class is, partly because of its heterogeneity, slow to react to changing realities, but its feeling of the economic malaise seems to be a structural condition.

These tidbits of information suggest that the public perception of the effects of economic globalization is a very complex and diverse phenomenon. The protests against the meetings of international institutions in Seattle, Genova, and elsewhere have been to a large extent media events that have only limited bearing on wider social and political ramifications of globalization. The real issue seems to be that the uneasiness with globalization in the public opinion does not seem to be directed against the market economy, or capitalism, as such but against its social consequences. In only a very few countries—including Australia and Canada, and surprisingly Nigeria—people felt that the economy is fair. The dominant opinion was that the distribution of benefits and burdens of globalization have been uneven and unfair. This state of affairs helps to understand why the so-called Nordic model has recently become so popular both among the politicians and even business people. The model offers a potential solution by combining and open economy, integrated in the world market, with the services of the welfare state should people experience sickness, unemployment, or other misfortune.

CONCLUSION

There is evidence that economic globalization is slowing down. World trade is shrinking and the international private capital flows are now much below the previous levels. It can be said, of course, that these phenomena are only a temporary aberration due the financial and economic crisis that reduces demand and make banks reluctant to move capital around. Once the economy starts to recover, globalization will continue unabated. An alternative view states that the tendencies towards deglobalization - such as the rise of the state power, trade protectionism, and political nationalism—are a more permanent condition. Transnational economic interdependence, fostered by globalization, creates restraints on the return of national politics, but is still too weak to prevent politics from shaping the world. The middle-class resentment about globalization and inequality offers fuel for the politicization of issues.

Personally, I venture to suggest that once the present crisis is over, and the slow recovery has started, globalization in trade, investment, and finance will continue. Too much political and business capital has been invested in globalization, and too many influential groups have benefited from it, that it could be stopped on its tracks. The global governance of the world economy will be restructured; G-20 embraces the wider circle of political stakeholders, there is a commitment to finish the Doha round in 2010, international financial institutions will be restricted, and there are efforts to weed out the worst excesses of financial capitalism and establish new financial watchdogs. These and other reforms will produce some new normative standards, international institutions, and political practices, but they will hardly be able to create a new framework for globalization. Once the crisis is over, the process will continue pretty much in the same way than in the past. The behavior of bankers is showing even now that there is no fundamental change offing in their *modus operandi*.

It has to be remembered, though, that globalization is a very complex and uneven process which leads to contradictory results. It contains a continuing dialogue between the advocates and the opponents who both perceive the reality in their own ways. The realization of the profit opportunities by the business appears for the middle and lower classes as relative deprivation and growing inequality. The unevenness of globalization means that the zones of stability and instability continue to coexist and their differences may become even sharper. According to some estimates about one-quarter of the world's states have either "failed" or faces the risk of failure. It is unlikely that such states can be integrated in the global economy in a balanced and constructive manner. It is more likely that they are or become sites of political repression, military conflicts, and terrorism. The international community has to spend political and material resources to stem the spread of these of these "bads" that should be used to promote positive and inclusive global governance that would be badly needed in the present era of economic crisis.

MÒNICA LLEÓ
PUNTO DE FUGA, 2006

GLOBALIZATION AFTER THE FINANCIAL CRISIS

JORDI CANALS

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INTRODUCTION

In the Richard T. Ely Lecture, "Globalization and its Challenges," given at the annual meeting of the American Economic Association on January 3, 2003, Stanley Fischer ended his defense of globalization with the following words: "The pro-market pro-globalization approach is the worst economic policy, except for all the others that have been tried (Fischer 2003)."

Globalization as a social and economic phenomenon is nothing new. Historians speak of the first globalization, which took place between 1870 and 1914, and the second globalization, which stretches from the end of the Second World War to the present (Williamson 2002). The first globalization failed when war broke out in Europe in 1914. In light of the enthusiasm shown for the globalization process, Keynes (1919, 9–10) turned an admiring eye on the growing economic integration before the outbreak of the Great War, considering it positive and natural. He pointed out that "a person of that period considered this state of the world, an increasingly integrated economy, something normal, certain and permanent except in its possibility to improve. And any deviation from this tendency seemed aberrant, scandalous, and avoidable. The projects and politics of militarism and imperialism, of racial or cultural rivalries, of monopolies, restrictions, and exclusions that played the role of serpents in paradise were no more than distractions in the newspapers and they seemed to have no influence whatsoever on ordinary economic and social life, whose institutionalization seemed complete in practice." In other words, Keynes looked admiringly on the normalcy that surrounded the process of international economic integration. Following the First World War, however, he was surprised by the scant attention citizens in general and politicians in particular had paid in previous years to the possible effects that certain emerging social phenomena could have on globalization, including the possibility of stopping that process altogether.

Nowadays, almost a century after Keynes's observations, we could ask ourselves why we were unable to foresee the impact of the international financial unbalance and the growth of family debt, and why we were unable to see that the structures on which the globalization process—especially the financial globalization process—has been growing and accelerating over the last two decades have such weak foundations that the collapse of the financial system could undermine them.

On May 15, 2009, Martin Wolf, Associate Editor and Chief Economics Commentator of *The Financial Times* wrote an article in that periodical called "Seeds of its own destruction (Wolf 2009)." Wolf reflected upon the 2007 financial crisis and its possible effects on market economies, traditional economic policies and the globalization process. A few years later, after writing one of the most solid and well-known books in defense of globalization (Wolf 2004), Wolf wrote in *The Financial Times*: "Another ideological god has failed. The assumptions that ruled policy and politics over three decades suddenly look as outdated as revolutionary socialism.... Yet the combination of a financial collapse with a huge recession, if not something worse, will surely change the world. The legitimacy of the market will weaken.... Globalisation itself may founder.... The integration of the global economy on which almost everybody now depends might be reversed. Globalisation is a choice."

Wolf's reflections are an interesting contrast to Keynes's observations from 1919, and to the favorable interpretation of globalization offered, among others, by Wolf himself (2004) and Baghwati (2004). The first globalization failed because of a set of erroneous policies that led European nations into two world wars. The second globalization, however, runs the risk of failing due to the collapse of a deficiently regulated international financial system that has developed on the basis of free market, deregulation, and free capital flow between countries. Globalization does not depend solely on the financial system but in a modern economy the latter acts as a nervous system, so a dysfunctional financial system can lead to the collapse of much of the world's economy, as we saw in the summer of 2007.

In the present article, we wish to reflect on a central question: will the financial crisis stop the globalization process, or at least change its rate? In other words, can the globalization process survive the consequences of the current financial crisis? Before we pose this question, let us begin with an earlier one: is globalization the principle or indirect cause of the financial crisis?

Before we go any farther, we should point out that economic globalization is only part of the broader social phenomenon of globalization. By economic globalization we mean the growing international integration of countries through commercial flows, capital flows, flows of direct investment, technology transfers, and

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the movement of workers. Globalization also has social, human, cultural, and political dimensions beyond the strictly economical ones. In that sense, from a sociological perspective, Roberson (1992, 8) explains that globalization "refers both to the compression of the world and the intensification of consciousness of the world as a whole." Guillén (2001, 236) defines "globalization as a process leading to greater interdependence and mutual awareness (reflexivity) among economic, political, and social units in the world, and among actors in general." The weight of economic variables on globalization is considerable, but it is not the only one. In fact, protectionist policies and deficient international financial coordination following the First World War are what halted the process of economic globalization. It is also important to note that for the international economy and for business, globalization is not a finished process, but rather, a developing one. When some companies commit the error of thinking in terms of a completely globalized world, the number of mistaken decisions multiplies.[1]

It is interesting to observe that what is slowing globalization today is the financial crisis. Protectionism may also contribute to its deceleration, but it is worth remembering that the coordination of economic policies can contribute to the recovery of the world economy and to insuring that economic integration does not stop. Moreover, it is important to emphasize that economic globalization should not be considered a permanent state, but rather a fluid one, whose rate can accelerate or decelerate. Therefore, when we refer to the effects of the crisis on economic globalization, we must limit ourselves to reflecting on possible changes in the rate or manner in which this process occurs.

The present article is structured as follows: in the next section we will make some notes on the impact of globalization on the triggering and propagation of the financial crisis. Then we will analyze the effects of the financial crisis on the globalization process. Finally, we will offer some reflections on the impact of the crisis on the globalization of companies.

GLOBALIZATION AND THE UNLEASHING OF THE FINANCIAL CRISIS

One of the characteristics of the current financial crisis is that it has been worldwide right from the start. The crisis had been brewing for months, but an important outbreak began on August 9, 2007 when the American Home Mortgage Investment Co. announced its incapacity to meet its financial obligations with regard to funds guaranteed by "sub-prime" mortgages. A week later, it declared bankruptcy. The event was preceded in July 2007 by various warnings issued by credit rating agencies about the growing risk of financial assets guaranteed by mortgage instruments. In late July some agencies lowered the ratings of "sub-prime" mortgage bonds. The collapse of stock exchanges and capital markets was immediate. Liquidity suddenly became the financial system's most coveted value. And yet, what seemed to be a problem originating in a very specific segment of the United States' financial markets immediately became a global problem.

The United States' strong foreign investment in recent years, fostered by economic growth, good investment opportunities, and a flexible legal regime, was directly driven by countries with an enormous balance of payments surplus, such as Germany and China. This increased the exposure of international investors to the risks of the US market. The imbalances were fed by the United States' voracity, its shrinking internal saving rate was financed with foreign capital that led to an enormous current accounts deficit. International financial imbalances cushioned by a highly global financial system transformed a US financial crisis into a global one.

Consequently, financial integration among countries facilitated the rapid international transmission of the crisis.[2] The United States' financial necessities have driven financial innovation, capturing capital from all over the world. In particular, numerous financial entities from other countries that acquired US financial assets linked to sub-prime mortgages with the expectation of high profits have had to face an important drop in their market value as the effects of the crisis unfold. This obliges them to recognize their losses, restructure their balance, and limit credit growth. Those investors not only seek profits unavailable in their own countries—due in part to a lesser development of their financial systems (see Caballero, Fahri, and Gourinchas 2008)—they also seek a greater diversification of their investment portfolios. The safety that the United States offers international investors reinforced that tendency. Therefore, investments by banks and international insurance companies in financial products issued by American institutions have worsened the crisis's international dimension.

The phenomenon of international financial investment reveals the flip side of financial glo-

1
Ghemawat (2007) clearly explains that the current process is of semi-globalization and that the obstacles that impede greater globalization are significant.

2
In one way or another, this scenario was foreseen by some economists who favor globalization, but were aware of its potential risks. See, among others: Obstfeld (1998) and Rogoff (1999).

balization: the emergence in the early twenty-first century of gigantic imbalances in the major economic powers' balances of payments. On one hand, a growing deficit in the balance of goods and services in the United States and Great Britain, and on the other, an equally growing surplus in Germany and China's balances of trade. In this case, the growing freedom of international trade, especially China's access to the World Trade Organization, have fostered a process of economic growth in China that rests on a very competitive industrial base and a slightly under-priced currency. China's efficient manufacturing and logistic complex has driven the growth of industrial exports, making China the world's largest factory. The growing liberalization of foreign investment in China has farther strengthened this country's role as a manufacturing base. Industrial outsourcing in the United States and Europe driven by the search for lower costs and greater productive efficiency have made it possible for China to achieve this power as an exporting country. And the fact that other countries have outsourced industrial enterprises to China and other emerging countries increases their need to import. Once again, growing economic interdependence underlies the foreign imbalances of countries that have also contributed to the triggering of the current financial crisis.

Voracious spending in the United States has been temporarily sated by the austerity and weak domestic demand of Germany and China. While economic globalization has allowed the United States to rapidly absorb the surplus savings of those countries, the crisis has brought out the fact that it is not possible to construct a stable global economy, nor a balanced globalization process, on the basis of such fundamental imbalances in the foreign accounts of the large economies.

Therefore, economic globalization has played a central role in the international transmission of the crisis. Until spring 2008, the disconnection of emerging economies, mainly China and India, was hypothesized, positing that they might be immune to declining economic activity in the United State and Europe. The reality, however, has been less flexible, and the crisis has also affected those countries, and even more so, other economies in Latin America, Africa, and Asia.

Various mechanisms have transmitted the crisis to those emerging countries. The first is the global liquidity crisis, which has also affected financial entities—some of which have high levels of debt in international markets—and investors in those countries. Suddenly, numerous banks found themselves with growing liquidity problems and losses in portfolios with investments in US financial assets. The liquidity problems rapidly led to credit restrictions and rising long-term interest rates, with the expected effects on consumption, investment, and economic activity.

A second transmission mechanism was the panic that gripped foreign investors in emerging countries during the spring and summer of 2008. That panic led to spectacular drops in those countries' stock indexes. According to data from the BIS (2009), after good performance following the crisis in summer of 2007, the MSCI indicator of stock prices on emerging markets fell 28% in local currency between May and September 2008—even before the fall of Lehman Brothers. On the other hand, the S&P 500 index fell only 12% during the same period. Between September 15 and October 30, 2008, that same MSCI index fell another 40% (see BIP 2009). The realization that the possible disconnection of emerging economies had only been wishful thinking led to the withdrawal of funds from those countries' markets, contributing to posterior drops in the process of financial assets, with the corresponding wealth effect and a considerable increase in uncertainty.

Consequently, the same circuits that had fostered economic and financial integration in recent years were now used by the investors that had driven that process to divest, and the market mechanisms that had transferred the effects of a crisis in the US financial market to the global market also traveled along those same circuits.

Economic globalization cannot be considered the main cause of the current financial crisis, but it is true that greater international economic and financial integration have made the worldwide transmission of the crisis's effects faster and more intense. What can be seen as the positive side of globalization in one context—international trade flows and investment in emerging countries—could, in a moment of panic, turn into an accelerator of financial crises, giving greater impetus to their international transmission and planetary impact.

THE EFFECTS OF THE FINANCIAL CRISIS ON ECONOMIC GLOBALIZATION

The gravity of the current financial crisis and its diverse dimensions raise questions about certain basic aspects of the financial system: the overlapping efficiency of financial markets,

the convenience of reducing the global level of debt by financial and non-financial companies with regard to total resources, the need to improve regulations and supervision, the suitability of mechanisms for managing risk or the convenience of economic incentives related to the volume of transactions and their short-term results. Moreover, doubts about the efficacy of the financial system have also been cast on the actual functioning of market economies and, indirectly, on the future of economic globalization. Are the words about globalization and the policies that promote them, which Fischer uttered at the end of his Richard T. Ely Lecture in January 2003, still valid today?

In the following pages, we will try to argue that the development of the globalization process can be stopped or shifted, although, as forms of economic organization go, the free-market economy continues to be the least-bad choice. Still, its functioning could clearly be improved, as the current crisis has shown. The market is not an absolute criterion and long-term progress depends not only on the existence of dynamic, free and open markets, but also on a prudent and efficient presence of the public sector, which is needed to correct negative spillovers generated by markets. Nevertheless, the economic globalization process has a somewhat different rationale than the market economy. When the free market is proposed beyond national borders, there are not only cultural and linguistic barriers, but also economic, political, and legal barriers to contend with, and some of them are of very considerable size. In that sense, the economic globalization process could stop because it is an option, a choice, and as such, it could be reversed by the policies adopted at each moment.

To examine this question, it might be useful to consider that in recent decades the economic globalization process has manifested mainly in a significant increase in trade and financial flows. At different moments, this process has been driven with differing strength and rates by four main motors: public policies, the expansion of international companies, the dominant values and ideas in public policies and society, and technology. Of these four, technology has not been directly affected by the economic crisis, so we will not consider it here, concentrating instead on public policies, dominant values, and companies. Below, we will analyze the leading external indicators of the globalization process, and will then analyze the three motors mentioned above.

EFFECTS OF THE CRISIS ON INTERNATIONAL ECONOMIC ACTIVITY

TRADE FLOWS

The economic deceleration caused by the recent implosion of the global financial system has led to an abrupt fall in international trade. Restrictions on credit to companies—including credit to companies' circulating capital—have also made that drop even more intense. Moreover, this reduction in economic activity has provoked a significant excess in the capacity of some sectors of the economy and a consequent increase in unemployment. Over the last twelve months, the automotive industry in Europe and the United States has experienced the largest drop in sales in various decades. Other sectors, including steel or capital goods, have experienced equally serious drops.

Consequently, the financial crisis has not only prompted a global economic recession, it has also brought out some of the weaknesses and structural risks of economic globalization: greater dependence on international trade, greater exposure of domestic industry to excesses of capacity when economic activity drops abruptly, and indirectly, an incorrect but latent and manifest perception in the most advanced economies that globalization has weakened their countries due to outsourcing of industrial activities. Once again, the deindustrialization of countries like Great Britain is lamented when, in recent years, the shift to a tertiary economy had begun to seem natural and almost desirable.

Dropping demand and increased unemployment efficiently spur new calls for economic protectionism. Until now, the governments of countries with the greatest economic weight have resisted the temptations of protectionism rather well. But this battle can never be definitively won: the entire world's prosperity, and especially that of the most needy countries, depends on the existence of open goods and services markets that allow them to export their products to the most advanced markets. Neither China nor Brazil, among others, would have been able to so significantly reduce poverty in the last twenty years had they not been able to freely enter the richest countries' markets.

Nevertheless, while trade flows parry the thrust of protectionism, commercial interdependence among countries can also help to more rapidly propagate economic recovery. Emerging countries are also major clients of companies in the most advanced countries. If the latter increase their

exports it will improve economic growth, the need to import capital goods or sophisticated intermediate goods and also investments in public infrastructure. All of these tendencies are good news for multinational corporations. Consequently, just as commercial interdependence has worsened the international repercussions of the crisis, it also means the possible recovery by the most relevant economic countries will have a more rapid effect on the world economy. We can thus see that, as a process, globalization can have a variety of effects on the world economy, and they are not always foreseeable or predetermined.

CAPITAL FLOWS

The impact of the financial crisis on capital flows has been direct, immediate and enormous. First, the liquidity problems that initially affected US banks and investors rapidly affected all countries belonging to the international economy. Liquidity problems quickly turned into credit restrictions, which especially affected those companies with the highest debt levels.

In spring 2008, a growing perception that liquidity problems could be long-lasting and could possibly turn into problems of solvency provoked a flight of capital from emerging markets to more developed economies. According to BIS data presented earlier, the MSCI indicator of share prices on emerging markets dropped 28% in local currency between May and September of 2008—even before the fall of Lehman Brothers—while the S&P 500 index fell only 12% over the same period. This may be because the unstoppable liquidity crisis of the first months of 2008 turned into a financial panic at the possible collapse of the world banking system, leading investors to opt for US Treasury debt rather than assets on emerging markets.

Direct investments in emerging countries also dropped drastically as a result of growing uncertainty about global demand and demand in the countries receiving those investments, as well as the credit restrictions of investment firms in their countries of origin and the fact that investments in emerging countries became less attractive with the changing economic scenario.

The recent restructuring of the banking sector, mainly in the United States and Great Britain, is provoking a greater concentration—as banks in crisis are absorbed by more solid banks—as well as a reduction in size of some of the major banks with international operations. In this case, two phenomena converge. First, strict indications by US financial regulators that banks in receipt of public recovery aid must improve the efficiency of their operations. And second, that in numerous banks, the restructuring of international operations is a clear field for improvement. In the case of European banks, such as those in England, Holland, and Germany, the smaller number of international operations is the result of an explicit decision by the top directors of those very banks to optimize the management of resources and reduce the degree of geographic diversification of their operations.

Underlying these decisions by banking institutions is the need to sell assets to reduce debt, the greater demands of capitalization, an awareness that some international operations have been characterized by deficient risk management, and the need to divest themselves of international operations that were not very efficient in some cases. This is an interesting phenomenon. We find that one of the most dynamically internationalizing sectors, banking, faces a drop in its international operations as a result of the financial crisis.

Moreover, the difficulty of regulating banks with international operations due to their greater complexity has led to public debate about whether it would be preferable for banks, as regulated institutions, to have a smaller geographic area of operations. Unless the debate on public policies in Europe changes radically, it seems unlikely that this debate will mark a turning point for international banking operations. Nevertheless, the fact that this debate has arisen is a clear indication of the degree to which the financial globalization process is now being questioned.

Finally, mergers and acquisitions—another important motor in the globalization process in recent years—have also dwindled as a result of the financial crisis. These corporate operations have an important cyclical component, so it is natural for them to diminish in parallel to economic deceleration. And yet, at this point in the economic cycle, the drop in the number and volume of such operations is related to the loss of attractiveness of certain key markets, poorer expectations of the stock market, general uncertainty about the future of globalization, and reduced credit facilities for undertaking acquisitions financed with debt.

Nevertheless, the financial crisis has also shown how important it is for the international financial system to have a high degree of integration. The enormous imbalances in the US budget and balance of payments have been financed with foreign savings, which would have been

THE ECONOMIC GLOBALIZATION PROCESS HAS BEEN DRIVEN WITH DIFFERING STRENGTH AND RATES BY FOUR MAIN MOTORS: PUBLIC POLICIES, THE EXPANSION OF INTERNATIONAL COMPANIES, THE DOMINANT VALUES AND IDEAS IN PUBLIC POLICIES AND SOCIETY, AND TECHNOLOGY.

more difficult just a few decades ago. Without China's integration into the international economy, the United States would not have been able to support those deficits without substantially raising interest rates.

This is the second positive dimension of financial globalization worth noting: international capital flows have not completely disappeared during the financial crisis. As a result, the absence of liquidity in certain markets has not led to a generalized rise in interest rates.

And last, the crisis has revealed the enormous impact of public policies, particularly monetary policies applied by major central banks to combat the perverse effects of the financial crisis. A coordinated effort by central banks to inject liquidity, rein in the panic, and maintain nominal interest rates at a very low level has clearly kept the financial crisis from turning into a great depression. In that sense, the crisis has proven the efficiency of the circuits through which financial globalization runs, even when the imprudence of certain banks and the lack of regulation in keeping with the new realities could have provoked an even greater disaster. Likewise, central banks have shown that even when circumstances are very adverse—as they were in 2007 and 2008—the financial globalization process allowed adjustments that might have been more costly and less efficient in other circumstances.

EFFECTS OF THE CRISIS ON THE MOTORS OF GLOBALIZATION

PUBLIC POLICIES

As we emphasized above, the financial crisis has raised numerous questions about the future of the economic globalization process. That crisis has undermined the foundations on which the world economy has been developing in recent decades, foundations that essentially supported free and open markets, the liberalization of international commerce and capital flows, deregulation, and reduction of the public sector's weight in the economy. At the base of this hypothesis is a set of convictions about public policies necessary to guarantee the proper functioning of an economy.

The first of these convictions is that deregulated markets function better than regulated markets except in certain cases, such as monopolies. The second is that financial markets tend towards efficiency, which signifies that share prices adequately reflect all available information on companies. The third is that, in the face of the free-market/regulation dilemma, the dominant paradigm has been that of less regulation and more market, and this has been especially true in financial markets.

Reflection on these criteria in the context of the current crisis also leads to a reconsideration of the public sector's role in a market economy. This is neither the time nor place for a reconsideration of what have generally been correct decisions aimed at limiting or eliminating the public sector's participation in mercantile companies, reducing tax pressures—especially those that tax economic activity—and improving the efficiency of public spending. Nor is this the place to defend a greater presence of the public sector in countries' GNPs, other than the discretional spending considered prudent to revive economic activity in times of crisis. Still, it is clear that the deregulation movement of the 1980s and 1990s coincided with a regression in the state's role in economic activity to such a degree that two phenomena were mistaken for each other: less activity by the public sector and less regulation. Experience shows that the first, less presence by the public sector, has generally been a good one. The decision toward less regulation, however, has been ill advised in some cases, principally in the financial sector.

One of the main effects of the financial crisis is the reconsideration of those basic aspects of market economies and of the need for greater regulation of financial activity. This phenomenon will have some consequences on globalization. The first is that a re-regulation of the financial sector will make international expansion by banks more difficult and will generally limit, and increase the cost of, international capital flows. The second is that in a period of lesser economic growth a greater presence of the public sector as a regulatory agent of the financial sector could lead it to intervene in other areas of the economy beyond those needed to guarantee desirable levels of social protection. The US Government's intervention to rescue the automotive sector in the United States is a clear example of these new realities. The return of state regulation could have implications for greater economic protectionism, which could include the shameless defense of so-called national champions in strategic sectors. This would be bad news for the proper functioning of economies and would have a negative impact on globalization.

DOMINANT VALUES AND IDEAS

In recent decades, partially as a result of the ideas described in the previous section, which

have inspired economic policies in numerous countries, another opinion has become widespread: the idea that specific aspects of social life—or of society as a whole—should behave in a manner similar to the marketplace, with the corresponding incentives. This idea reached its peak in the moments of greatest growth during the 1990s and reappeared in the present decade before the summer of 2007. With this notion, a sensible approach—the idea that the organization of economic activity in competitive markets is generally the most efficient solution—has been transformed into the argument that social life should be centered on the market. Logically, the financial crisis has brought out the weak functioning of certain markets—especially financial markets—and has revealed the need for reasonable regulation. It has also debunked the myth that society mirrors the market.

As Nobel prizewinner, Amartya Sen, recently pointed out in reference to Adam Smith (see Sen 2009), "it was in his first book, *The Theory of Moral Sentiments,* published exactly 250 years ago, that he extensively investigated the role of non-profit values. While stating that 'prudence' was 'of all virtues that which is most helpful to individuals,' Smith went on to argue that 'humanity, justice, generosity, and public spirit, are the qualities most useful to others.'" Sen adds: "It is often overlooked that Smith did not take the pure market mechanism to be a free-standing performer of excellence, nor did he take the profit motive to be all that is needed." In conclusion, Sen observes that all this should not lead us to reject the market, but rather to understand the limits of the market itself. In other words, the market has limits. Moreover, there are other personal and social realities for which the market offers no reasonable explanation.

Closely related to the previous hypothesis about the market's role in the economy and in society is the fact that the search for one's own benefit or interest has become a basic principle of economic and corporate organization—not to mention its presence in society as a whole—and that search has been accompanied by an abandonment of the quest for the common weal. The satisfaction of personal objectives and interests has been particularly eloquent in financial institutions, especially investment banks and collective investment institutions, some of which have disappeared with the financial crisis. The pursuit of self-interest at any cost, sometimes driven by greed, has corroded the personal integrity of many individuals and has endangered both the continuity of many organizations, and the market economy's stability and acceptation as a social referent. The current financial crisis has provoked a wave of distrust of the market that is not logical, just as there is nothing reasonable about how, until very recently, the market economy was praised as a successful paradigm.

In the corporate world, the maximization of market value for shareholders—a new criterion that has replaced the notion of maximum profit—has become the central paradigm of business management, even when, for top management, maximization is neither an operative criterion nor the result of decisions they can make. Clearly, in this case we tended to replace a real market of clients, products, people, efficiency, and economic results with a market based on expectations—the stock market—under the hypothesis that the prices in the latter would reflect all available information. It has finally become a widespread criterion that payment of top management should be determined in terms of company results, and more specifically, in terms of the company's market value. Payment of top management is a complex challenge, but that challenge turns into nonsense when the referential indicators are short-term rather than long-term results. Short-term results generate perverse incentives to take risks with the expectation of high short-term returns, without any concern for the company in the long term.

The answer to the market's failure to explain certain human and social realities is to return it to its rightful place—the world of economic transactions—and to recognize that in both the personal and social spheres there are numerous dimensions and areas in which market logic is insufficient. Neither a stable economic system nor human society can rest on foundations of self-interest. If they did, the social edifice would suffer from considerable structural weakness. It is necessary to combine a legitimate interest in one's own affairs with a necessary interest in the legitimate wellbeing of others. That alone will guarantee a peaceful and enriching human coexistence for all. At the same time, there is also need for an explicit defense of the common weal, which represents the ideals of social life—freedom, a sense of justice, peace, human development—that make it possible for each person to grow. In Sen's words, authentic development consists of offering people and societies the necessary means to construct a destiny in keeping with their expectations and desires.

Therefore, it is not a matter of limiting the proper functioning of the market in economic

NEITHER A STABLE ECONOMIC SYSTEM NOR HUMAN SOCIETY CAN REST ON FOUNDATIONS OF SELF-INTEREST. IF THEY DID, THE SOCIAL EDIFICE WOULD SUFFER FROM CONSIDERABLE STRUCTURAL WEAKNESS.

life, rather, its true meaning must be found in the area of economic transactions, where its operation is efficient for the development of people and society. At the same time, even in this setting there is sometimes need for adequate regulation of the market. The financial crisis has made it uncomfortably clear that the lack of good regulation in specific areas of financial activity has permitted the unleashing of a crisis of brutal proportions. A more efficient and active regulator might have been able to limit the damage that has been caused by certain credit investment operations and specific opaque and non-liquid assets.

The current financial crisis could help return economic globalization to its proper place—the economy—an area of human activity that must be subject to politics, which must in turn be subject to ethics, as we find in the classical ideal formulated by Aristotle (see Aristotle 1996 and 2002). That is the notion that has been present in the most brilliant periods of Western society. Politics must be oriented towards the quest for the common weal, an ethical value superior to that of individual interests or those of certain lobbies. At the same time, economics should combine its specific and distinctive areas of competence—the quest for efficiency in the organization of economic activity—without seeking to apply the idea of the market to all areas of social life. That idea considers the market an efficient mechanism for organizing a large part of society's economic transactions, but, as Pope Benedict XVI observed, economic activity cannot resolve all social problems simply by applying the logic of commerce; to be efficient, it must pursue the common good, which transcends personal interest. In the final analysis, the market economy needs ethics in order to function in a sustainable fashion.

Similarly, globalization offers indubitable advantages in the quest for economic efficiency, including access to markets in the most advanced countries for products from emerging nations, as has been shown by the industrialization of China and Brazil. Still, the logic of globalization cannot limit itself to merely economic reasoning, much less to what some have called enlightened self-interest (an expression coined by Alexis de Tocqueville), which would be something like a humanized version of the self-interest that Adam Smith describes as the motive for a merchant's actions.

As we discussed above, Smith himself never admitted that personal benefit should be the only motive for an individual's behavior, or that the market could be the only manner of organizing social life. Limiting globalization to its economic dimensions and justifying it in the name of benign self-interest is simply unreasonable. Self-interest as the dominant criterion is a sign of selfishness and a manifestation of injustice. Basing international relations on a concept of globalization rooted in benign egoism—one that generates mistrust because it is seen as a rather unjust model lacking in sensitivity to the needs of others—clearly constitutes a danger for the peaceful development of nations and for human coexistence.

In that sense, the crisis is a magnificent opportunity to reflect on how fitting it may be to base economic integration processes on noble human values that foster cooperation among people and nations. Economic efficiency as a manifestation of professional excellence is one of those human values, but a leading role should also be played by the humanization of relations among people, justice, magnanimity, and the search for the common good, among others.

INTERNATIONAL CORPORATE EXPANSION

International corporations have been important drivers of the economic globalization process, along with technology and public policies to promote international trade. The international expansion of contemporary companies has provided the second globalization of the economy with deeper roots than the previous attempt before the First World War. What impact has the financial crisis had on international corporations and, indirectly, on globalization? The crisis has put a brake on the expansion plans of many companies, but in the minds of many directors internationalization is a central element in the twenty-first-century economy.

For a variety of reasons, the crisis has led to a drop in activity for many international companies. The first is the economic recession in many countries, which has caused reduced sales, especially in the capital goods and infrastructure sectors, but also in the automotive, telecommunication, computing, and consumer-electronics sectors. This recession is particularly intense in some countries and regions, especially certain countries in Eastern Europe and Latin America. The second reason is the credit restriction that has affected all companies in general, and particularly those whose investment projects have the highest perceived risk, which is the case with international operations.

The third reason is the growing importance that the location of a corporation's headquarters

has to certain decisions. For years we have allowed international companies to increasingly organize themselves as networks in which center and periphery play different roles over time, always according to their contributions to the company as a whole.[3] The economic recession and the need to increase efficiency and reduce costs have brought back the primacy of headquarters. Spain, in particular, periodically experiences this phenomenon with the sister companies of multinational corporations in the automotive and consumer-electronics sectors, among others. This uncertainty about the future of certain projects by foreign companies is perceived with greater intensity in periods of economic crisis, as we discovered in 1992–94—a period of lesser growth, though not actually of crisis—and, sadly, we are seeing this again today.

The financial crisis has also brought the model of outsourcing industrial activity into question. Outsourcing offers some clear advantages to companies: a very cheap production structure, and sometimes a more efficient one as well; access to raw materials or to growing markets; a diversification of manufacturing risks among various markets; and a greater proximity to the final consumer. And yet, in some, the crisis has brought out the negative impact on certain countries of a disconnection between manufacturing capacity and innovation—that disconnection can have a limiting effect on the latter—and the disinterest on the part of youth in technical-scientific university studies. Great Britain would be an example, given the growing importance of financial services in its economy and the loss of industrial sectors there over the last two decades. In fact, this attitude is a very real obstacle when preparing the new generations of company directors and highly qualified professionals.

Nevertheless, the financial crisis has also revealed some positive aspects of corporate internationalization, which could encourage this process in the future when the global economic situation improves. The first of these is that international corporations tend to systematically seek out efficiency when buying, producing or selling on various markets. The second is the greater diversification of the risk effect—both market and financial risks—especially in companies with balanced portfolios in various regions.[4] The positive performance of the major Spanish banks or of Telefónica during the financial crisis—especially when comparing their evolution with that of other companies in the same sector in other countries—is very eloquent in that respect. The third are the opportunities for future growth. International expansion is a never-ending process. Presence in emerging markets that have best weathered the crisis, such as China, India, and Brazil, has been a lifesaver for numerous European companies and will continue to be so in the future.

The fourth dimension is that the crisis has brought out the importance of diversity among management teams, and internationalization contributes to this. The presence of top management from other countries in which a company has a significant presence is a guarantee not only of greater understanding of the local market and its relevant circumstances, but also of a greater capacity to foresee the future in that country. The success of international corporations that have done especially well in certain emerging markets, such as Novartis, Pepsico, and Unilever, among others, cannot be separated from the fact that they have a very notable international diversity in their top management teams.

The fifth dimension is that the crisis has revealed the value of efforts to achieve information transparency and good government in many international corporations. Much of the intensity of the crisis has been due to many people's distrust of the value of companies. The financial crisis has hit all kinds of companies, but, since the bubble burst, those companies with the clearest approach to corporate government have shown a tendency to recover more rapidly. The case of US and British banks is a clear example. Those institutions that have been slow to admit their losses, adjust their management teams, or modify obsolete models of economic compensation have been hardest hit by the mistrust of their shareholders and the market. On the other hand, those banks that have shown the greatest maturity in their mechanisms of corporate government and have been capable of clearly informing their investors as to the reality of their situation and the logic behind their strategic decisions have been least damaged by the crisis.

To summarize, the financial crisis has had a negative short-term impact on international corporations, although for the time being we do not have evidence to determine whether that impact has been greater or smaller than on more local companies. Logically, this impact has a negative effect on the globalization process because companies have been the fundamental driving forces in this process.

Still, we should also point out that the financial crisis has brought out some of the strengths

3
This is the thesis defended by Bartlett and Ghoshal (2009), which became a central reference in the thinking of international corporate organization.

4
The diversification of corporate risk is one of the classic objectives of company growth. See: Canals (2000).

of international corporations compared to those with a more domestic profile. It is clear that a company's potential for globalization cannot be evaluated on the basis of how strongly it is affected by a gigantic financial crisis of the sort that only occurs every few decades. And yet, the impact of this crisis on international corporations at the root of economic globalization has brought out some of the advantages to this kind of company. Their strengths are also a relative guarantee that globalization may slow during the crisis, but it is not condemned to stop altogether.

SOME REFLECTIONS ON THE FUTURE OF CORPORATE GLOBALIZATION

In the corporate field it is worthwhile reconsidering two critical questions that have been at the base of the values and ideas underlying the globalization phenomenon in recent years. The first is the notion of the company itself. A company is a mercantile entity. As such, economic theory has posited the company's goal as the maximization of profits or, in a more recent version of this goal, the maximization of value for stockholders. As this is an unwieldy and diffuse goal, in practice it has been transformed into the maximization of short-term value.[5]

Still, above and beyond the legal reality, a company is essentially a human group that seeks to satisfy the needs of its clients through the efficient production and distribution of goods and services, and in that process, a company must generate economic profits, as well as offering opportunities for its employees' professional development.[6] That may seem like a more complex version of the concept of a company but the experience of legendary companies and the testimony of their founders shows that in many companies profit is not the principal motive. Such companies do generate profits, but they are the result of a process, not its essence.

A concept of companies in which the role of self-interest is appropriate and balanced with the overall interests of the organization, and of society, insures that a company will better respond to its underlying human reality, will better adapt to the challenges posed by crises and changes, and will be able to move confidently into the future. Moreover, this concept includes the idea that when a company acts as a driving force for globalization its role will be that of an institution seeking the common good of the societies in which it operates, and not only economic profit from its activities there. One part of the criticism directed at economic globalization has been motivated by the supposed lack of solidarity of some multinational corporations in economically less-favored countries. In terms of short-term economic results, the difference between these two concepts of a company may not be so great. But over the long term, the notion we are proposing here has the enormous advantage of greater respect for the nature of things and an emphasis on the idea that profit should not be the only dominant value in society.

This concept also implies a set of demands that must be met if companies are to continue to be the driving force in the economic globalization process. These demands are related to corporate government and, very specifically, to a company's sense of mission and the responsibilities and tasks of its organs of government, specifically, its board of directors and top management.

In fact, one of the dominant corporate values in recent decades has been to view the board of directors and president as agents[7] with powers delegated by stockholders in order to achieve the objectives set out by the latter, either directly, or through the expectations of financial analysts. Those objectives were based on the theory of efficient financial markets and related to the maximization of short-term value for shareholders. In order to align those agents with the shareholders' objectives, it was proposed that executives be paid according to results or performance ("pay for performance"). Once again, the idea of performance was most frequently associated with the creation of short-term value. This notion of the company has created perverse incentives for boards of directors and top management who, driven by greed, have ended up making decisions leading to short-term benefits even when they might have a negative impact on the company in the long term. The collapse of some investment banks in 2008, as well as of other companies in a variety of sectors, is a clear example of the lack of common sense and the irrationality of such behavior from the standpoint of the company as a whole and of society.

Companies can be stable motors for the economic globalization process to the degree that their top executives make decisions based on the projection and success of the company in the long term, rather than on personal interest. That is the only way that a company can become an institution worthy of respect for its economic efficiency, its capacity to create a positive referent for clients, suppliers and other competitors, and its positive impact on society as a whole.

5
Davies (2009) systematically shows how the theory of efficient markets and the objective of maximization of value for shareholders eventually conquered the corporate world beginning in the 1980s.

6
A more complete discussion of this idea of the company can be found in *Building respected companies*, Canals (2010). J.M. Rosanas (2009) presents the basis of an alternative to the neoclassical model of companies.

7
The term "agent" comes from what is knows as "agency theory," which seeks to explain the concept and goals of a company based on the delegation of powers by an owner or "principle" to an "agent." A formulation of agency theory can be found in Jensen and Meckling (1976).

Of course the problems posed by the current financial crisis cannot be resolved with ethical criteria alone. It is also necessary to apply professional criteria to both the design of economic policies and the direction and management of companies themselves. Still, without ethics, even the best policies will be useless and the globalization process will not move forward, crushing the possibilities for improvement that this process can offer when the participants fostering it are driven not only by self-interest, but also by the interest of others and the common weal of society.

SOME FINAL REFLECTIONS

The economic globalization of recent years cannot be considered directly responsible for the financial crisis we are currently experiencing, but it has contributed to the acceleration of its international propagation. Still, just as the crisis has affected many countries that are scarcely involved in the process of financial innovation developed in the United States, the mechanisms of propagation can act in a positive direction when economic recuperation strengthens in the leading economies.

On the other hand, the financial crisis has led to a significant slowdown in the economic globalization process, partially through a drop in commercial and financial flows among countries. In particular, the liquidity crisis and a greater aversion to risk have led to capital flight from emerging markets towards more mature ones.

The crisis has also provoked a drop in international corporate activity, as companies reevaluate investment plans, debt decisions, projects for penetrating other markets and international investment portfolios and business.

Nevertheless, the greatest impact of the financial crisis may be on public policies that directly or indirectly affect globalization. Especially if governments cede to protectionist pressures, defending their own countries' companies in detriment to companies from other nations.

An especially positive variable that the current financial crisis presents in the analysis of economic globalization is an examination of the values and suppositions that form the foundations on which the process of worldwide economic integration has advanced in recent years. Specifically, the primacy of criteria of efficiency and economic results over other criteria and variables. Economic efficiency, freedom, solid institutions, and a sense of fairness and justice are essential conditions for economic and social prosperity. Communism collapsed in the late 1980s because it met none of those requisites. Until now, the free-market economy has met some of them reasonably well, but nothing guarantees its existence if it does not manage to combine efficiency with achievements that are reasonable in terms of justice and fairness. And the future success of the globalization process does not depend so much on technology or the economies of scale that companies might develop, as on the public policies and values that societies develop with regard to that process. As Williamson pointed out (1998, 70), "Yet history does supply that warning: if a globalization backlash can be found in our past, it may reappear in our future."

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NACHO CRIADO ▸

SI ELEGÍS… SI EXCLUÍS… 1996

SEMIGLOBALIZATION AND STRATEGY FOR A POST-CRISIS WORLD

PANKAJ GHEMAWAT

Pankaj Ghemawat received his Bachelor's degree in Applied Mathematics (and was elected to Phi Beta Kappa) and his PhD in Business Economics from Harvard University. After working at McKinsey & Company in London, he spent 25 years on the full-time faculty at Harvard Business School, where, in 1991, he was appointed the youngest full professor in the school's history. Since 2006, Ghemawat has been the Anselmo Rubiralta Professor of Global Strategy at IESE Business School in Barcelona. Ghemawat's award-winning book, *Redefining Global Strategy*, was published in 2007 by Harvard Business School Press. His other books include *Commitment*, *Games Businesses Play*, and *Strategy and the Business Landscape*. He is also one of the world's best-selling writers of teaching cases and serves on the AACSB's Globalization of Management Education task force. Recent honors include the McKinsey Award for the best article published in the *Harvard Business Review*, the IESE-BBVA Foundation Economics for Management Prize, and the Irwin Award for the Educator of the Year from the Business Policy and Strategy Division of the Academy of Management. Ghemawat was also the youngest "guru" included in the guide to the greatest management thinkers of all time published in 2008 by *The Economist*. For more information, visit www.ghemawat.org.

> For one country is different from another; its earth is different, as are its stones, wines, bread, meat, and everything that grows and thrives in a specific region.
>
> Paracelsus

The worst economic downturn that virtually any of us can remember has already led to large drop-offs in various sorts of cross-border flows.[1] International trade is predicted to drop by 9–10% in 2009. Foreign direct investment (FDI) may decline by as much as 45% compared to 2008 figures, which were already 15% lower than in 2007. International air traffic is predicted to be 5% lower during 2009 than 2008. Anecdotal accounts suggest that even immigration flows are down: thus, emigration from Mexico to the US dropped 13% in the first quarter of 2009 versus the same period in 2008, with more Mexicans leaving the US than coming in. And so on.

Such changes and the developments underlying them have, naturally, nonplussed those who believed in a world that was already completely integrated or rapidly—and irreversibly—approaching that end-state, e.g., believers in the so-called flat or flattening world. Yet others have overreacted by convincing themselves and others that the world is rapidly *de*-globalizing, with no end to that trend in sight.

With all that is at stake, it seems useful to look more carefully at the data and respond to the crisis based on a more realistic view of where we are today and what the future is likely to entail. Acknowledging a world that is bumpy—or as I will explain more precisely, *semiglobalized*—instead of flat is essential to actually thinking constructively about how to deal with a bump. To make the point that *semiglobalization* is indeed a stable frame of reference upon which intelligent responses to recent fluctuations can be built, I will begin by discussing some recent data on a cross-border flow that has experienced particularly large drop-offs: foreign direct investment. I will then address the implications of the crisis and the likely post-crisis environment for companies' international strategies, focusing on what it means for each of the three fundamental ways that companies can create value across borders: *adaptation* (which may need extra emphasis over the medium term), *aggregation,* and *arbitrage.* And while I will defer to others the role of making formal predictions, particularly about the timing of the macroeconomic recovery, I will raise one crucial wildcard—*protectionism*—which business leaders should factor into their strategies as a possibility, while at the same time vigorously opposing it.

The metatheme I will return to throughout this paper is the importance—particularly now—of accounting for and genuinely respecting differences. Doing so can, in addition to helping companies bolster their performance, also help defend the system of relatively open markets that underpins our collective prosperity. Experienced international executives know that while this looks simple at first, it can be frustratingly difficult to really get right. Therefore, I will conclude with a practical framework to help managers see cross-country differences more clearly and focus on the most relevant differences for their own companies and industries.

CROSS-BORDER INVESTMENT IN A CRISIS

Reconsider the cross-border flow that has shown a particularly big percentage decline: foreign direct investment. To begin with some aggregate data, UNCTAD estimates, in its *World Investment Report*, that FDI fell from $2 trillion in 2007 to $1.7 trillion in 2008, and is likely to range between $0.9 and $1.2 trillion in 2009. These are such drastic declines that they have prompted a shift in the conversation, from the celebration of complete cross-border integration to despair about deglobalization.

But before these fluctuations whipsaw us, we should look more closely at the data. From a cyclical perspective, we know that investment in fixed capital has historically declined two to four times as fast as output during downturns (Ghemawat 1993, 2009). Declines in FDI tend to be even larger than those of overall fixed capital investment because most FDI is accounted for by cross-border mergers and acquisitions (M&As), which exhibit great sensitivity to shrinking corporate profits and plummeting stock prices, and which should therefore be expected to fall particularly steeply given the acute financial crisis as well as the real downturn that has hit the world economy. And indeed, cross-border M&A activity is what really seems to have collapsed: it declined between 2007 and 2008 by a bit more than the total decline observed in FDI flows, and was running at a fraction of previous levels in the first six months of 2009!

Such declines may be excessive—Keynes's point about "animal spirits"—but they are certainly not unprecedented. The 2000–1 period

THE DOWNTURN HAS RESURRECTED GLOBALONEY'S OPPOSITE, WHICH I HAVE TERMED LOCALONEY: THE BELIEF THAT GLOBALIZATION IS RAPIDLY RECEDING AND THE FUTURE BELONGS ONLY TO NATION STATES AND THEIR RESURGENT GOVERNMENTS.

1 The data that follow are drawn from the official compilations by the WTO (trade), UNCTAD (foreign direct investment), and IATA (air traffic).

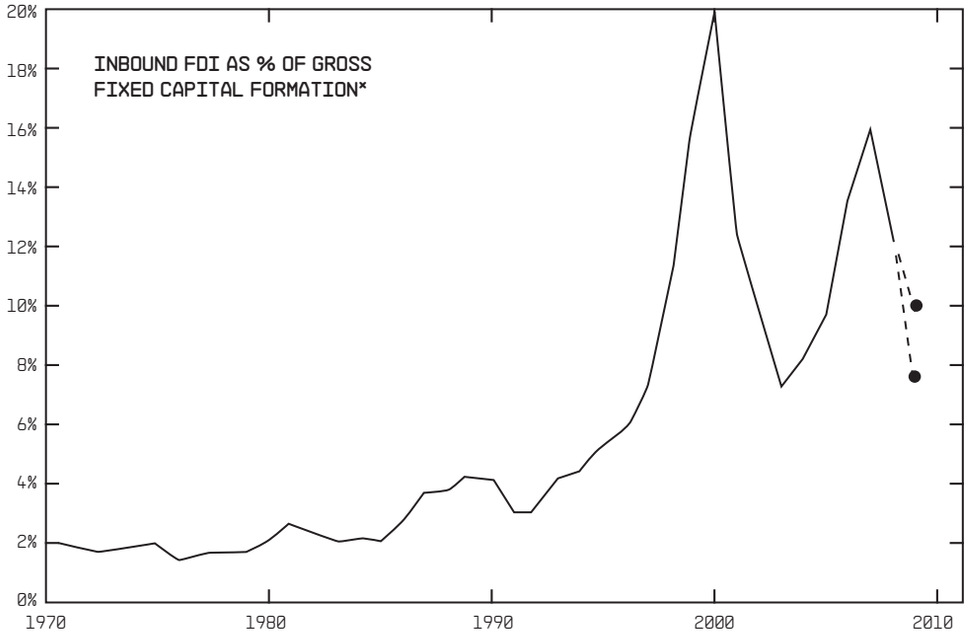

FIGURE 1

*The two estimates for 2009 are upper and lower bounds.
Source: UNCTAD, World Bank Development Indicators, estimates.

supplies an example from earlier *in the same decade*: while gross domestic product (GDP) declined by less than 1% over that period, the stock market crashed—and cross-border M&A declined from $1.1 trillion in 2000 to $0.6 trillion in 2001. Largely as a result, total FDI went down by 40%, from $1.4 trillion to $0.8 trillion, from one year to the next.

A second way of gaining perspective on these numbers is to divide them by other variables so as to construct proxies for FDI-intensity. The most commonly used base in this regard is GDP. FDI has declined from 3.6% of GDP in 2007 to 3.1% in 2008 and around 2% in 2009. Again, while this is a very large decline, it is smaller—and slower—than the drop-off from 4.4% of GDP in 2000 to 2.6% in 2001 (and to 1.9% in 2002 and 1.5% in 2003). Or in other words, precedents for the drop-off along this dimension can, once again, be found earlier in the decade.

My own preferred normalization is to look at how large total FDI flows are in relation to gross global fixed capital formation because this permits a (rough) answer to the question of how much of all the capital being invested around the world is being deployed by companies outside of their home countries. Figure 1 tracks the evolution of this ratio over four decades.

Several points are worth emphasizing about this longitudinal perspective:

- In 2008, the ratio of FDI to gross fixed capital formation amounted to 12.3%.
- The predictions for 2009 are for a ratio in the 7–10% range
- Based on these predictions, the average for 2000–9 (11.7%) is still almost twice as high as the average for the 1990s (6.4%), and several times higher than the averages for the 1980s (2.7%) and the 1970s (1.7%).

While these substantial variations over time are interesting, what is even more so is a time-invariant property: despite all the (pre-crisis) rhetoric about "investment knowing no boundaries," the ratio of FDI to gross fixed capital formation falls *very* far short of that perfect-integration benchmark. If the sources of capital really did not matter at all for where it is deployed, one would expect the cross-border component of total investment to exceed 90%.[2] Even at the (recent) peak in 2000, the observed ratio amounts to just a small fraction of this 90%+ level.

A measured read of international investment trends must also reflect the fact that plummeting aggregate flows at the global level mask significant growth in cross-border investment in particular industries and countries. For example, FDI increased in 2008 in the food, beverage, and tobacco industries where cross-border M&A value rose 125% and in the primary sector (up 17%). Developing countries also saw more robust FDI inflows and outflows versus developed countries—they grew in 2008—but are projected to decline in 2009. Even among the developed countries there were some bright spots. Thus, Spain's inward FDI rose 133% in 2008, after declining 24% in 2007 while Spain's outward FDI declined 20%, versus a 3.5% decline in 2008. (For comparative perspective, European Union inward and outward FDI declined 40% and 30% respectively in 2008 after having surged 43% and 70% respectively in 2007). In addition to highlighting the fact that there is still growth taking place, these examples also serve to illustrate the general volatility and cyclicality of FDI flows adverted to above.

THE STATE OF THE WORLD: STILL SEMIGLOBALIZED

My broader point in reviewing the latest FDI data was to illustrate that the while the world is seeing extreme fluctuations on some metrics of international integration, it remains far from the endpoints of either complete globalization or deglobalization, a point with important strategic implications as I will explain in the next section. And FDI isn't an isolated, unrepresentative example. Look at Figure 2,

2
The perfect-integration benchmark is equal to one minus the fractional Herfindahl concentration ratio of gross fixed capital formation by country, for reasons that the interested reader can work out. The calculation here is based on the most recent data available from the World Bank's World Development Indicators, most of which are for 2005.

which summarizes data on internationalization along five dimensions that include, in addition to FDI, categories related to information flows (telephone calls), people flows (immigrants), pure financial flows (stock investment), and product flows (exports to GDP).

As you can see, the level of internationalization along these dimensions is still relatively limited. It averages roughly 10% over the years in the 2000s for which data are available as of this writing (September 2009). And even the "outerperformer," the trade-to-GDP ratio shown at the bottom of the figure—probably recedes most of the way back toward 20% if you adjust for double-counting.[3] As a result, "Globaloney"—Clare Booth Luce's original riposte to Wendell Wilkie's visions of One World more than half a century ago—is probably still a good comment on assertions that the world is already globalized or rapidly becoming so. And there are many people who exaggerate in this regard. Thus, the respondents to an online poll conducted (before the crisis) by *Harvard Business Review* estimated the levels of internationalization of the variables listed in Figure 2 at 30% rather than close to 10%![4] I have also surveyed many other groups with these questions, with broadly similar results.

The present downturn has also resurrected—in some quarters—Globaloney's opposite, which I have termed Localoney: the belief that globalization is rapidly receding and the future belongs only to nation states and their resurgent governments. This view, of course, is also inconsistent with the data, but it must be addressed seriously because the tendency to extrapolate and overreact to current trends is always strong. For some additional data consider Figure 3, which shows exports as a percentage of GDP going as far back as the early 1800s. Despite the recent downturn, this indicator, like FDI, is nowhere close to approaching its historic lows (and in fact is still near its all-time high, unlike FDI-intensity, which reached comparable highs before the First World War, in the Age of Empire).

Furthermore, most analysts project that cross-border flows will start growing again with macroeconomic recovery—perhaps even reversing the recent declines in fairly short order. The World Bank projects that trade flows will recover swiftly, reversing the 10% estimated decline in 2009 in only two years. And UNCTAD forecasts that FDI inflows will resume growing in 2010 and, with growth rates close to the high end of

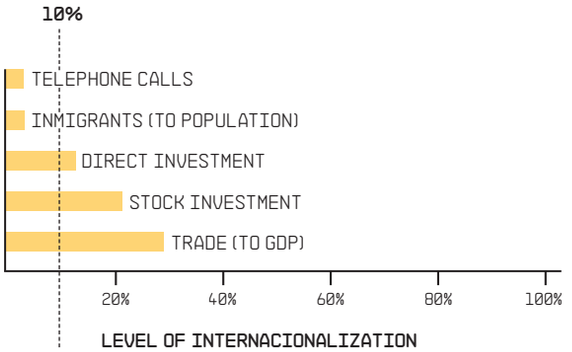

FIGURE 2

Measures of cross-border integration. The measures used are defined as follows:

– Telephone calls = international calling minutes as percentage of total calling minutes.
– Immigrants (to Population) = stock of long-term international migrants as percentage of world population.
– Direct investment = foreign direct investment flows as percentage of gross fixed capital formation.
– Stock investment = foreign investors' share of stock market capitalization (weighted average across countries by share of global capitalization).
– Trade (to GDP) = global *exports* of merchandise and nonfactor services as percentage of GDP.

Sources for most of the data are discussed in *Redefining Global Strategy*, p. 12; the stock investment data are for 2005 and are drawn from Piet Sercu and Rosanne Vanpee, "Home Bias in International Equity Portfolios: A Review," University of Louvain Department of Accountancy, Finance and Insurance Working Paper AFI 0710 (August 8, 2007).

FIGURE 3

Source: Angus Maddison, World Trade Organization, World Bank World Development Indicators, estimates.

the ranges that it is predicting, may exceed their 2008 level by 2011.

Of course, the actual flows will depend on the timing and pace of the recovery as well as on the wildcard I mentioned before—protectionism. But what should be clear by this point is that the world is very far from either complete globalization or deglobalization, and is hence most unlikely to reach either endpoint in the foreseeable future. The image I like to use to illustrate this is of a tumbleweed blowing across the plains of the Midwestern United States. It may cover some distance—speed up, slow down, and even change direction—but it is far more likely to remain somewhere in the middle of the country than to end up on either coast. Looking forward, levels of cross-border integration may increase, stagnate, or even suffer a sharp reversal, but given the parameters of the current situation, it seems unlikely that increases

3
One problem is the focus on *revenues* rather than *value added*—e.g., shipments of car parts from the US to Canada, with cars being shipped back.

4
This survey was designed by me and run by *Harvard Business Review*, to which I am very grateful.

will any time soon yield a state in which the differences or barriers between countries can be ignored. Or that decreases could lead to a state in which the similarities or bridges can be forgotten about. Thus, semiglobalization supplies a more attractive reference frame for thinking through global strategy than either getting caught up in near-term fluctuations or relying on very long term, very iffy predictions.

THE DANGERS OF GLOBALONEY AND LOCALONEY

Recognizing the reality of semiglobalization complicates decision-making but can help improve its quality because Globaloney and Localoney are not just harmless dietary supplements: they lead to decisions that can be dangerous to a company's and a society's health.

Let us start by looking at the effects of Globaloney. Managers who buy into the idea that the world is "flat" tend to make errors that reflect their overestimation of cross-border integration, underappreciation of cross-country differences, and in many cases even lack of respect for countries themselves as entities and their political and social institutions. Evidence in this regard is supplied by the positive correlation between (over)estimates of cross-border integration and assent to frankly size-based propositions such as in the online survey carried out by *Harvard Business Review* cited above. Of the respondents, 64% agreed that the "truly global company should aim to compete everywhere," and 58% agreed that "Globalization tends to make industries more concentrated."

Both beliefs fit well with a worldview in which the differences between countries do not matter much. As Bruce Kogut pointed out twenty years ago, in the absence of such differences, the answer to the question of "what is different when we move from a domestic to an international context… [is] simply that the world is a bigger place, and hence all economies related to the size of operations are, therefore, affected" (Kogut 1989). But they seem far removed from current realities.

- *Ubiquity* may not be a sensible target given international differences. And even if it were, it would require enormous geographic broadening by all but a handful of global giants, restricting interest in it to the very long run. Consider, for instance, all US companies with foreign operations in 2004—themselves less than 1% of all US companies. The largest fraction operated in just one foreign country, the median number in two, and 95% in fewer than two dozen.[5] And none of this has changed since the mid-1990s!
- *Increased concentration* as a result of globalization commands believers in the anti-globalization movement as well as among managers—but lacks empirical basis. Data on the concentration of production in the hands of the five largest competitors in 18 global/globalizing industries show no general increase between the late 1980s and the late 1990s: concentration increased in some but was offset by decreases in others (Ghemawat and Ghadar 2006). And a number of the industries reported as experiencing increases in concentration over that period (e.g., automobiles and oil production) actually experienced much larger decreases in the prior decades that recent increases have only partially offset.

Given such unwarranted sizeism, it is unsurprising that many firms' performance in the countries in which they do opt to compete is often uneven and, to a significant extent, even unprofitable. Some indications of the extent of the problem are provided by data that Marakon Associates analyzed at my request. They summarized their findings as follows:

> We found that half of the [large] companies we have looked at (8 out of 16) have significant geographic units that earn negative economic returns… [We] know from our clients that their profitability by geography has stayed fairly stable over time unless they have specifically targeted action at specific countries/regions.

Figure 4 provides a fairly typical—pre-crisis—example of this type of problem. In 2005, roughly one-fifth of this company's revenues were in country markets that destroyed economic value.

In addition to its economic suboptimality, the sizeism or even imperialism associated with Globaloney risks fueling protectionism. Think about how foreign publics (and politicians) view companies that act and talk as if it is their right and destiny to be king of the heap. How would Robert Woodruff's (CEO of Coca-Cola from the 1920s until the early 1980s) words sound to the ears of a proud citizen of a small but rapidly developing (non-Western) country: "In every country in the world, [Coca-]Cola dominates. We

5
Computations are based on Bureau of Economic Analysis data kindly carried out at my request by Raymond J. Mataloni, fall 2007.

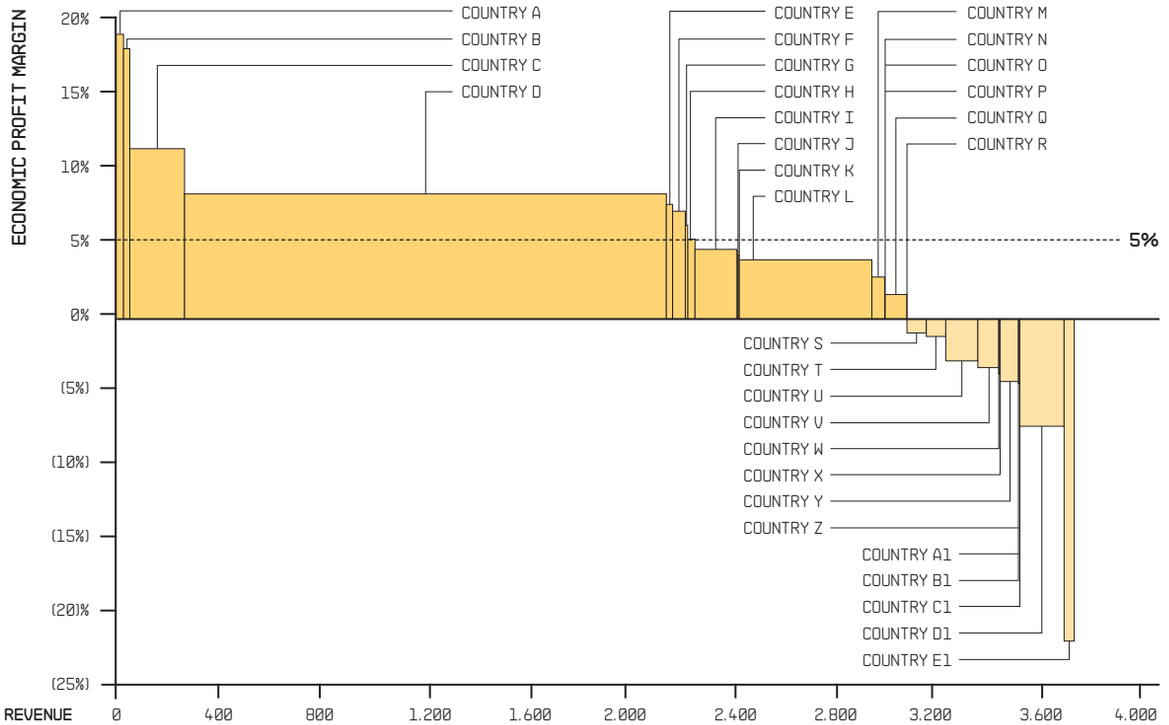

FIGURE 4

Economic profits by country for a fast moving consumer goods company.
Source: Marakon Associates.

feel that we have to plant our flag everywhere, even before the Christians arrive. Cola's destiny is to inherit the earth."[6] Or how might one expect Westerners to react to the CEO of a small Indian software services company—the large ones know better—declaring India the emerging information technology superpower whose companies will wipe out all the rest? When companies fail to be sensitive to such cross-country differences, they not only shoot themselves directly in the foot, but they also engender a backlash that fuels calls for protectionism and threatens to narrow their range of future strategy options. In other words, when business leaders buy into Globaloney and make no bones about doing so, they risk provoking publics and politicians to try Localoney instead.

Although Localoney has not been nearly as fashionable in recent years, many companies started with and remain stuck with such attitudes in practice if not by proclamation—and many of them treat the current crisis as confirmation that their approach is in fact the right one. Others have lapsed into Localoney as a reaction to excesses of Globaloney. Reconsider the example of Coca-Cola. Until the 1980s, despite the triumphalism of CEO Woodruff's approach (which one wit termed "Coca-Colonization"), Coke's local operations were more or less independently managed. It was Woodruff's successor, Roberto Goizueta, who took over in 1981, who bought into Globaloney—particularly the idea then current that customers everywhere increasingly wanted the same thing—and began aggressively to centralize and standardized Coke's operations. In 1996, he declared that "the labels *international* and *domestic*, which adequately described our business structure in the past, no longer apply. Today our company, which just happens to be headquartered in the United States, is truly a *global* company." Consumer research, creative services, TV commercials, and most promotions were managed from Coke's headquarters in Atlanta.

When Goizueta died unexpectedly in 1997, his successor Douglas Ivester stayed the course. Excessive centralization and standardization combined with the Asian crisis to lead to growth shortfalls, falling market capitalization (down $70 billion from its peak), and fraying relations with governments and bottlers (who were starting to find Coke "overbearing"). Ivester was quickly fired.

The next CEO, Douglas Daft, took localization to the opposite extreme— Localoney. As he put it in January 2000, "No one drinks globally. Local people get thirsty and go to their retailer and buy a locally made Coke." He downsized headquarters and shifted decision-making authority to the field. He announced that no more global advertisements would be made and put ad budgets and creative control in the hands of local executives, who were understandably delighted—but also underprepared. As a result,

6 *The Cola Conquest*, video directed by Irene Angelico, Ronin Films, 1998.

CROSS-COUNTRY DIFFERENCES SEEM UNLIKELY TO DISAPPEAR. IN A FEW RESPECTS, THE DIRECT RESULT OF THE CRISIS MAY BE TO DECREASE DIFFERENCES, BUT IN MANY—POSSIBLY MOST—OTHERS, THEY ARE LIKELY TO INCREASE INSTEAD.

quality suffered even more than scale economies. And volume growth slowed to even lower levels than under Ivester. Localoney was short-lived, as by 2002 the *Wall Street Journal* reported that the "'think local, act local' mantra is gone. Oversight of marketing is returning to Atlanta." By 2004, Daft was gone too.

Under Daft's successor, Neville Isdell, Coke moderated its strategy in ways that better reflect the reality of semiglobalization, and performance improved. In Isdell's view, "the pendulum swung too far over" under his immediate predecessors. He began to emphasize innovation over economies of scale, and put international and domestic back into separate organizations. The direction Coke will take under new CEO Muhtar Kent remains to be seen, but his experiences heading various regional divisions and ultimately Coke's whole international business—as well as running Efes Beverages in Turkey—lead one to expect some degree of sensitivity to cross-country differences.

To summarize, Globaloney and Localoney can clearly both result in poor performance. Globaloney leads to unrealistic estimates of scale economies, excessive standardization, and pursuit of growth that often turns out to destroy shareholder value. And its imperialistic aspects can fuel the anti-globalization backlash and contribute to the threat of protectionism. Localoney gives up altogether on cross-border leverage, and so its costs are to be reckoned with more in terms of opportunity costs than out-of-pocket costs—which makes them less likely to register but no less real.

ADJUSTING GLOBAL STRATEGY TO RESPOND TO THE CRISIS

The reality of semiglobalization provides a stable frame of reference within which meaningful analysis can substitute for slogans, enabling companies to avoid the kinds of mistakes referenced above. Strategies rooted in semiglobalization involve integrated consideration of both local and cross-border interactions—of the barriers and the bridges between countries. In my 2007 book *Redefining Global Strategy* I described three fundamental ways that companies can create value across borders in a world where differences still matter: the *AAA strategies* of *adaptation, aggregation*, and *arbitrage*. *Adaptation* refers to adjusting to cross-country differences to provide local responsiveness. *Aggregation* involves overcoming cross-country differences to achieve scale/scope economies that extend across national borders. *Arbitrage* exploits differences—as in buying low in one country and selling high in another. My general prescription was for managers to select a combination of these strategies, tailored to their company's own industry, position, capabilities, and intent.

That continues to be my general prescription. Looking at a range of possible post-crisis futures, cross-country differences seem unlikely to disappear. In a few respects, the direct result of the crisis may be to decrease differences, but in many—possibly most—others, they are likely to increase instead.

To be more specific about a few major effects, the crisis is, first of all, accelerating the shift of the world's economic activity and dynamism toward the major emerging markets, and particularly toward Asia. This increases the diversity that companies have to deal with if they want to tap into markets that are still growing rapidly. Secondly, governments around the world are becoming more active participants in national economies. Given the diversity of political systems and the policies being enacted, this increases the degree of cross-country difference (the administrative distance or barriers between countries) that strategies need to address. Thirdly, protectionism is a major wildcard. Companies need to be prepared for the possibility of new restrictions on trade, investment, migration, and potentially even information flows—while working, with governments, to take actions to guard against protectionism. Fourthly, there seems to be heightened potential for economic turbulence and in particular, for large swings in exchange rates—the most worrisome risk being that of a collapse of the dollar—as global imbalances are worked through. This has very different implications for different companies (depending on home country, industry, and company factors) so it will not be addressed further here.

From the standpoint of global strategy, these observations imply that while the AAA strategies continue to constitute the relevant strategy set, it may, in the medium term, make sense for most firms to put comparatively more emphasis on *adaptation* relative to *aggregation* and *arbitrage*—although this should ultimately depend on each firm's industry, history and strategy. It is also important to note that it can take years for companies to make meaningful shifts in this regard, so they should not be undertaken without careful consideration of longer term plans

and expectations for industry evolution. The rationale for strengthening *adaptation* is that becoming responsive to local conditions is robust in case of protectionism, helps to address the growing role of governments, and is necessary in many cases for participating in the growth that is available in emerging markets. In addition, becoming more respectful of differences can actually help lower the likelihood of protectionism. That said, *aggregation*—short of complete standardization or one-size-fits-all—is still important because most multinationals try to leverage some element of scale or scope across markets to create advantages for themselves over local firms (in contrast to adaptation, which is mostly aimed at minimizing disadvantages versus local firms). And arbitrage remains important as well because of the continued differences between countries but has become more politically sensitive in the present environment so companies need to be more careful in pursuing such strategies, and to put contingency plans in place.

The rest of this section will address in some detail how companies can strengthen adaptation and will then provide briefer discussions of aggregation and arbitrage.

Adaptation encompasses a broad range of levers and sublevers that companies can use respond to cross-country differences, of which *variation* is perhaps the most obvious: if local markets have different preferences, offer them different products or services. But such variation is costly and in the extreme results in operations that are so different across countries that there is no value gained by keeping them together in a single company. Smart adaptation therefore typically involves not only appropriate decisions about the amount of variation but adroit application of one or more complementary sub-strategies such as *focus, externalization, design,* and *innovation* that help reduce the costs of variation. These levers and sublevers are summarized in Table A and elaborated below.

Variation encompasses changes in *products*, but also in *policies,* business *positioning*, and even *metrics* (e.g., target rates of return). Product variation is conceptually straightforward, but what is notable is that even products that are supposedly standardized have to be varied a great deal—such as Coca-Cola, which is formulated with varying sweetness around the world. And the case of Coke in China and India provides a vivid example of why true variation usually requires much more than just product variation. Like most foreign multinationals, Coke entered these markets with a focus on wealthier, urban consumers who were already familiar with the company's brand and were prepared to pay high prices for its products. But under Isdell, it conducted a major repositioning to move beyond skimming the top of these markets, by lowering price points and margins, reducing costs by indigenizing inputs, and greatly increasing availability particularly in rural areas. This type of repositioning to broaden market penetration is often an important step for foreign multinationals aspiring to become true mass players in the large emerging markets such as China and India.

The trouble with relying exclusively on variation as a lever for adaptation is that it increases complexity. One, often complementary, lever for keeping complexity under control is to *focus* or purposefully narrow scope so as to reduce the extent of differences encountered and the amount of adaptation required. Thus, Spanish banks and other multinationals focused geographically—on Latin America—in their early internationalization. This was partly because of the wave of privatization and deregulation in that region in the first part of the 1990s, but also reflected a desire to keep cultural and administrative distance manageable by dealing with Spanish-speaking ex-colonies with similar legal and other institutions. BBVA, in particular, has pursued the cultural thread beyond the political borders of Latin America with a strategy that targets the Spanish-speaking niche market

VARIATION	FOCUS: Reduce Need for Variation	EXTERNALITIES: Reduce Burden of Variation	DESIGN: Reduce Cost of Variation	INNOVATION: Improve Effectiveness of Variation
• Products	• Products	• JVs, other alliances	• Partitioning	• Transfer
• Politicies	• Geographies	• Franchising	• Platforms	• Localization
• Repositioning	• Verticals	• User adaptation	• Modularity	• Recombination
• Metrics	• Segments	• Networking	• Flexibility	• Transformation

TABLE A

Levers and sublevers for adaptation.

in the (southern) United States as a good fit with its operations in Mexico, where it owns the country's biggest bank, Bancomer. And Zara is able to do well in international retailing with an approach that is quite standardized because of segment rather than geographic focus: in fast fashion, the customer in Barcelona does care about what the customer in Tokyo is wearing, and there is a premium on quick response that plays to Zara's strengths. And so on.

The next lever in Table A, *externalization,* has some affinities with focus. However, instead of narrowing scope, externalization purposefully splits activities across organizational boundaries to reduce the *internal* burden of adaptation. Externalization subsumes sublevers such as *joint ventures* (JVs) and other *strategic alliances, franchising, user adaptation,* and *networking.* JVs and strategic alliances have long been known to be comparatively attractive when the amount of cultural and administrative distance to be bridged is large: they can provide access to local knowledge that would otherwise be hard to purchase, to links in the local value chain that would otherwise be inaccessible, or to local connections, including political ones, and associated benefits. (Of course, JVs/alliances also impose their own costs and risks, including financial insecurity, lack of control, and misuse of intellectual property, so they are no panacea.) And in many businesses, especially in services, in key markets such as China and India, JVs are still the only way multinationals are allowed to enter. Juxtaposing these reasons against the changes in the post-crisis world cited above leads one to expect a post-crisis surge in JVs. While it is too early to obtain systematic data, a Google Trend analysis of news items on international JVs does indeed show a very sharp jump, to unprecedented levels, in the first few months of 2009!

Design decisions can also deliberately reduce the cost of variation. Common, interrelated methods of designing business systems to ease variation include *partitioning*, *platforms*, *modularization*, and *flexibility.* To cite a simple but very well-executed example of partitioning, McDonald's splits choices into those where local adaptation is feasible and those where adaptation would compromise system performance—following a roughly 20% local and 80% global rule in this regard. And for an approach to flexibility—cost-effective variation over time—that is currently attracting attention, consider *selective de-automation*: a phenomenon I first encountered working a few years ago with a major consulting firm and that is described systematically in a study of changing production processes in global auto components that is sponsored by the Sloan Foundation. To quote from the preliminary findings:

> The most notable thing about the production processes that were initially transferred from high wage regions is that they were highly capital intensive with significant degrees of automation…. As experience in the low wage environments began to accumulate, and as those markets themselves began to develop, it became clear that a reduction of the levels of automation in the low wage areas could have significant advantages: …[it] could prove to be efficient at both large volume production and in more variegated batch production, and in shifting from one large volume job to another…. [While] there is still a great deal of experimentation about this "de-automation"… it is already becoming clear to many producers that the gains in flexibility that their offshore operations have achieved through de-automation can actually be implemented within their own factories in high wage regions. (Herrigel 2007)

Finally, some of the levers and sublevers discussed above—such as repositioning and (re)design—could also be characterized as instances of *innovation*. While innovation is conceptually a very broad lever, cross-border differences often restrict the scope of innovation making it useful to distinguish among *transfer, localization, recombination,* and *transformation* (arrayed in terms of increasing radicality). Selective de-automation, for example, has progressed a significant part of the way through this cycle and reminds us, among other things, that experience may yield innovations or insights in one context that can be transferred to others, and that such useful innovations need not originate in a firm's largest or most advanced markets. Of course, to note these points is not to solve the difficult challenges that managers face in harnessing knowledge pools in emerging markets, where more and more of the technical manpower on which most companies rely will be located. Doing so is likely to require disrupting the traditional "home-first" organization of innovation structures within multinational companies—itself just one functional manifestation of a broader set of changes that are probably required if multinationals from developed countries are to focus on and compete more effectively in big emerging markets.

That brief discussion of innovation starts to touch on the globalization and adaptability of mindsets, which continues to be seen as *the* major challenge by many companies. The basic point is that how well a company does at adjusting to differences depends not only on which adaptation levers it pulls but also on the kind of company it is: companies with international experience and traditions of cosmopolitanism are expected to adapt more effectively to a given amount of distance than their more cloistered counterparts. And while one cannot choose one's history, one can work on globalizing a company's mindset, as illustrated by the roster of potential initiatives listed in Table B.

My broader purpose in listing all of these levers and sublevers here is to show that there are many ways that companies can adapt to differences, rather than just one or two blunt instruments such as product reformulation or decentralization. Given the importance of strengthening adaptation both to improve business performance and to defend against protectionism, I hope most managers will find within these lists some ideas that can help their own companies respond better to cross-country differences.

Aggregation, since it often involves pulling in the direction opposite to adaptation, is, by the logic laid out above, likely to be somewhat less rather than more in evidence in the medium-term. But as noted above, it remains fundamental to many companies' attempts to create advantages over locally-based competitors. It can also confer advantages over other global competitors if they fail to exploit such opportunities themselves. Consider, for example, Ernst & Young, the fourth largest global accounting firm, which has significantly outperformed its larger rivals (so far) in 2009. The company attributes its success in large part to its 2008 aggregation of its 87 country practices in Western and Eastern Europe, the Middle East, India, and Africa into a single EMEIA area, with more than 60,000 people (close to one-half the corporate total) led by a single area managing partner and executive team (Hughes 2009). Among other things, this has let Ernst & Young shift staff between the countries as needed. Note that (increased) aggregation may be fundamental to the consolidation required as part of many firms' restructuring efforts (which are discussed further in the next section).

Arbitrage also continues to be a fundamental strategy for competing across borders. The shift of manufacturing to locations with lower labor costs is no longer a new phenomenon, and the effects can be truly massive. Thus, the savings that Wal-Mart generates by procuring tens of billions of dollars of goods from China in particular, significantly exceed its profits from operating international stores—on a much smaller capital base—and have become critical to its pursuit of a low-cost strategy in the US (which still accounted for three-quarters of its $400 billion in revenues over 2008–9). And the offshoring of services, while less developed, is growing even more rapidly, with IT services leading the way. From 2004 to 2008 global offshore IT services revenues grew from about $30–35 billion to $89–93 billion. In India, this explosive growth propelled the IT Services and Business Process Outsourcing (BPO) sectors from 1.2% of GDP in 1998 to 5.8% in 2009.[7] According to an analysis by CLSA Asia Pacific in 2006, 25% of India's near term GDP growth would come from IT and BPO services and multiplier effects from those industries' growth.

Thus arbitrage has become very important to both buyers and sellers. However, it is also extremely sensitive from a political and societal perspective. Consider one pre-crisis poll conducted by the Chicago Council on Foreign Relations in December 2006: 76% of respondents agreed with the statement, "Outsourcing is mostly a bad thing because American workers lose their

TABLE B

Building adaptability.

1.	Hiring for adaptability
2.	Formal education
3.	Participation in cross-border business teams and projectss
4.	Utilization of diverse locations/media for team and project interactions
5.	Immersion experiences in foreign cultures
6.	Expatriate assignments
7.	Cultivating geographic and cultural diversity at the top
8.	Dispersion of business unit headquarters or centers of excellence
9.	Maintaining openness to the environment
10.	Defining and cultivating a set of core values throughout the corporation

7 Nasscom.

BEYOND ADJUSTING GLOBAL STRATEGIES TO BETTER ACCOUNT FOR DIFFERENCES, COMPANIES SHOULD ALSO TAKE A CAREFUL LOOK AT THEIR PORTFOLIOS OF COUNTRY MARKETS WITH RESPECT TO THEIR ECONOMIC VALUE ADDED

jobs to people in other countries." Only 21% believed "outsourcing is mostly a good thing because it results in lower prices in the US, which helps stimulate the economy and create new jobs"[8]—which is what the scientific evidence actually seems to indicate. Of even greater concern, when asked in July–August 2008, "Do you think the recent economic expansion in countries like China and India has been generally good for the US economy, or bad for the US economy, or had no effect on the US economy?," 62% of respondents answered "bad" versus only 14% answering "good."[9]

As firms focus on sensitizing themselves to local difference, it's also likely that they'll want to be more careful about pursuing certain strategies that *exploit* these differences, particularly offshoring. Clearly the traditional Chimerica model—whereby the US imports large volumes of cheap Chinese goods—is unlikely to persist. When announcing new investments, major US companies have recently stressed their domestic nature—witness Intel talking about its new semiconductor labs or GE talking about new wind turbine facilities. The same consumer backlashes and protectionist impulses that may make adapting to differences more important in the next few years may also make wage-arbitrage between localities less desirable. That does not mean abandoning arbitrage strategies, but it does suggest more sensitivity and discretion in their pursuit—and the institution of back-up plans in case arbitrage does become less viable in the medium-term. To be more specific, Table C presents ten tips I have developed to help companies address arbitrage-sensitivity.

REEVALUATE, RESTRUCTURE, REINVEST

Beyond adjusting global strategies to better account for differences, companies should also take a careful look at their portfolios of country markets with respect to their economic value added (i.e., profitability after at least a rough accounting for the cost of capital employed). How do your prospects really look in each country after factoring in the downturn? The need for such analysis may seem obvious, but the most alarming finding, for me at least, from the pre-crisis online survey of *Harvard Business Review* readers, was that 88% of the respondents thought of global expansion basically as an act of faith—a "strategic imperative"—rather than as an alternative to be evaluated. This belief was probably nourished by a climate of rising asset prices in which many companies essentially thought of globalization as one long asset accumulation play with relatively little risk involved. But now that the asset bubble has burst, we need to actually evaluate performance, because as indicated in Figure 4, a significant portion of the global operations of many firms subtracts value instead of adding it.

Especially since ubiquity is seldom the right target, such an analysis may lead to exiting weaker markets where the prospects do not justify continued investment. And of course, downturns (and their immediate aftermath) are more obvious times to restructure or exit weaker markets than upturns. Nokia, for example, announced in November 2008 that it was exiting the mobile handset market in Japan (except for its high-end Vertu brand) after years of investment yielded only a meager ~1% market share (versus ~40% globally). Exiting the world's fourth largest market must not have been an easy decision for Nokia but it's a realistic one considering the unique (idiosyncratic) preferences of highly demanding Japanese consumers, different standards, and the dominance of local firms.

By the same token, while evaluating markets and restructuring where appropriate, don't forget to invest in the areas where there *are* promising opportunities. Recognize that there are known biases toward overreaction in such matters—companies tend to cut too much in a downturn, just as they overinvest in a bubble. In my 1993 *Sloan Management Review* article, "The Risk of Not Investing in a Recession" (expanded and reissued in March 2009), I highlight the interplay between financial risk and competitive risk. In normal times, the bearishness of the former tends to (or is supposed to) complement the bullishness of the latter. But the balance between the two seems to break down at business cycle extremes. Specifically, at the bottom of the business cycle, companies seem to overemphasize the financial risk of investing at the expense of the competitive risk of not investing. Once-in-a-cycle errors of this sort can create a lasting competitive disadvantage.

Consider again the example of Nokia. Exiting from Japan's handset market didn't imply a general pullback of strategic investments. In 2009, Nokia made a range of investments in new technologies, particularly around value added services that can be delivered via mobile phone platforms. Kraft presents another interesting example. In 2008, Kraft announced plans to re-

8
http://www.americanprogress.org/issues/2007/01/wtprw.html.

9
http://www.pollingreport.com/trade.htm.

structure internationally by focusing on 10 key brands in five categories across 10 primary international markets (four "growth engines" and six "scale markets"). But in September 2009, Kraft launched a $16.7 billion bid for Cadbury that would significantly add to and accelerate the transformation of its business portfolio. While Kraft's initial offer proved inadequate and will likely have to be raised for the transaction to go through—it is still pending, as of this writing—downturns generally do also increase the likelihood of being able to acquire distressed assets on the cheap. To cite just one such cross-border deal, Fiat agreed to buy 35% of Chrysler for nothing more than promises to share small car technology and its global dealer network. Fiat's price was much less than the $7.2 billion Cerberus Capital Management paid for its 80% stake in the company less than two years earlier, not to mention the tens of billions of dollars that Daimler Benz paid for control of Chrysler in 1998.

In evaluating where to cut and where to invest, it helps to lay out very clearly how a particular operation is intended to add economic value to the overall enterprise. The ADDING Value scorecard shown in Table D can help structure this analysis. It parses the assessment of international business strategy into the individual levers via which value is created or destroyed, each of which is individually manageable and thus amenable to careful (and in many cases *quantitative*) analysis.

AMP UP THE DIPLOMACY

Thus far I have addressed companies' strategies for addressing the downturn in the various markets in which they operate. Companies also need to look beyond the confines of the market to influence outcomes. In particular, with the role of government on the rise, firms should actively pursue a well-thought out program of what academics call "nonmarket strategy" but that might also roughly be characterized as corporate diplomacy.

Many companies still approach nonmarket strategy by exception: apart from dealing with specific nonmarket issues as they come up, there is little sustained effort to engage with them. A purely reactive, ad hoc approach, while never defensible, makes even less sense in an environment in which governments are becoming more rather than less important in varied roles—as buyers, suppliers, competitors, owners, regulators, collectors of taxes, and so on—making it imperative that top managers, in particular, spend more of their time on nonmarket issues. Instead of the knee-jerk insistence that markets should hold full sway over social and economic policy, this will require showing more sensitivity to—and acceptance of—regulatory, legal, political, social, and cultural differences. And it will also require business leaders to anchor the case against protectionism: if they do not, it is not clear who will.

While a full treatment of business-government relations is clearly beyond the scope of this article, I will offer a few suggestions. Firstly, map out all the players, remembering, in particular, that governments—even in countries without multiparty democracy—are rarely monolithic. Secondly, evaluate each player's objectives vis-à-vis your own. Are they strictly opposed, different but not precisely opposite, or non-rivalrous/reinforcing? Identify friends as well as foes on this basis. Thirdly, map out the relationships

1. Be Discreet—Respect public sensitivity
2. Choose Words Carefully—Avoid terms that trigger negative reactions (e.g. outsourcing, globalization)—note trigger words vary by audience and country
3. Be Concrete—Cite specific benefits versus abstract effects like "market equilibration"
4. Support Social Safety Net (esp. job re-training)—History shows that support for free trade tends to be fragile without such programs
5. Emphasize Upgrading—Should be key domestic priority; this is what really matters in the long run for wealth of nations
6. Emphasize Viability and Growth—Prioritize these objectives (and talent shortages as constraints) rather than just cost reduction
7. Be Careful with Regulatory Arbitrage—Leveraging looser foreign health, safety and environmental standards risks backlash
8. Recognize Implicit Constraints—Otherwise implicit constraints on freedom of action will be made explicit
9. Invest to Expand/Preserve Freedom of Action—Work with allies (including product market competitors), invest in job creation, etc.
10. Plan for Potential Political Change—Place premium on strategies robust to changes in the political climate

TABLE C

Ten tips for dealing with arbitrage-sensitivity.

TABLE D

ADDING value scorecard.

COMPONENTS OF VALUE	GUIDELINES
ADDING VOLUME / GROWTH	• Look at the true economic profitability of incremental volume (taking into account cost of capital) • Probe the level at which additional volume yields economics of scale (or scope): globally, nationally, at the plant or customer level, etc. • Calibrate the strength of scale effects (slope, percentage of costs/revenues affected) • Assess the other effects of volume
DECREASING COSTS	• Unbundle price effects and cost effects • Unbundle costs into subcategories • Consider cost increases (e.g. due to complexity, adaptation, etc.) as well as decreases and net them out • Look at cost drivers other than scale/scope • Look at labor cost/sales ratios for your industry (or company)
DIFFERENTIATING / INCREASING WILLINGNESS-TO-PAY	• Look at R&D/sales and advertising/sales ratios for your industry • Focus on willingness-to-pay rather than prices paid • Think through how globality affects willingness-to-pay • Analyze, in particular, how cross-country (CAGE) heterogeneity in preferences affects willingness-to-pay for products on offer • Segment the market appropriately
IMPROVING INDUSTRY ATTRACTIVENESS / BARGAINING POWER	• Account for international differences in industry profitability • Understand the structural dynamics of your industry • Look broadly at the impact of trends and moves in changing important elements of industry structure • In particular, think through how you can deescalate/escalate rivalry • Recognize the implications of what you do for rivals' costs or willingness-to-pay for their products (worsening their positions can do as much for added value as improving one's own) • Attend to regulatory/nonmarket restraints—and ethics
NORMALIZING (OR OPTIMIZING) RISK	• Characterize the extent and key sources of risk in your business (capital intensity, other irreversibility correlates, demand volatility, etc.) • Assess how much cross border operations reduce or increase risk • Recognize any benefits that might accrue from increasing risk • Consider multiple modes of managing risk or optionality
GENERATING KNOWLEDGE (AND OTHERS RESOURCES OR CAPABILITIES)	• Assess how location-specific versus mobile knowledge is, and what to do about it • Consider multiple modes of generating (and diffusing) knowledge • Think of other resources/capabilities in similar terms • Avoid double-counting

among the players and assess who has leverage over whom, and how much. Fourthly, identify the range of instruments through which you and your company (together with appropriate allies) can influence outcomes. Fifthly, decide how assertive to be—is it better to be out front on the issue or to engage in quieter behind-the-scenes diplomacy? And finally, as you formulate your plan of action (and negotiating strategy), pay attention to legal and social constraints on nonmarket strategy, which are often substantial.

Beyond government, business also needs to address itself to the public at large. The need for this seems particularly urgent in the United States where a recent survey ranked business executives tenth out of ten occupational categories, with only 21% of respondents having a favorable view of them (compared to 23% of respondents for having a favorable view for lawyers, the second-least-favored category; and scores in the 70–80% range for very respected professions such as the military, teaching, etc). While the situation may look somewhat better elsewhere, the point is that we are at a moment where market capitalism and private business enterprise are being subjected to significant, sustained attack without recent precedent. Dealing with this attack is likely to require fundamental changes in behavior rather than just attempts to engage with civil society and nongovernmental organizations.

A particularly important objective of engaging with both governments and civil society is to combat protectionism. Recent reports by the Global Trade Alert and the World Trade Organization highlight a raft of protectionistic measures in 2009 that range from higher tariffs to immigration restrictions, state aid funds, and export subsidies—and that greatly outnumber laws liberalizing trade. Businesses need to push to make sure that the case for opening up and against protectionism is fully

understood and internalized in public perceptions and the political dialogue. What is at stake is not only the preservation of gains we have already been able to achieve by opening up but also the pursuit of additional opportunities to open up—opportunities that are, in a semiglobalized world, still very large.

HOW TO SEE RELEVANT DIFFERENCES MORE CLEARLY

Throughout this article, I have focused on the need for companies to be more sensitive to cross-country differences. But as experienced international executives know, it is sometimes very hard to actually pick up on the key differences, even when one has a chance to get beyond the usual look-alike airport terminals, chain hotels, and office towers. To help managers improve their acuity in this regard, I have developed the CAGE Distance Framework, shown in Table E. The four categories of differences for which CAGE is an acronym are termed "distances" to emphasize the fact that countries should be thought of as part of networks and hence analyzed based on both bilateral and unilateral factors.

Astute readers will also note that different types of distance matter more or less in different industries (and even for different companies within industries). To help managers focus on the most important differences for their own industries, I have summarized the factors that make particular industries more or less sensitive to each type of distance in Table F.

The CAGE framework can be used, most obviously, to help assess where to compete. And that is the use to which a number of companies are putting it: thus, in a clear response to the crisis, Dr. Reddy's, the largest Indian-owned pharmaceutical firm, recently used CAGE to help scale back from 50 markets to fewer than 20. But the framework is also meant to be of broader use in helping companies think different by helping make differences visible and reminding multinationals of their liabilities relative to local competitors as well as their advantages.

CONCLUSIONS

The post-crisis world is still being formed and we still have opportunities to shape the reality in which we will have to operate. Based on all the available evidence, semiglobalization will remain the stable frame of reference it has been in recent years. While some metrics of cross-border integration such as trade are presently retreating after having set new highs, we remain far from a world of either negligible or complete globalization. Thus, fundamental techniques such as understanding differences via the CAGE framework and the crafting of strategies based on carefully tailored combinations of *adaptation*, *aggregation*, and *arbitrage* are still robust in the present environment and the foreseeable future.

My fundamental prescription for the present times is to *think different*. Not just to think different-*ly*—but to think different, in the sense of becoming more sensitive to and genuinely welcoming of local differences. Thinking different is the best way to improve business performance while at the same time fostering the openness that is fundamental to sustaining our collective prosperity.

	CULTURAL DISTANCE	ADMINISTRATIVE DISTANCE	GEOGRAPHIC DISTANCE	ECONOMIC DISTANCE
COUNTRY PAIRS (BILATERAL)	• Different languages • Different ethnicities; lack of connective ethnic or social networks • Different religions • Lack of trust • Different values, norms, and dispositions	• Lack of colonial ties • Lack of shared regional trading bloc • Lack of common currency • Political hostility	• Physical distance • Lack of land border • Differences in time zones • Differences in climates / disease environments	• Rich/poor differences • Other differences in cost or quality of natural resources, financial resources, human resources, infrastructure, information or knowledge
COUNTRIES (UNILATERAL / MULTILATERAL)	• Insularity • Traditionalism	• Nonmarket/closed economy (home bias vs. foreign bias) • Lack of membership in international organizations • Weak institutions, corruption	• Landlockedness • Lack of internal navigability • Geographic size • Geographic remoteness • Weak transportation or communication links	• Economic size • Low per capita income

TABLE E

CAGE framework at the country level.

TABLE F

Industry sensitivity to CAGE distances.

CULTURAL DISTANCE	ADMINISTRATIVE DISTANCE	GEOGRAPHIC DISTANCE	ECONOMIC DISTANCE
Cultural differences matter the most when:	Government involvement is high in industries that are:	Geography plays a more important role when:	Economic differences have the biggest impact when:
• Products have high linguistic content (TV programs) • Products matter to cultural or national identity (foods) • LProduct features vary in terms of size (cars) or standards (electrical equipment) • Products carry country-specific quality associations (wines)	• Producers of staple goods (electricity) • Producers of other "entitlements" (drugs) • Large employers (farming) • GLarge suppliers to government (mass transportation) • National champions (aerospace) • Vital to national security (telecommunications) • Exploiters of natural resources (oil, mining) • Subject to high sunk costs (infrastructure)	• Products have a low value-to-weight or bulk ratio (cement) • Products are fragile or perishable (glass, fruit) • Local supervision and operational requirements are high (services)	• Nature of demand varies with income (cars) • Economics of standardization or scale are limited (cement) • Labor and other factor cost differences are salient (garments) • Distribution or business systems are different (insurance) • Companies need to be responsive and agile (home appliances)

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CHRIS JORDAN ▸

SHIPPING CONTAINERS. 2007

GLOBALIZATION AND INFORMALITY: TWO CHALLENGES TO DEVELOPMENT AND INTEGRATION

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One of the most important developments in recent decades has been the process of economic and social integration of many countries around the world. This process of "globalization" presents challenges and opportunities that have the potential to radically change the lives of millions of people. The rise of globalization is driven by economic openness but not limited to it, as it also includes a broad process of political, intellectual, and scientific integration. Along with the products of international trade and the flow of external capital an increasingly active exchange of new ideas, new technologies, and new policies is taking place in countries worldwide.

Despite its inherent difficulties, globalization is an advance that fosters hope for sustained development in most countries. History has shown that in the long run internationally integrated countries become more prosperous and more stable than those that take the autarchic path. When the European Renaissance began to mitigate the isolation and superstition of the Middle Ages, it was the outward-looking commercial and financial orientation of the city-states of Italy that fostered its dizzying emergence. That was also the case with Spanish colonies in the Americas during the nineteenth century. Under Napoleonic rule Spain could not maintain its monopoly on colonial trade routes and its colonies joined the rest of the world, prospering to such a degree that they gained their independence. When China "withdrew from the world" during the Ming Dynasty of the fifteenth century, it gradually lost its status as the most advanced country in the world, finally becoming one of the poorest. It is interesting to see how, in recent years, China is recovering its former glory at a rapid and steady pace, having opened its borders to foreign commerce, finance, and technology.

In the face of possible international integration, there is, however, a pending challenge for most developing countries. It is the challenge of overcoming the internal segmentation of their economies, bringing formality to the large group of activities and people who function outside the law and protection of the state. Informality is endemic to underdeveloped countries. According to estimates shown below, in developing countries an average of around 37% of production and 70% of employment are informal. By comparison, in developed countries, those average percentages are 16% and 8%.

The positive aspect of informality is its capacity to channel business energy and generate employment in contexts where the state is institutionally insufficient. In many countries, the informal sector is associated with creativity, ingenuity, and perseverance. For example, in Peru the informal sector leads in textile production, despite recognizably adverse conditions. By way of an illustration, figure 1 shows a detail of the Gamarra textiles business and shopping center in the heart of Lima. On the negative side, informality is inefficient in its use of basic public services such as police protection, recourse to the legal system, and social security. Thus, efforts by informal workers and businessmen do not manage to attain sustained economic and social development. Moreover, the lack of state institutional participation can lead to social dangers ranging from on-the-job injuries with no health insurance to major misfortunes due to ignoring safety laws. Figure 2 shows the fire at the informal Mesa Redonda Shopping Center very near Gamarra, which took 291 lives in 2002. That fire and loss of life could have been avoided if the shopping center had been obliged (or inclined) to formalize its situation.

FIGURE 1

Informality as a channel for company energy. Daily activity at the Gamarra Business and Shopping Center, Lima.

FIGURE 2

Informality as a source of risk. Fire at the Mesa Redonda Shopping Center, Lima, 2002.

The present essay seeks to examine what informality is, how it can be measured, what consequences it has for the wellbeing of countries, and what its fundamental determinants may be. The objective is to understand what can be done to bring the informal sector to full legality and what role the opportunities and challenges of globalization can play in that process. Methodologically, the essay studies informality from a macroeconomic and international perspective. It thus uses cross-sectional variations between countries of degrees of informality and potentially related variables in order to study their causes and consequences.

WHAT IS INFORMALITY?

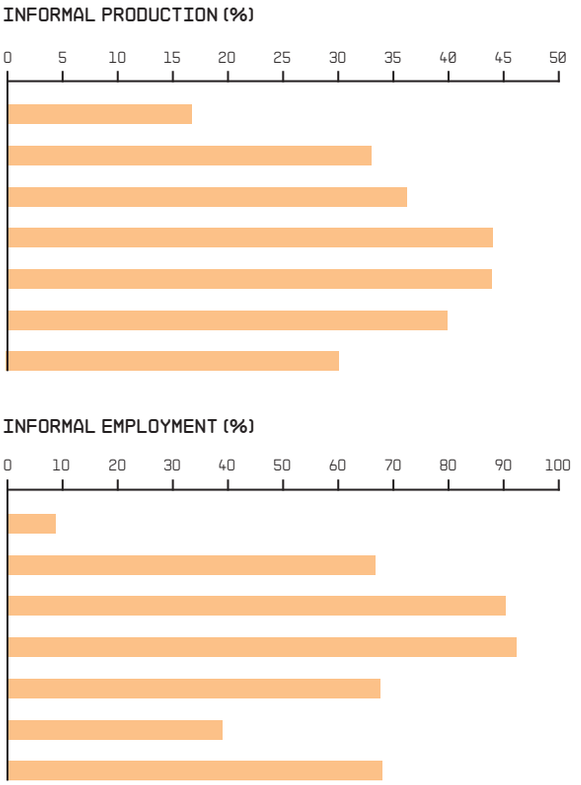
Informality can be defined as the set of companies, workers, and activities operating outside

legal frameworks and regulations. This definition, introduced by De Soto (1989) in his classic study, has become very popular due to its conceptual rigor, which permits a focus on the core causes of informality rather than just its symptoms. Informality entails evading taxes and regulations as well as the absence of protection and services that the law and the state can offer. Like two sides of the same coin, informality can be seen as a consequence of economic agents *exiting* the formal sector for cost-profit reasons, and as the *exclusion* of economic agents from formality when the latter has become overly restrictive and rigid.

In any case, informality is a fundamental characteristic of underdevelopment and is better understood as a complex and multifaceted phenomenon. It is determined by both the models of socioeconomic organization of economies moving towards modernity, and the relation the state establishes with private agents through regulations, supervision, and the provision of public services. Informality is not only a reflection of underdevelopment, it can also be a source of greater economic backwardness. It implies the inadequate distribution of resources and entails losing the advantages of legality, including police and judicial protection, access to formal credit institutions, and participation in international markets.

GRAPHIC 1

Informality in production and employment.



MEASURING INFORMALITY

Defining informality can be straightforward and precise, but measuring it is not. Inasmuch as it is identified with activities outside the legal and regulatory framework, informality is best described as a latent variable that cannot be observed directly. In other words, informality cannot be precisely or dependably measured, but an approximate measurement can be made using indicators of its different aspects. In that sense, we will consider two of those indicators here as we have data on them for a relatively large number of countries. Taken separately, each of these indicators offers conceptual drawbacks in its capacity to represent informality, but together they constitute a solid approach to the subject.

The most-recognized indicator of informal productive activity is the Schneider index of informality. It combines the DYMIMIC (dynamic multiple-indicators multiple causes) model, the physical input method (electricity, for example), and the excessive-money-demand focus to generate an estimate of the part of production not declared to fiscal authorities or regulators. The most-used indicator of informal employment is related to the lack of retirement pension insurance coverage. Specifically, this is measured as the fraction of the workforce that does not contribute to a retirement pension plan as determined by the International Labor Organization and the World Bank. As could be expected, measurements of productive and labor informality are interrelated, as is reflected in a statistical correlation coefficient of around 70% in a worldwide sampling of countries.

By using these data as indicators, we can evaluate the presence and extent of the informal sector in various countries and world regions. To summarize, graphic 1 shows that the degree of productive and labor informality in underdeveloped countries is much greater than in advanced countries. Sub-Saharan Africa is where informality reaches its most alarming levels, with 45% of production and 90% of employment in the informal sector. The Middle East and East Asia have similar levels of informality, with 30% of production and approximately 65% of employment in the informal sector. Southern Asia has comparable figures with regard to informal production, but its informal employment is closer to that of sub-Saharan Africa. Latin America is at an intermediate level, with informal employment figures similar to those of Eastern Asia and the Middle East, and informal

production close to that of sub-Saharan Africa. Finally, Eastern Europe has a certain balance between its fractions of informal production and employment (both around 40%), which places it about halfway between underdeveloped and advanced countries.

WHY SHOULD WE BE CONCERNED ABOUT INFORMALITY?

Informality is the distorted way for an excessively regulated economy to respond to both the vicissitudes it faces and its potential for growth. It is a distorted response because informality implies a deficient assignment of resources that leads to an at least partial loss of the advantages offered by legality: police and judicial protection, access to formal credit, and the capacity to participate in international markets. In trying to elude state control, many informal companies are forced to maintain a smaller-than-ideal size, to acquire and distribute goods and services through irregular channels, and to constantly use their own resources to hide their activities or bribe public employees.

Additionally, informality induces formal companies to make more intensive use of those resources least affected by the normative regime. For developing countries, in particular, this signifies that formal companies have a less-intensive use of their workforce than they should, given their country's available resources. Finally, the informal sector generates a negative external effect that is added to their adverse influence on efficiency: informal activities use and clog the public infrastructure without contributing to the tax income needed to maintain it. Given that the public infrastructure complements the contribution of private capital in the production process, the existence of a large informal sector implies less growth of productivity (see: Loayza 1996).

Compared to what would be the optimum economic response, the expansion of the informal sector often constitutes distorted and insufficient economic growth. This affirmation needs to be clarified: informality is less than optimum in an economy without excessive regulation that provides adequate public services. However, it is unquestionably preferable to a totally formal but stagnant economy unable to escape the rigidity imposed by its own regulation.

The effect this has on policies is unquestionable: the formalization mechanism is of the utmost importance because of its consequences for employment, efficiency, and economic growth. If formalization depends mainly on the enforcement of norms, it will most likely generate unemployment and low growth. If, on the other hand, the formalization process is supported by improvements in both the legal framework and the quality and availability of public services, it will generate a more efficient use of resources and greater growth.

From a statistical standpoint, the ambiguous effect of formalization brings out a significant difficulty in evaluating informality's impact on economic growth: two countries may have the same degree of informality, but their underlying causes may be different, and so their respective growth rates may also be significantly different. Countries in which informality is kept down by the drastic application of law will have more difficulties than those in which informality is low because regulations are less strictly applied but public services are adequate.

We will now present a statistical analysis of the effect of informality on economic growth. As was suggested above, this analysis must track the application of law and a simple though highly disputable method of doing so is to include a variable that represents the state's overall capacity as a control variable. To do so, we will use the per capita GNP as an additional explanatory variable in the measurement of informality. Another important consideration for this statistical analysis is that informality may not only affect economic growth; it may also be affected by it. In order to corroborate the effect of informality on growth it is necessary to isolate informality's exogenous variation. This is done using the econometric method of instrumental variables in which instruments are chosen on the basis of variables postulated as determinants of informality: indicators of public order, business freedom, educational achievement, and sociodemographic factors (given that some of them are related to the independent economic growth of informality, we will only use as instruments those sets of variables that comply with the exclusion restriction, according to Hansen's statistical test).

Table 1 shows the results of the regression. The dependent variable (that is, the one to be explained) is the average growth of the per capita GNP between 1985 and 2005. We chose a period of approximately 20 years for the measurement of average growth in order to find an intermediate point between purely cyclical short-term growth (which would not be affected by

THE OBJECTIVE IS TO UNDERSTAND WHAT CAN BE DONE TO BRING THE INFORMAL SECTOR TO FULL LEGALITY AND WHAT ROLE THE OPPORTUNITIES AND CHALLENGES OF GLOBALIZATION CAN PLAY IN THAT PROCESS.

	(1)	(2)
INITIAL PER CAPITA GNP ($ FROM 2000. 1985. IN LOGARITHMS)	−0.6796*** (3.06)	−1.7200*** (2.95)
INFORMAL PRODUCTION: SCHNEIDER INDEX (PERCENTAGE OF THE GNP)	−0.1479*** (4.39)	
INFORMAL EMPLOYMENT: NON-CONTRIBUTORS TO PENSIONS (PERCENTAGE OF THE WORKFORCE)		−0.0872*** (3.39)
CONSTANT	11.8634*** (4.29)	19.8890*** (3.33)
NUMBER OF OBSERVATIONS	84	68
HANSEN'S *J* STATISTIC (VALUE *p*)	0.48	0.70

TABLE 1

The effect of informality on economic growth.

NOTES: Dependent variable: growth of the country's average per capita GNP, 1985–2005. The statistics *t* (indicators of statistical significance) are shown in parenthesis beneath the corresponding coefficients. Regressions are estimated using the instrumental variables method in order to isolate the causal effect of informality on economic growth. In this method: **(1)** endogenous variable: each of the two informality indexes; **(2)** instruments: public order, regulatory freedom in business, and average number of years of schooling.

*, ** and *** indicate a statistical significance of 10, 5, and 1% error, respectively.

informality) and very-long-term growth (which could be confused with the causes, rather than the consequences, of informality). As mentioned earlier, we are taking the initial per capita GNP as a control variable. The interesting explanatory variables are the two informality indicators, analyzed separately.

The results of statistical analysis clearly indicate that an increase in informality leads to a reduction in economic growth. The indicators of informal production and employment have negative coefficients that are very significant in statistical terms. Informality's harmful effect on growth is not only solid and significant; its magnitude also makes it important economically. According to the estimates obtained, an increase in any of the informality indicators equivalent to a standard deviation in the distribution of the sample produces a drop of 1.5 to 2 percentage points in the growth rate of the per capital GNP.

THE BASIC CAUSES OF INFORMALITY

Informality is a fundamental characteristic of underdevelopment whose emergence is linked to both the forms of socio-economic organization adopted by economies moving towards modernity and the relation the state establishes with private agents via regulations, oversight, and the provision of public services. As such, informality is better understood as a complex and multifaceted phenomenon.

Informality arises when the cost of functioning within a country's legal and regulatory framework outweighs the benefits. Formality includes the cost of becoming formal (in the form of extensive, costly, and complex registration procedures) and the cost of remaining so (including taxes, providing social security and remunerations to workers in compliance with current legislation, and obeying environmental and health laws, among other expenses). The benefits of formality potentially include police protection against crime and abuse, recourse to the judicial system for conflict resolution and the fulfilling of contractual obligations, access to legally constituted financial institutions to obtain credit and diversify risk, and the possibility of access to national and international markets. Formality also eliminates, at least in principle, the need to pay bribes and it helps to avoid fines and penalizations, to which informal companies are continually subject. Therefore, informality is more frequent when the regulatory framework is burdensome, the quality of government services to formal companies is deficient, and the state's capacity for oversight and enforcement is weak.

These cost-benefit considerations are affected by the structural characteristics of underdevelopment, specifically those related to educational performance, productive structure, and demographic tendencies. Greater schooling reduces informality by increasing labor productivity, which in turn makes labor legislation less restrictive and formal earnings potentially greater. Likewise, a productive structure that depends to a greater extent on primary sectors such as agriculture than on more complex industrial processes encourages informality because legal protection and contract fulfillment are less relevant and less important. Finally, a demographic make-up with more youth and rural population tends towards greater informality because supervision is more complex and costly, training processes are more complicated, and the expansion of formal public services is more problematical.

In informal discussions (and even academic ones), this integral approach is often set aside as greater emphasis is placed on specific sources to explain informality. Some focus on the insufficiency of the legal and regulatory system and the weakness of the state—as reflected by corruption, for example—while others emphasize the weight of taxes and regulations. Still others offer explanations linked to a country's social and demographic characteristics.

As was suggested above, all of these are possible and logical explanations, and there is data to back them up. Graphics 2 and 3, for example, show degrees of informality (informal production in graphic 2 and informal employment in graphic 3) with regard to indicators of the leading determinant factors of informality proposed above.

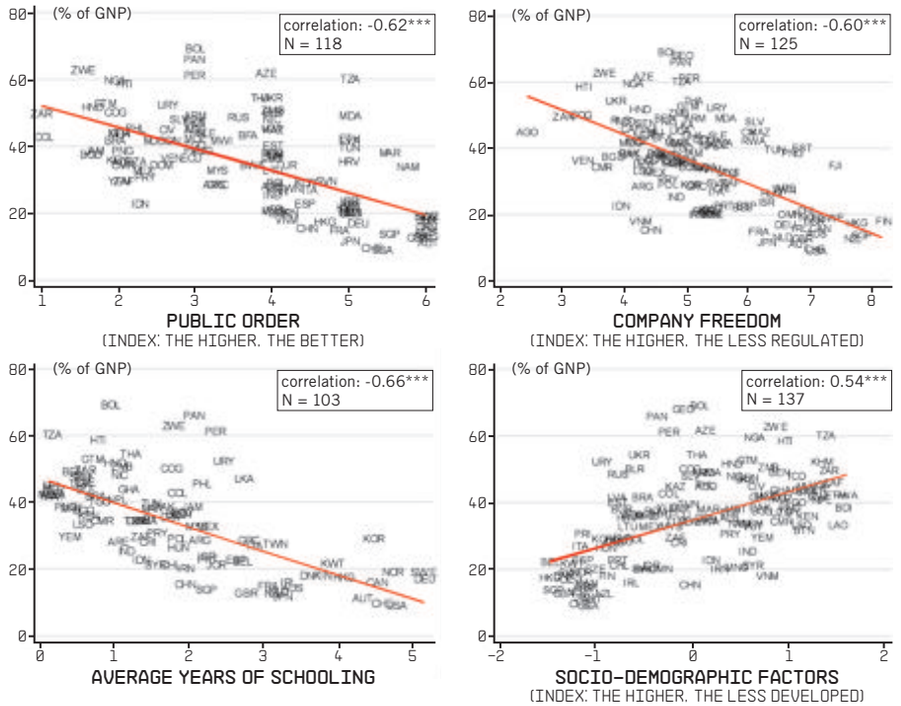
These are: an index of the preponderance of public order (obtained in PRS Group 1991) which represents both the quality of formal public services and the government's capacity to enforce its laws; an index of normative freedom in business (taken from James Gwartney *et al*. 2007), which represents the weight of restrictions imposed by the legal and regulatory framework; the average number of years of schooling of the adult population (taken from Barro and Lee 2001), which represents the education level and capacities of the workforce; and an index of socio-demographic factors (created on the basis of the World Bank's *Indicators of World Development* and data furnished by the International Labor Organization and the United Nations), which includes the percentage of youth in the population, the percentage of rural population, and the percentage of the GNP attributable to agriculture.

It is well known that the eight correlation coefficients (the two informality indexes multiplied by the four determining factors) are very significant, statistically speaking, and of great magnitude, with an average of around 0.7. The two informality indexes present the same pattern of correlations: informality is negatively related to public order, normative freedom, and schooling, and positively related to factors that indicate incipient socio-demographic transformation.

Consequently, all explanations can have some degree of truth. However, it is necessary to determine whether each of them has an independent explicative capacity with regard to informality. To do so, the following section will apply a cross-sectional statistical analysis between countries to evaluate the significance and independence of each proposed explanation when explaining informality.

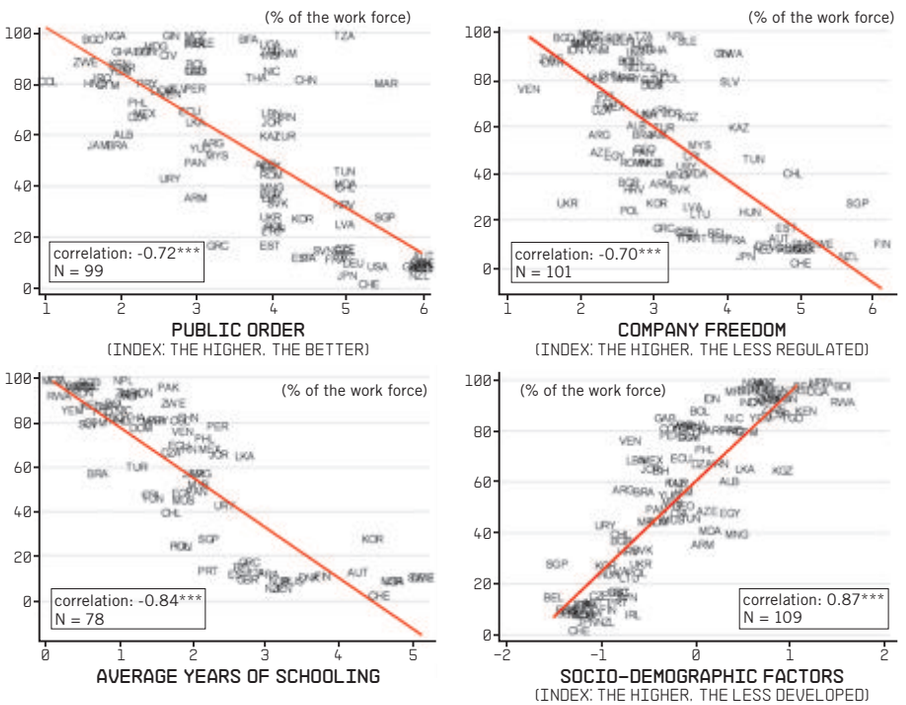
In the statistical evaluation, indicators of informal production and informal employment are treated as *dependant* variables, that is, variables to be explained. The set of explanatory variable is the same for each informality index and represents informality's leading determinant factors. These are the same variables used in the simple correlation analysis presented before.

The results of the statistical analysis are presented in table 2. Interestingly, the results are very similar for the informality indicators of both production and employment. Likewise, all of the coefficients of statistical analysis have the expected sign and are highly significant. They indicate that informality diminishes with increases in public order, normative freedom in business, and schooling. In that same sense,



GRAPHIC 2

Informal production and its basic determinants. The fraction of informal production presented on each vertical axis has been estimated using the Schneider index.



GRAPHIC 3

Informal employment and its basic determinants. The fraction of informal employment presented on each vertical axis has been estimated as a percentage of the workforce that does not contribute to social security for retirement.

VARIABLES TO BE EXPLAINED / EXPLANATORY VARIABLES	INFORMAL PRODUCTION (SCHNEIDER INDEX, PERCENTAGE OF GNP) (1)	INFORMAL EMPLOYMENT (NON-CONTRIBUTORS TO PENSIONS, PERCENTAGE OF THE WORKFORCE) (2)
PUBLIC ORDER (INDEX ON A SCALE OF 0 TO 6: THE HIGHER, THE BETTER)	-3.2360** (-2.57)	-2.9764* (-1.67)
COMPANY FREEDOM (INDEX ON A SCALE OF 0 TO 10, THE HIGHER, THE LESS REGULATION)	-2.0074* (-1.80)	-5.8675** (-2.28)
ACADEMIC PERFORMANCE (AVERAGE NUMBER OF YEARS OF SCHOOLING)	-1.9684* (-1.70)	-5.8114*** (-3.27)
SOCIO-DEMOGRAPHIC FACTORS (AVERAGE NUMBER OF YOUTHS IN THE POPULATION, PERCENTAGE RURAL POPULATION, AND PERCENTAGE OF AGRICULTURE IN THE GNP)	3.8438** (2.00)	21.6130*** (7.31)
CONSTANT	60.3429*** (10.48)	113.3110*** (11.40)
NUMBER OF OBSERVATIONS	84	70
R2	0.57	0.88

TABLE 2

Determinants of informality in production and employment.

NOTES: The statistics *t* (indicators of statistical significance) are shown in parenthesis beneath the corresponding coefficients.

*, ** and *** indicate a statistical significance of 10, 5, and 1% error, respectively.

informality diminishes when the productive structure moves away from agriculture and the demographic pressures of youth and the rural population diminish.

The fact that each explanatory variable retains its sign and meaning after being tracked for the rest of the factors indicates that there is not a single determinant factor capable of explaining informality alone. All must be taken into consideration in order to fully understand informality. Together, the four explanatory variables account for much of the cross-sectional variation between countries with regard to informality. They explain 58% of international variation in the degree of informal production and 89% in that of informal employment.

INFORMALITY AND GLOBALIZATION

Productive and labor informality are very widespread in countries with medium or low income, where they are at once a cause and consequence of underdevelopment. High informality is worrisome because it denotes inadequate use of resources (particularly human capital and labor) and an insufficient supply of government services. Therefore, informality can be a risk factor for national growth, endangering its chances of reducing poverty. Tests indicate that informality is the result of a combination of deficient provision of public services and a burdensome regulatory framework for formal companies. This combination is especially harmful when schooling and human capital are scarce, modes of production are still basic, and demographic pressures are strong.

Informality has been a very persistent characteristic of underdeveloped countries. With the advent of globalization we may wonder whether informality will finally lead to formality. There are arguments and indicators that seem to provide an affirmative response. First of all, globalization is driving international competition and states are beginning to understand that the companies in their countries cannot compete in such an environment if they cannot count on quality public services and are overwhelmed by high tax burdens and severe regulations. It is enough to mention the attitude many governments are taking towards international reports of institutional quality such as the World Bank's *Doing Business* (2009) or the World Economic Forum's *Global Competitiveness Report.* Although sometimes with great reluctance, governments are doing whatever they can to improve their status in these reports in order to encourage investment and generate jobs in their countries.

Second, informal companies are realizing that they cannot access new international markets made lucrative by globalization unless they enter the existing legal and regulatory framework. Companies seeking to participate in international markets or in advanced economies are obliged to fully comply with environmental, labor, and health regulations, among others. This has its cost but it also offers the possibility of obtaining considerable income. More than ever before, small and medium-sized export companies in non-traditional sectors such as manufacturing, agro-business, and communications services are seeking an important presence on the international economy.

Third, given the opportunities associated with globalization, individuals and families are better preparing themselves in educational terms and trying to increase their productivity. The expectations that drive them include not only a reduction of the unemployment and underemployment that have characterized developing countries for decades, but also the possibility of working in multinational corporations, export firms, international service companies, and all those companies that have sprung up and grown thanks to globalization. We can therefore expect the two large processes of social and economic integration—formalization and internationalization—to go hand in hand in the new context offered by the world economy in the 21st century.

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THOMAS HIRSCHHORN ▸
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GOVERNING A MORE GLOBAL WORLD

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INTRODUCTION

The rapid growth of global social relations is one of the principal developments of the late twentieth and early twenty-first centuries. Society of our times has acquired more pronounced global proportions: human beings are connected with one another on a planetary scale to degrees not previously known. Even deep in Amazonia, people are aware that "globalization affects us deeply, touching on all the big questions" (Vieira 2005).

This more global circumstance has raised numerous headline issues for public policy. How can we best address climate change, financial crises, infectious diseases, Internet communications, arms proliferation, transborder production chains, and intercultural accommodation, to name but a few crucial global challenges? As transplanetary interlinkages have become more significant in society, rules and regulatory processes have emerged to bring greater order, stability, predictability, and control over global affairs. Like any other realm of social life, global relations are governed.

However, what form does this governance take? Is regulation of intensified global relations to be conducted, on older patterns, through territorial nation-states? Or is globalization prompting a "scaling up" of the state from national to global levels with the creation of a world government? Or is increased globality the occasion for a return of rule by empire? Or is the intense globalization of current times instead a moment to revive decentered governance arrangements on a medieval pattern? Alternatively still, is a more global world to be governed through institutional configurations that history has not previously seen?

Whatever the institutional shape of global governance, what purpose should the rules serve? Is the aim to maximize material welfare in a global economy? Or is the objective to ensure global ecological integrity? Or is the goal to advance global social justice with an equitable distribution of resources across humanity as a whole? Or is the goal to secure peaceful settlement of global conflicts? Or is the target to foster democratic processes in a context of global citizenship? Or is the end to promote creativity and wisdom in global culture? Or is the guiding vision to ensure moral decency in a global community? Alternatively, if in fact the purpose of global governance encompasses several or even all of these core aims, which priorities should prevail when different objectives clash with one another? Which should take precedence in cases of incompatibility, say, between efficiency and sustainability; or between justice and peace; or between democracy and morality?

This, then, is the central concern of the present essay: how to govern a more global world in the early twenty-first century. Such a short paper cannot develop full answers, but it can clarify the broad issues. Concretely, what institutional frameworks are developing? Normatively, what value perspectives should guide these policy processes?

In responding to these questions, the first part of the discussion below briefly elaborates a conception of globality and globalization. This preliminary step of definition is necessary since ideas of the global are so multiple and divergent. To limit confusion it is therefore advisable for each commentator to specify the particular notion of globalization that informs their understanding.

The second part of the paper describes governance of the contemporary more global world in terms of a "polycentric" mode of regulation. Polycentrism refers here to governance by means of trans-scalar, trans-sectoral, diffuse, and overlapping institutional arrangements. In a polycentric framework, global public policy is generated through complex networks that comprise official, market, civil society, and hybrid agencies. These regulatory actors moreover operate across a mix of local, provincial, national, regional, and global jurisdictions. With so many institutions and measures involved, it can be difficult in conditions of polycentrism to identify the sources and trace the courses of governance in respect of global problems. This situation creates large difficulties of coordination and accountability, which largely explains why most governance of global affairs today suffers from major shortfalls in effectiveness and legitimacy.

The third part of this paper then explores the normative frameworks that might be brought to these polycentric governance processes. Different ideologies assign different relative priorities to the seven aforementioned values of economic productivity, ecological integrity, social justice, peace, democracy, cultural vibrancy, and morality. The aim in this concluding section is to identify some of the key political choices that every global citizen must take, rather than to prescribe what those choices should be.

GLOBALIZATION

As elaborated elsewhere (Scholte 2005, ch. 2), globalization is a diversely understood and deeply contested concept. For example, some

WITH GLOBAL CONSCIOUSNESS PEOPLE ARE AWARE THAT THEY INHABIT PLANETARY REALMS, AND THEIR IMAGINATIONS TAKE THEM ANYWHERE ON EARTH. A NUMBER OF LANGUAGES, DISCOURSES, SYMBOLS, AND NARRATIVES HAVE GLOBAL REACH.

commentators define globalization as a process of *internationalization* that brings a substantial growth of interactions and interdependencies between countries. Others conceive of globalization as *liberalization* and the reduction of state-imposed restrictions on cross-border movements (of goods, services, capital, and—in principle if not in practice—labor). Others identify globalization as *universalization*, whereby a host of objects and experiences are spread to all corners of humanity. Still others define globalization as *deterritorialization*, a process in which many social relations such as electronic finance and websites (partly) transcend the geography of place, distance and borders.

Globalization arguably can involve all four of these trends and more. What is wanted, therefore, is a conception that not only encompasses and integrates these related qualities, but at the same time also identifies the distinctive character of globalness. Such a notion is available if one defines globalization as *the growth of transplanetary social connectivity*. Globality is "transplanetary" in that it involves geographical spaces that can stretch to any location on the Earth. Globality is "social" in that it involves people living collectively—in this case on a planetary scale. Globality is "connectivity" in that it links conditions, experiences, and destinies—in this case at widely dispersed sites across the Earth. Globalization by this definition is a process whereby human society acquires more pronounced planetary dimensions.

Transplanetary social connectivity is manifested in a host of material circumstances. Through global communications, for instance, people exchange messages between any points on Earth. With global travel, people bodily move anywhere on the planet. Global organizations encompass interconnected operations scattered across several continents: e.g., global business corporations, global civil society associations, global governance institutions. Global laws apply certain norms and standards across the planet, including for example intellectual property rules and fair trade principles. Global production sees different stages of the creation of goods (clothing, electronics, etc.) performed at widely dispersed locations on the globe. Global markets involve the distribution and sale of certain commodities (e.g., natural gas and airline tickets) on a planetary scale. Global money forms (such as US dollars, Special Drawing Rights, and Visa credit cards) are used in economic transactions at all corners of the Earth. Global finance involves savings and credits circulating in planetary spaces. Global military affairs see armed forces operating across the Earth with, for example, intercontinental missiles, surveillance satellites, and long-range troop deployments. Global health issues arise in respect of various infectious diseases as well as global trade in drugs. Global ecological developments such as climate change, biodiversity loss, and depletion of stratospheric ozone affect relations between humanity and the rest of nature on a planetary scale.

In addition to these many material forms, globality also manifests itself ideationally. With global consciousness people are aware that they inhabit planetary realms, and their imaginations take them anywhere on Earth. A number of languages (e.g., English), discourses (e.g., 'development'), symbols (e.g., the Nike insignia), and narratives (e.g., the soap opera) have global reach. Global spaces also host distinctive aesthetics such as fusion cuisine, computer-aided design, Diaspora literature, and hybrid music forms. Meanwhile various non-territorial identities and associated solidarities stretch across the planet, with affective bonds based on caste, clan, class, disability, faith, gender, generation, race, and sexuality.

Taking this multitude of material and ideational circumstances in sum, global connectivity figures pervasively and deeply in contemporary society. Most human beings in the early twenty-first century encounter at least several global connections every day. Indeed, many if not most social circumstances today involve a significant element of globality. We inhabit a more global world.

The historical periodization of globalization is a matter of considerable controversy. Many commentators rightly emphasize that transplanetary social relations are not new to the present era. Various earlier times also knew considerable intercontinental trade and finance, long-distance migration, world religions, transoceanic telegraph cables, global epidemics, and more. As always, nothing in human history is ever completely new.

However, contemporary greatly accelerated globalization—unfolding since roughly the middle of the twentieth century—has expanded transplanetary social connectivity to extents never previously witnessed. For one thing, the aggregate amount of all global links today dwarfs anything known before. In addition, the scope and diversity of types of transplanetary relations is far greater now than at any earlier time. The range of people who are intimately involved in global spaces is likewise much wider than ever, sweeping

across all classes, countries, and cultures. Furthermore, individuals in today's world tend to experience global connections much more often and much more intensely than before. The speed of transplanetary transactions has also reached historically unprecedented heights, to the point that many global communications are instantaneous. And the overall impacts of globality run far deeper in contemporary society. Thus, while global relations certainly extend back far in time, their number, range, frequency, intensity, velocity, and consequence are today qualitatively higher. It therefore seems no accident that talk of "globalization" has only arisen during the past fifty years, and not before. No language on Earth had this term before 1960, and today no major language is without an equivalent word.

In spite of this striking historical turn, analysts must take care to avoid globalist exaggerations when commenting on contemporary society. Localities, countries, and regions retain distinct importance in today's more global world. Amidst the hugely expanded global flows, territorial geography continues to have far-reaching impacts on patterns of production, governance, and identity. Globalization has not erased other scales of social life. Rather, global domains interrelate in complex combinations with regional, country, and local realms. Hence, as will be described in more detail presently, globalization is not generating a centralized world government, but a decentralized multilayered governance apparatus.

Contemporary globalization has also been an uneven process. For one thing, the trend has not touched all people with the same intensity. Some locales (e.g., so-called "global cities") and some social groups (e.g., corporate executives) have been very heavily globalized, while others such as pastoralists in the Sahel have been much less touched. Moreover, the benefits and harms of recent globalization have been unequally distributed. There have been gainers (including some big winners, for example, among fund managers) and losers (including some big casualties, for example, among AIDS sufferers).

Such differential consequences have made globalization a context of considerable political contention (Held and McGrew 2007). As will be elaborated in the final part of this essay, champions of prevailing approaches to globalization argue that current adversities and inequalities of a more global world are unavoidable and will be overcome in the medium to long term (Bhagwati 2004). Critics can be divided into "anti-globalization" and "alter-globalization" camps. The former assert that globalization is inherently damaging and that society should therefore be "de-globalized" with fewer transplanetary links (Bello 2004). In contrast, alter-globalization perspectives maintain that the problem is not transplanetary social connectivity per se, but the policies that are adopted towards a more global world. Different policies, they say, could make globalization work better. Some alter-globalization advocates prescribe relatively modest reforms (Stiglitz 2002), while others promote more ambitious agendas of change (Shiva 2005).

Yet, whatever political vision one embraces, it is clear that the speed and direction of globalization is largely a function of governance. To be sure, some deep and powerful historical forces have spurred the expansion of transplanetary spaces in contemporary society (Scholte 2005, ch. 4). However, these forces do not predetermine the precise nature and consequences of a more global world. Globalization develops in the particular ways that it does because of policy choices. To understand those policy choices it is necessary to examine how globalization is governed.

POLYCENTRIC GOVERNANCE

A social space is always governed. Whenever a given arena of society acquires importance, people develop rules and regulatory institutions to secure stability, predictability, order, and control within that realm. In earlier times, for example, the emergence of local settlements saw the creation of governance apparatuses such as village councils, city-states, baronies, and guilds. Later in history the growing importance of country domains was accompanied by the rise of national states. More recently, regionalization of economy and society has prompted the appearance of regulatory frameworks such as the European Union (EU) and the Southern African Development Community (SADC).

The same broad logic applies to globalization. As transplanetary connections have become more numerous, pervasive, and influential in society, particularly since the mid-twentieth century, governance arrangements have proliferated and grown in respect of global spaces. Countless laws, norms, standards, and principles are now in place to frame the way that global social relations are handled. Highly sophisticated rules have developed for global communications, global finance, global environmental issues, global arms control, and so on. As a result, society today has considerable global governance.

Clearly this global *governance* has not taken form as global *government*, in the sense of a centralized authority that has the final word on all issues across a jurisdiction that spans the entire planet. Some analysts, such as world federalists, have expected and indeed advocated that globalization should involve a "scaling up" of the sovereign state from national to planetary proportions (Davis 1984). However, a shift of this kind has not happened and shows little sign of occurring. Global affairs are today not regulated—and may well never be governed—through a world state.

Yet there is no reason why global governance should necessarily take shape as a state writ large. As already noted, human history has known many different modes of societal regulation. The unitary centralized sovereign state is only one possible form of governance, and measured against the broad sweep of history such an institution has not actually existed for very long. Indeed, in some territories a modern state has never been fully operational. Thus it should hardly be surprising that global governance would not adopt the form of a world state. But if not through a planetary government, how does contemporary governance of global affairs operate?

It is crucial to emphasize from the outset that global governance very much involves national states. Globalization and the territorial state have co-existed quite comfortably in relations of mutual support. Thus, on the one hand, states have greatly facilitated globalization, for instance, with liberalization of trade and investment flows. Concurrently, on the other hand, globalization has often reinforced the power of states, for example, through new surveillance technologies and intensified intergovernmental collaborations. Hence it is by no means the case, as some analysts have suggested, that globalization marks an end, or indeed even a decline, of the national state (Khan 1996; Strange 1996). Most territorial states are today as large and robust as ever, and it is hard to see how contemporary global challenges could be adequately addressed without them.

Yet it is also not the case that contemporary globalization has left the state unchanged. Due in good part to the rise of transplanetary social connectivity, the national territorial state of the early twenty-first century operates in some qualitatively different ways than its forebear of a century ago. Like anything else in history, states change over time, and globalization has been a key occasion for transformations of the state in the current era.

For one thing, national states in today's more global world often deeply affect constituencies beyond their territorial realm. Thus, for example, the policies that a state adopts on global matters such as currency exchange or greenhouse emissions or infectious diseases or trade flows can and often do have far-reaching repercussions for people residing outside that state's jurisdiction. Big states in particular can have profound impacts on the everyday lives of millions of people who never set foot on their territories. These affected persons moreover have no formal say in electing the "foreign" governments that deeply shape their livelihoods.

Although state electorates remain national, governments today often address their policies to global constituencies in addition to, and in some cases even more than, domestic audiences. For example, almost all states now adjust their laws on investment, taxation, and employment with a view to satisfying global capital as well as, or sometimes even ahead of, domestic business. In an age of instantaneous and pervasive transplanetary communications, most governments are also concerned to maintain a positive image in the influential global mass media (CNN, *The Financial Times*, etc.) alongside the national press. Many states today moreover take notable heed of global civil society actors such as human rights advocates, development NGOs, environmental groups, and religious associations. In these ways and more, states in the contemporary more global world serve more than national interests alone.

Globalization has also changed state behavior in terms of the growth of transgovernmental networks. In earlier times national states related with each other almost exclusively through foreign ministries and diplomatic services. However, deepened global connections have often induced other departments of government to develop their own intense direct trans-state collaboration, outside traditional diplomatic channels (Slaughter 2004). Thus, for example, key officials from central banks in different states maintain regular exchanges and coordination with one another on global financial matters. Global communications and travel also permit daily contacts and periodic face-to-face conferences among agricultural officials, education departments, environmental regulators, health ministries, immigration services, customs and excise offices, police forces, and many more parts of the state. Specific illustrations of transgovernmentalism include the Group of Eight (G8), the

Competition Policy Network, the Human Security Network, and the Nuclear Suppliers Group. The Organization for Economic Cooperation and Development (OECD) now convenes several thousand transgovernmental committees and working groups per year. On many occasions in today's more global world, civil servants in a given ministry have closer links with their counterparts in other states than they do with officials in other departments of their own state. In this way contemporary states have become so interlocked that it is often hard to say that a given public policy (e.g., an adjustment of interest rates or a disease prevention strategy) emanated from this or that individual government. Rather, the measures emerge from a transgovernmental network. To catalogue these proliferating regulations legal scholars have begun to develop a new field of "global administrative law," as distinct from the traditional "international law" of customs and treaties (Kingsbury and Krisch 2006).

In many cases the needs for collaboration among states in a more global world has led to the establishment and subsequent expansion of permanent intergovernmental agencies. To note but three of the hundreds of such bodies that now operate, the Bank for International Settlements (BIS) handles rules for global finance, the Organization of the Islamic Conference (OIC) facilitates cooperation among governments of countries with a Muslim majority population, and the United Nations (UN) addresses a full spectrum of global public policy issues. In contrast to transgovernmental networks, intergovernmental organizations have their own offices, budget, staff, and legal personality, separate from those of the participating states. Over time these institutions have acquired a relative autonomy from the states that first created them. Their influence on weaker member states can be especially pronounced, as the impact of the International Monetary Fund (IMF) on governments in the global south illustrates.

In addition to promoting the development of intergovernmental institutions with membership drawn from multiple continents, globalization has since the middle of the twentieth century also encouraged an unprecedented proliferation and growth of regional governance agencies. Many national governments have seen advantage in approaching matters such as global trade, global finance, global migration, and the like on a regional basis through, for example, the EU, the Arab Monetary Fund (AMF), and the Association of South East Asian Nations (ASEAN). In addition, recent decades have witnessed the emergence of a new multilateralism of regions, with interregional mechanisms such as the South Atlantic Peace and Cooperation Zone and the Asia-Europe Meeting (ASEM) (Hänggi, Roloff, and Rüland 2006). Like global-scale intergovernmental bodies, the more mature regional governance organizations have acquired a noteworthy degree of autonomy from their member states.

Other governance of global matters has developed through sub-state institutions. Thus local and provincial governments have taken steps in respect of, inter alia, global environmental concerns, global criminal networks, global trade, and global investment. A number of sub-state governments—especially in East Asia, Europe, and North America—have built up their own foreign affairs departments, in some cases including permanent offices abroad. Sub-state authorities have also institutionalized some of their own global collaborations, separately from national states, in organizations such as United Cities and Local Governments (UCLG) and the Commonwealth Local Government Forum (CLGF).

Drawing upon official agencies with global, regional, national, provincial, and local remits, contemporary governance of global affairs has a pronounced trans-scalar quality. Prior to the mid-twentieth century societal regulation derived almost exclusively from, and was executed predominantly through, national institutions. In contrast, public policy today generally involves multi-layered networks, where rules are formulated, administered and reviewed through combinations of supra-state, state and sub-state bodies. Thus governance of transplanetary relations generally involves: global institutions and links amongst them; regional and interregional apparatuses; national and transgovernmental agencies; local and translocal arrangements; and communications and collaborations across the different arenas. This situation has prompted many analysts to speak of "multi-level" regulation (Enderlein, Wälti, and Zürn forthcoming). However, the notion of "trans-scalar" governance perhaps better captures the dense interconnections across—and thus blurred lines between—the various jurisdictions.

The institutional complexity of global governance grows still further when its trans-sectoral qualities are considered. Many global affairs are today regulated in part outside the public sector, for instance, by business associations and/or civil society organizations. In this respect contemporary globalization has witnessed substantial

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privatization of governance (Cutler, Haufler, and Porter 1999; Graz and Nölke 2008). For example, various aspects of global finance are regulated by industry-based bodies such as the International Capital Market Association (ICMA), the Hedge Fund Standards Board (HFSB), and the Wolfsberg Group (for guidelines against money laundering). Self-regulation has also become widespread in respect of global trade and investment with voluntary codes of conduct for so-called "corporate social responsibility." Important private-sector players in the governance of global communications include the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (W3C). The fair trade movement is mainly governed through civil society-based institutions such as the World Fair Trade Organization (WFTO) and Fairtrade Labeling Organizations International (FLO). Other civil society initiatives operate nonofficial certification schemes to further global ecological sustainability, including the Forestry Stewardship Council (FSC) and the Marine Stewardship Council (MSC). In all of these cases and more, nongovernmental actors have not waited for states to make global governance and have taken regulatory matters into their own hands.

In still other cases governance arrangements for global affairs have taken a hybrid form that combines public and private elements. Such institutions—sometimes called "multi-stakeholder forums"—are constructed as collaborations among official circles, market players and civil society actors. A few such constructions date back to the first half of the last century, including the International Labour Organization (ILO), the Berne Union (to regulate export credits), and the International Organization for Standardization (ISO). However, hybrid global governance mechanisms have multiplied since the late 1990s. Among these new creations the Internet Corporation for Assigned Names and Numbers (ICANN) regulates Internet protocols and domain names worldwide. ICANN is an incorporated business with considerable civil society involvement and oversight by the United States Department of Commerce. Meanwhile the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) has a board with representatives of multilateral and bilateral donors, recipient governments, foundations, the business sector, Northern and Southern NGOs, and people living with the diseases. The Kimberley Process brings together governments, business, and civil society in joint efforts to stem trade in so-called "conflict diamonds."

With its trans-scalar and trans-sectoral character, governance of global challenges is highly diffuse. For each global issue, regulatory initiatives occur at a multitude of sites: on and across global, regional, national, provincial, and local scales; and in and among official, commercial, and civil society sectors. Often the jurisdictions of the various regulatory arrangements overlap, and hierarchies among them are often not clear. For example, who rules the Internet: nation-states, the intergovernmental International Telecommunication Union (ITU), the private initiative W3C, or the multi-stakeholder forum ICANN? Many are involved, no one is in charge.

We might therefore speak of a transition, in the context of contemporary intense globalization, from a "statist" to a "polycentric" mode of governance (Scholte 2005, ch. 6). Statism is often also termed the "Westphalian" condition, with reference to the treaty of 1648 that articulated modern principles of sovereign statehood. In this circumstance, governance was highly centralized at one level (the national) and in one type of actor (the state). In contrast, the more global society of the twenty-first century is regulated in a more polycentric fashion, with many decision points and often-unclear hierarchies and poor communication amongst them. While the reigning metaphor for the statist mode of governance was a pyramid, with the central national government as its peak, the more appropriate analogy today would be a crown of olive leaves or a donut, where many elements are woven loosely together around a policy issue, but without a bonding and coordinating middle point.

Other analysts have preferred alternative vocabulary to describe the contemporary situation of governance through trans-scalar, trans-sectoral, diffuse, and overlapping arrangements. Instead of polycentrism, some commentators have spoken of a "new medievalism," noting that the European Middle Ages also knew multiple layers of governance and a mix of both public and private authority (Akihiko 2002; Friedrichs 2004). Others have invoked labels such as "plurilateralism," "networked governance," "complex multilateralism," "cosmocracy," "complex sovereignty," and "disaggregated world order" (Cerny 1993; Reinicke 1999–2000; O'Brien *et al*. 2000; Keane 2003; Slaughter 2004; Grande and Pauly 2005).

Yet whatever terminology one chooses to characterize post-statist governance, the condition clearly involves major challenges in regard to coordination, accountability and democracy. Problems of coordination arise in a polycentric

condition when, as often occurs, multiple and widely dispersed regulatory actors address (parts of) a given global issue with little or no communication and consultation amongst each other. Difficulties around accountability arise when, as frequently transpires, deficient and/or harmful policies cannot be traced back, through dense polycentric networks, to clearly identifiable decision-takers. Troubles for democracy arise when, as regularly happens under current polycentric arrangements, affected people have little awareness of, participation in or control over the policy processes that shape their lives.

TOWARDS THE GLOBAL GOOD

Questions of democracy expand the discussion of governing a more global world from the descriptive issue of mapping regulatory processes to the normative issue of ensuring that the institutional arrangements advance the public good. In a word, it is important to ask not only what forms global governance takes, but also what purposes it should serve.

To assess whether or not global governance achieves positive results it is necessary to have a vision of the good society against which existing outcomes can be judged. Of course, people hold widely varying conceptions of what a good (more global) society should entail. In this vein liberalism, socialism, fascism, religious revivalism, radical feminism, deep ecology, and other perspectives hold highly diverse views of what governance should be for. Moreover, ideological predilections differ from one person to the next depending on their historical moment, cultural context, material conditions, psychological disposition and political struggles. Thus the following normative frame for evaluating global governance is not proffered as a definitive truth, but as a stimulus to reflection and debate.

On this particular prescriptive vision, governance of a more global world should aim to advance human livelihoods through the maximization of a set of eight primary values: namely, cultural vibrancy, democracy, distributive justice, ecological integrity, individual liberty, material well-being, moral decency, and solidarity. Taking these points briefly in turn, with *cultural vibrancy* good global governance would promote creative development and expression of diverse life-worlds, as well as mutually enhancing intercultural exposure and learning amongst them. With *democracy* people would, in a good more global society, take decisions that shape their common destiny collectively, through open deliberation, non-coercively, responsibly, and with equivalent possibilities for all affected to participate (Scholte 2008). With *distributive justice* the benefits and harms of globalization would be fairly allocated, avoiding arbitrary inequalities on lines of caste, class, country, culture, (dis) ability, gender, generation, race, sexuality, and urban/rural divides. With *ecological integrity* governance of a more global world would nurture conditions of nature in which human and other species can thrive. With *individual liberty* rules for transplanetary social relations would secure broad opportunities for each person to determine her/his own course in life. With *material well-being* governance of a more global world would deliver adequate nourishment, shelter, sanitation, literacy, health care, employment, and leisure for all persons. With *moral decency* globalization would be regulated in ways that recognized and respected the dignity and worth of each human being. With *solidarity* governance of today's more global world would promote collective support, community, trust, and peace among people on planetary as well as regional, national, and local scales.

As indicated, these eight primary values are approached here as a set. In other words, they are regarded as mutually reinforcing aspects of a single package, rather than as discrete elements to be pursued separately and in some rank order. In this way the suggested vision differs from liberalism, which tends to elevate the value of individual freedom to first place and expect other values to be realized in its train. Similarly, this normative frame differs from socialism, which can concentrate on distributive justice to the neglect of other concerns. It also differs from environmentalism, which can pursue ecological integrity in a single-minded fashion, and from religious revivalism, which can place all focus on a particular reading of morality. Instead, the normative perspective adopted here suggests that a good (more global) society is achieved when eight primary values are pursued in holistic combination.

To be sure, in practice tensions may arise between these core values in certain contexts of global governance. For example, the pursuit of global economic welfare can in some cases sit uneasily with the promotion of global ecological integrity. Likewise, democracy sometimes involves delicate balances of majority rule, minority rights and individual liberty. Cultural diversity can on occasion pose challenges to one and another

moral code. At such points of tension delicate trade-offs should be decided by the affected parties through peaceful deliberation.

Of course considerable ambiguity around these core values needs to be worked through when governing global affairs. For example, the ethics of constructive global interculturality are as yet poorly understood. Nor is it at all clear what shape democracy should take when applied to global governance (BGD 2009). Generally agreed precise criteria for fairness in global social life are lacking, and policy instruments to achieve progressive global redistribution are underdeveloped. Similarly, notions of "environmental sustainability," "human rights," and "global community" are far more easily pronounced than specified. Definitions of well-being in a global context are also anything but straightforward, with contrasting measures including the Human Development Index (HDI), Gross National Happiness (GNH), and the Genuine Progress Indicator (GPI). Moral codes, too, are often hazy and contested on the question of what counts as right conduct in global relations. In short, much more theoretical exploration and practical experimentation is required to develop viable normative frameworks to guide global social relations.

However, even ahead of such elaboration it is eminently clear that currently prevailing conditions of a more global world fall far short of the suggested eightfold frame of a good society. Contemporary global affairs are riven with cultural destruction, authoritarian rule, structural inequality, ecological damage, repression of liberty, material impoverishment, affronts to human dignity, and social disintegration. In general these "bads" exist on a global scale in ways and to degrees that would not be tolerated today on a local or national scale. For this reason so-called "alter-globalization movements" argue that other forms of transplanetary social connectivity are necessary—and possible (Fisher and Ponniah 2003).

Certainly so-called "neoliberalist" perspectives that dominated the theory and practice of global governance in the late twentieth century are now largely discredited. This general policy vision maintains that the principal if not sole purpose of global regulation is to promote individual liberty in a marketplace of planetary proportions. To that end neoliberalism prescribes a maximization of private initiative and a minimization of public intervention. The approach assumes—implicitly if not explicitly—that a globalized "free market" will on its own produce the greatest possible prosperity, democracy, environmental sustainability, and peace (Legrain 2004; Wolf 2004). The neoliberalist frame generally has little to say about distributive justice ("inequality is an unavoidable fact of life"), culture ("not a real issue"), solidarity ("people are driven by self-interest"), or morality ("a personal matter").

By the late 1990s widespread disquiet had arisen about the actual consequences of neoliberalist approaches to global governance. For one thing these prescriptions were often applied selectively. For example, poor countries were enjoined to open their markets to global transactions, while rich countries often kept key sectors closed. Meanwhile measures to liberalize global capital flows were not accompanied with equivalent steps to liberalize global labor movements. Such inconsistencies encouraged skepticism that neoliberalism was in practice an ideological tool of the strong to promote their already advantaged interests.

In addition, two decades of what was widely called the "Washington Consensus" on neoliberalism often did not deliver on promises. In spite of pervasive "structural adjustment" and "flexibilization," hundreds of millions of people across the world remained in abject poverty at the turn of the millennium. Concurrently, liberalized global markets brought enormous wealth to a small minority. Although multiparty elections of national legislatures did spread to more countries in the 1980s and 1990s, global governance as a whole had very weak democratic credentials. Far from providing sustainability, two decades of neoliberalism saw global ecological destruction reach unprecedented heights. Meanwhile neoliberalism promoted an ethos of "global competition" that arguably worked against solidarity, trust, and peace. Indeed, as these years passed more and more opponents of neoliberalism vented their unhappiness on the streets. Even many business leaders who had previously expounded "free market" solutions to planetary problems were by the year 2000 conceding that unadulterated neoliberalism was deficient as a formula for the good society in a more global world.

In response, some critics of neoliberalism have since the 1990s turned to neomercantilist reactions against liberalized global markets. These skeptics have argued that globalization is inherently incompatible with cultural vibrancy ("globalization is homogenization"), democracy ("globalization is imperialism"), distributive justice ("globalization increases inequality"),

ecological integrity ("globalization destroys the environment"), individual liberty ("globalization is oppressive"), material well-being ("globalization causes poverty"), moral decency ("globalization shelters pedophiles and tax evaders"), and solidarity ("globalization undermines community"). If globalization is intrinsically bad, then the only answer, say the neomercantilists, is to restrict links with global spaces and concentrate on regional, national, and/or local spheres where a good society can be better realized. To this end neomercantilists advocate measures such as tight controls on global flows, preferences for domestic production, promotion of local currencies, celebration of national identities, and so on. Neomercantilist tendencies have been evident, for example, in failures since 1999 to obtain further global trade liberalization through the World Trade Organization (WTO). Neomercantilism has also underlain greater state restrictions on migration and initiatives to create regional monetary funds as alternatives to the IMF.

Neomercantilism has rightly highlighted major shortfalls of neoliberalism, but this reactive response has itself rested on at least four major flawed assumptions. One key neomercantilist misconception is that globalization is synonymous with liberalization, so that the only possible corrective is to "de-globalize" with measures to obstruct transplanetary flows. However, a number of other policy approaches to a more global world are in fact also available, as will be elaborated below. A second neomercantilist mistake is to presume that local, national, and regional spaces are inherently more conducive to a good society than global realms. Experience has demonstrated again and again that local, national, and regional arenas can be very unhappy places with their own authoritarianism, inequalities, pollutions, and violence. There is no necessary correlation between the geographical scale of society and the quality of life that it provides. A third fundamental error in neomercantilism is to assume that people necessarily define their communities in territorial terms. On the contrary for some people solidarities can arise as much (or even more) from bonds of age, caste, clan, class, disability, faith, gender, race, and sexuality that transcend localities, countries, and regions. Finally, neomercantilism rests on an untenable premise that the past fifty to sixty years of hugely expanded transplanetary social connectivity can be readily unraveled. Such a turn of history would require simultaneously: (a) to deny the deep global links of ecological changes, infectious diseases, and diasporas; (b) to end the capitalist relations that underpin global finance and global production chains; (c) to suppress digital and other technologies behind global communications; (d) to disassemble the intricate polycentric governance arrangements described above; and (e) to erase the global imaginations that now deeply infuse consciousness of society for much if not most of humanity. This comprehensive removal of existing social structures is so unlikely as to make veritable de-globalization a non-starter.

However, as already noted, reactive delinkage is not the only available alternative to neoliberalism as a policy frame for governing globalization. The options range much wider than the age-old binary debate of "free trade" versus "protectionism." For example, many who previously championed neoliberalism have over the past decade shifted their views in the direction of what might be called a "global social market" paradigm. This "Post-" or "Augmented" Washington Consensus has argued that market-centered governance of globalization could in an amended form still deliver a good society (Stiglitz 1998; Rodrik 2001). Whereas neoliberalism suggests that "free markets" can work magic unaided, a global social market approach sanctions policy interventions by official, business and civil society circles to correct market failures and omissions. Steps in line with global social market thinking include anti-corruption initiatives, social safety nets for macroeconomic adjustment programs, the "decent work" agenda of the International Labour Organization (ILO), proactive encouragement of girls' literacy, pollution charges, schemes for corporate social responsibility (CSR), stakeholder consultation, improved access to essential medicines for low-income countries, and ideas of "global public goods" more generally. In all of these cases public policy measures are "added on" to tame market-led globalization and steer it clear of its potentials to do harm.

Global social market approaches certainly have the advantage of confronting the realities of globalization rather than seeking with a neomercantilist ostrich reaction to deny deepened transplanetary links that for the foreseeable future are here to stay. Yet it is doubtful whether these modest reforms go far enough. Ten years after the proclamation of a "Post-Washington Consensus," globalization is still more or less as wracked as before with ecological degradation, financial instability, economic crisis, inequality, oppression, armed violence, democratic deficits,

IN SHORT, MUCH MORE THEORETICAL EXPLORATION AND PRACTICAL EXPERIMENTATION IS REQUIRED TO DEVELOP VIABLE NORMATIVE FRAMEWORKS TO GUIDE GLOBAL SOCIAL RELATIONS.

and cultural sedation through mindless consumerism. It is hardly evident that market-based reforms such as carbon trading can by themselves provide a sufficient corrective to global warming. The laudable Millennium Development Goals (MDGs) launched in 2000 show no signs of being achieved with socially motivated market forces alone. Self-regulation through CSR has not adequately checked the inordinate global power of big capital. Large-scale promotion of "transparency" has not made global markets noticeably more stable and equitable.

Indeed, the financial collapse of 2008 has prompted many previous proponents of global social market policies to wonder whether any market-centered approach to global governance can deliver a good society. Can an economistic vision ever adequately encompass the cultural, ecological, political, and psychological dimensions of human livelihoods? Are there not inherent tensions between capitalism (with its logic of accumulation) and distributive justice that market forces cannot resolve, and on the contrary often exacerbate? Likewise, is there not an underlying inconsistency between ecological integrity and capitalism's subordination of nature to surplus accumulation? Do liberty and democracy not entail more than freedom to choose in a global marketplace? Does global solidarity not involve more than an occasional charitable monetary donation to anonymous casualties?

Such searching questions have prompted some critics of market-centered globalization to adopt an anti-capitalist position (Bircham and Charlton 2001; Broad 2002; Kingsnorth 2003). For instance, global socialists have suggested that class-based emancipation struggles on a planetary scale could generate a post-capitalist mode of production based on distributive justice and solidarity. Radical feminists have similarly advocated reconstructing globalization on the basis of a care ethic (both towards "the other" and towards nature) and logics of mutual giving. Other critics—variously called poststructuralists, postmodernists, and postcolonialists—have advocated a reorientation of globalization away from economistic materialism towards greater attention to the cultural politics of identity and knowledge. Deep ecologists, animal liberation movements, and aboriginal epistemologies have in their several ways emphasized the need for a comprehensive overhaul of society-nature relations at the heart of today's more global world. Religious revivalists have urged that a good (more global) society depends on a redirection of moral focus from the secular marketplace to humanity's relations with the spiritual and the divine. However diverse these transformational visions of the good society may be, they all urge that globalization can and should be driven by forces other than capitalist markets.

These proposals for a full-scale reinvention of globalization have their own shortcomings, of course. For example, some such perspectives replace the economism of current market-centered global governance with a "culturalism," an "ecologism," or a "moralism" whose uni-dimensionality is arguably no less limiting. In addition, these transformational visions generally have yet to indicate in adequate detail both the nature of the alternative that they offer and the process by which the proposed change will be attained. Without such specifications it is difficult to assess carefully the attractions and detractions of the respective prescriptions. A sketchy and uncertain path is also unlikely to attract a large and lasting constituency. Indeed, the transformations envisioned for these post-capitalist futures may be so far-reaching as to be beyond realization within the next generation.

If market-centrism is unacceptable, and if transformational formulae are for the long run, a more precisely plotted and more practicable alternative for the medium term may lie in a paradigm of global social and ecological democracy. Such a normative framework for global governance builds upon Western social democracy, with its emphasis on maximizing justice within capitalism through collectively determined progressive redistribution (Held 2004). However, as envisioned here a *global* social *and ecological* democracy for the twenty-first century subjects traditional social democratic principles to an ecological reinterpretation and an intercultural renegotiation. The resulting policy frame is more holistic and has greater traction across the various world regions beyond the West.

With a priority concern fairly to share the fruits of globally operating capitalism, global social and ecological democracy would entail substantial, systematic, and firmly institutionalized measures of progressive redistribution of global resources. To promote greater equity the current order of market-centrism has offered little more than (limited) development aid, (slow) debt cancellation, and (belated) clampdowns on offshore finance. With such a *laissez faire* approach, the global Gini co-efficient has remained somewhere in the region of 65, higher than household inequality in every country on

Earth except Namibia, and far higher than the range of 25–35 that prevails for most countries in Europe (Sutcliffe 2002; Milanovic 2005; CIA 2009). To achieve a more even transplanetary allocation of benefits and opportunities would require a substantial reconstruction of existing global rules (e.g., regarding credit access and intellectual property) and regulatory institutions (e.g., the IMF and the WTO). It would in addition demand the introduction of new governance agencies such as a Global Investment Agency (inter alia to apply competition policies on a planetary scale) and a Global Mobility Organization (to provide transparent and fair rules of intercontinental migration). Global distributive justice would also be furthered with the application of progressive taxes on global activities that have so far disproportionately benefited wealthy circles, such as currency transactions, securities trade, air travel, and Internet use. Revenue from these charges, collected and distributed through a Global Tax Authority, could go particularly towards welfare enhancement in currently disadvantaged quarters.

Needless to say, extreme care would be needed to ensure that this greater global distributive justice through expanded global regulatory institutions was achieved in democratic ways. Already current market-centered global governance suffers from severe shortfalls in democracy, and the introduction of new regulatory arrangements should be an occasion to correct this situation, not make it worse. Greater democracy in global governance could be partly achieved through better use of existing mechanisms for public participation and control. Thus improvements could be had in respect of information disclosure, parliamentary oversight, judicial processes, journalistic enquiry, and civil society engagement. Global democracy would also benefit from increased attention to citizen learning and public debate about globalization and its governance, so that affected people become better equipped to assess global circumstances and take more informed decisions on global policy matters. In addition, democratization of global governance would require substantial institutional reforms to ensure that all constituencies are equitably heard. On the one hand this would mean increased say in global policy processes for smaller and weaker countries. On the other hand it would also mean more voice for currently marginalized circles that constitute themselves on non-national and non-territorial lines, such as Dalits, disabled persons, faith groups, and peasants. Taken together, these various steps would amount to a far-reaching reconstruction of democracy for a more global world.

Yet ambitious reforms in the areas of distributive justice and democracy would not by themselves suffice to advance a good more global society in the decades to come. To remain standing, the stool of contemporary global governance needs a third ecological leg that has equal length and strength with the other two. National social democracy of the twentieth century must be reinvented as global social *and ecological* democracy for the twenty-first century. Such a reorientation would entail, for example, that every global public policy is thoroughly assessed on its implications for conditions of life on Earth: in the atmosphere, the biosphere, the geosphere, and the hydrosphere. Within national governments ecology ministries would rise to a par of priority and power with economy and finance departments. In place of the small and marginalized United Nations Environment Programme (UNEP), a Global Ecological Organization (GEO) would be created with equivalent stature to the IMF and the WTO. A GEO would inter alia facilitate global strategies on matters such as climate change and biodiversity loss. It would also elevate renewable energy to a top global public policy priority and oversee the global disposal of toxic wastes. Meanwhile various redistributive global taxes (e.g., on carbon emissions and trade in forest products) would likewise be operated with the enhancement of ecological integrity as a foremost concern.

A second headline quality that would distinguish global social and ecological democracy from its antecedents is constructive interculturality. The governance of global affairs developed to date has been heavily centered on Western life-worlds. These frames of knowledge and action certainly have much to commend them, but they far from exhaust the stores of human wisdom and innovation in regard to the eight primary values of a good society set out earlier. On the contrary, Western traditions arguably could learn much from other life-worlds, particularly on matters of ecological integrity, solidarity and intercultural ethics. Yet Western cultures have in the past often shown indifference to otherness, with an aversion even to acknowledge, let alone explore, diversity. Instead colonial and post-colonial Western intercultural politics have tended towards imperialistic suppressions of non-Western life-worlds. Old-style social democracy, too, carries unhappy historical

baggage in respect of intercultural relations, having more or less assumed that the "advanced" West would lead the route to human progress and "less developed" others should submissively and gratefully follow.

Global social and ecological democracy would provide an occasion to alter this long-standing pattern of (often violent) Western unilateralism. In this alternative path of globalization, principles of social justice, ecological vibrancy, and democracy would evolve through intercultural practices marked by mutual recognition, dialogic communication, reciprocal learning, and respectful negotiation of differences. With such ethics of "pluriversality," multiple life-worlds would peacefully cohabit in a single global social arena. This constructive interculturality would not only generate many sorely needed policy innovations, but also—by acknowledging, accommodating, and promoting diversity—secure greater legitimacy for global governance across the many affected communities. Thus, as envisioned here, global social and ecological democracy would entail a full-scale recalibration of identity politics, where cultural diversity shifts from being a source of division and fear to grounds for codependence with solidarity in a more global society.

To be sure, the above ideas and instruments of global social and ecological democracy require more elaboration than can be undertaken in the present short essay. In addition, much careful reflection is needed in respect of political strategies to realize the vision. Certainly this ambitious reform agenda would face considerable skepticism, if not determined opposition, particularly from powerfully placed circles that have drawn disproportionate benefit from the past decades of market-centered globalization. These advantaged groups would need to be persuaded that global social and ecological democracy offered them a better society as well. The debate will (and must) continue.

CONCLUSION

This essay has presented contemporary globalization as an epochal transformation of social geography in which transplanetary connections among people have become qualitatively more numerous, wide-ranging, frequent, speedy, intense, and influential than ever before. This far-reaching respatialization of social life has unfolded hand in hand with a major reconfiguration of governance: away from statist regulation and towards polycentric arrangements. Governing the more global world of the twenty-first century has raised in a new light age-old normative questions regarding the good society and how maximally to promote such core values as cultural vibrancy, democracy, distributive justice, ecological integrity, individual liberty, material well-being, moral decency, and solidarity.

Building effective and legitimate polycentric governance to further a good more global society has become an ever more urgent task. The cultural, ecological, economic, political, and psychological challenges of contemporary globalization run very deep, to the point of creating something akin to permanent and pervasive crisis. Global finance has fuelled continual economic implosions since the 1980s. Global diseases have provoked one panic after another over the same period. Global scares of food shortages, energy cut-offs, nuclear proliferation, and terrorism have further embedded insecurity into the heart of daily life. Global demographic trends and global ecological changes are simmering crises of the longer term.

It is therefore imperative to understand how a more global world can be governed. This task is both analytical (in terms of mapping how polycentric governance operates) and normative (in terms of elaborating value frames to guide global public policy). The further challenge is then to interlink analytical and normative knowledge in ways that promote effective and legitimate global governance practice. This chapter has suggested that none of the main policy paradigms tried to date—neoliberalism, neomercantilism, and the global social market—has come close to delivering a good society. More ambitious innovations of governance—in the direction of a global social and ecological democracy—are therefore required.

Cynics will of course dismiss such ambitions as "utopian" and "impracticable," and certainly it would require a large-scale and extended political struggle to realize them. Yet who in the 1920s imagined that a comprehensive welfare state could be constructed by the 1940s? Who in the 1940s imagined that large-scale decolonization could occur across Asia and Africa by the 1960s? Who in the 1960s imagined that the Cold War could end in the 1980s? Who in the 1980s imagined that the Internet would be so central to society twenty years later? On this record the construction of global social and ecological democracy over the medium term might prove quite feasible once citizens are possessed of the need to act.

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ANTONI MUNTADAS ▸

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GLOBALIZATION AND SCIENCE: ONE PHYSICIST'S VIEW

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He received his Bachelors Degree in Electrical Engineering from the Indian Institute of Technology in Chennai in 1969 and his PhD in Elementary Particle Physics from the University of Californian, Berkeley, in 1974. After three years at the Harvard Society of Fellows, he joined the Yale Physics Department, which he chaired between 2002–7 and where he is now the John Randolph Huffman Professor of Physics and Applied Physics. He has authored two texts: *Basic Training in Mathematics* and *Principles of Quantum Mechanics*. He currently works on applying techniques from quantum field theory to condensed matter physics. He is a Fellow of the American Physical Society, a Trustee of the Aspen Center for Physics, and winner of the 2009 Lilienfeld Prize of the APS. His lectures on Introductory Physics as well as all course materials such as exams and solutions are available free at http://oyc.yale.edu/physics. The lectures alone may be found in many places such as YouTube.

According to Wikipedia, where I get most of my facts these days, *globalization* is defined as the process by which local, regional, or national phenomena become integrated on a global scale.

One common example is economic globalization: the integration of national economies into the international economy through trade, foreign direct investment, capital flows, migration, and the spread of technology.

Defined broadly, the globalization of commerce is not new: people have been trading across national and regional borders for millennia, from Phoenicians to Polynesians, from the legal Silk Route to the illegal Opium Route. However the term globalization currently refers to the explosive growth in this activity brought about by rapid advances in technology, transportation, and communication.

I want to focus here on the globalization of science, and I will limit myself to my own specialty, physics, and to my own experiences, providing a unique perspective from someone in the trenches, someone who practices science for a living. In the process of illustrating my points, I will get into some physics. I do hope you will not skip over these ideas: I have made a special effort to render them accessible to a wide audience and they are essential to fully appreciating what follows.

The motivation for trading goods is easily understood. We trade with other countries because they have what we need and vice versa: you want my cotton to spin into cloth in your mills and someone else will turn that cloth into shirts and possibly sell it right back to me. What is being traded in the world of physics? How has the give and take evolved over the years, especially in the last two decades? That is my topic.

To set the stage I would like to discuss how physicists go about their business.

This community roughly falls into two categories: the experimentalists and the theorists.

The experimentalists build and set up measuring devices and collect data on physical phenomena: they could be looking at things that happen naturally, such as exploding stars and orbiting planets, or things they engineer in the lab, such as a piece of wire cooled to ultralow temperatures to study its resistance or particles produced in accelerators that convert the energy of the projectiles to matter. They summarize their results in the form of regularities and surprises that need an explanation.

Theorists, on the other hand, tend to stay away from fragile equipment and confine themselves to explaining the observed phenomena in terms of known laws or by inventing new ones.[1] The sharp division between theorists and experimentalists is recent and driven by the extreme complexity of today's measuring devices. In the past we had examples like Newton (1643–1727) who conducted experiments with light and Galileo (1654–1642) who studied mechanical systems and explored planets and their moons with his telescope. More recently we could also point to someone like Enrico Fermi (1901–1954, 1938 Nobel Prize) who could effortlessly switch between theory and experiment, but we would have to concede that he represents an exception.

Let me illustrate this interplay between theorists and experimentalists using two of the finest players: Johannes Kepler (1571–1630) the experimentalist, and Isaac Newton the theorist. Not all examples are this glorious, but I use it because the physics involved is easily visualized.

Kepler, who accepted the heliocentric theory of Nicolas Copernicus (1473–1543), studied the motion of planets in order to answer a variety of detailed questions. What is the shape of their orbits around the Sun? What is the relation between the size of the orbit and the time (T) it takes to go around once? After forty years of painstaking data collection he summarized his findings in the following three laws around 1605.

Law 1: The planets move around the Sun in elliptical orbits with the Sun at one of the focal points (Figure 2)*.*

Let me recall the definition of an ellipse. Just as the circle is a locus of a point that moves such that its distance from a fixed point (the center) is a fixed number (the radius), an ellipse is the locus of point P, which moves that such that SP+S'P, the sum of its distances from two fixed focal points (S and S') is constant. Thus to draw an ellipse we drive two thumb tacks at S and S', tie two ends of a string to S and S', place a pencil at a point like P and move it around, keeping the string taut. If S and S' coincide we get a circle of radius SP. The size of the ellipse is given by *R,* the semi-major axis, which is half the distance CA. When the ellipse becomes a circle, *R* becomes its radius**.**

Law 2. Area Law: The planet sweeps out equal areas in equal time.

The notion of the area swept is as follows. Consider A and B in the figure, which correspond to two locations of the planet a fixed time apart in its orbit, say one week, and C and D are also points a week apart but at a different time, chosen to be six months later in the figure. (The travel time of one week and the period between

THANKS TO THE UNIVERSALITY OF NATURAL LAWS AND NATURAL PHENOMENA, PHYSICISTS IN INDIA AND JAPAN AND POLAND ARE ALL SEEKING THE SAME LAWS AND EXPLORING THE SAME PHENOMENA AS PHYSICISTS IN GREENLAND OR ICELAND.

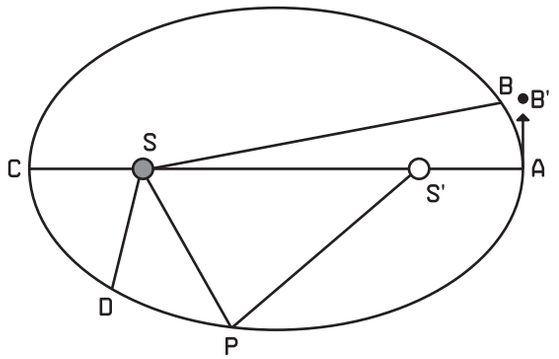
1
It is said of the great theorist Wolfgang Pauli (1900–1958, 1945 Nobel Prize) that the mere passage of a train carrying him through a town coincided with an explosion in a local physics lab.

FIGURE 1

Galileo Galilei.

FIGURE 2

Elliptical orbit of a planet around the Sun (looking down on the solar system). The Sun is at one focal point S (solid dot) there is nothing at the other focal point S' (empty dot). If the Sun S did not exist, the planet at A moving straight up the page, would end up at B' in a week. Instead the Sun pulls it to B.



comparisons of six months are chosen for illustrative purposes only and can be arbitrary.) The Law says that the area SAB (bounded by the line SA, the arc AB and line BS) swept out in the first week equals the area SCD swept out in the second one week.

Law 3. The ratio T^2/R^3 *involving the time period and the orbit size is the same for all planets.*

For example, for the Earth the orbital time T is 3.156×10^7 seconds (one year) and R is 1.496×10^{11} meters (93 million miles) and the ratio T^2/R^3 is 2.977×10^{-19}. For Mars T is 5.931×10^7 seconds and R is 2.278×10^{11} meters and the ratio T^2/R^3 is 2.975×10^{-19}. The other planets obey the law to high accuracy as well.

Now we turn to Newton's explanation of the regularities found by Kepler. For this he invoked two of his own inventions, the Laws of Motion and the Law of Universal Gravity.

Suppose we know that a planet is at A moving due north with a velocity shown by the arrow at A. We need to know what happens in the future. This is a typical problem in mechanics. Newton gives a complete answer to the question, but invokes many ingredients. First suppose there is no Sun. What will the planet be doing a week later? You might think the planet will move along the initial direction of motion for some distance and stop, as do all things on Earth when we do not actively push them. This slowing and stopping is due to friction. The planet on the other hand has no forces acting on (remember there is no Sun yet) and will move forever in the same direction and with the same speed (i.e., same velocity). This is Newton's First law, the Law of Inertia. It was known to Galileo as well, but Newton went a step further and asked: what does it take to change the velocity of a body, that is, to accelerate it? The answer was, a force. He quantified the relation between the force F (the cause) and the acceleration *a* (the effect) through the Second Law of Motion:

$$F = ma \quad (1)$$

This law tells us that if a body is to have an acceleration *a*, it must be subject to a force F, equal to the product of its mass *m* and acceleration. This equation does not tell us what agency is going to provide this force: for example it could be electrical or gravitational in origin; it could be someone pushing on the body. It does not tell you what force acts on a body at a given time. Finding what forces act on a body in a given situation is the second part of applying Newton's Law. It is an ongoing process as new forces are discovered often. For example we know that two protons experience another force besides gravitational and electrical, the strong or nuclear force. But in any case, if somehow you know the force acting on a body, this equation allows you to find its acceleration.

Let us go back to the planet.

Since the planet is accelerating, there must be a force on it. Where is this force coming from? After all no agency seems to be in contact with it to exert a force. So here Newton daringly postulated a force that acts across the void of space, "an action at a distance": his Law of Universal Gravitation says *any* two bodies, of mass M and *m*, located *r* meters from each other exert an attractive force

$$F = GMm/r^2 \quad (2)$$

on each other, where G is the Gravitational constant, the same for all occasions.

This is the force the Sun exerts on the planet to the left (or west in the figure). But it is also

the force the Earth exerts on the Sun (to the east). However the effect of this same force is quite different on the Sun and the Earth due to their very different masses M and *m*. To an excellent approximation the Sun hardly moves, while the planet orbits around the Sun assumed fixed. (This is why we say the apple falls to the Earth, when in fact they fall towards each other. The forces on the two are equal and opposite but the acceleration of the Earth is F/M while for the apple it is F/*m* where F is the same. So the apple does most of the moving.)

Combining Equations (1) and (2) we get

$$(G\,M m/r^2) = ma \quad (3)$$

If in Equation (3) we now set M equal to the mass of the Sun, *m* that of the planet, and *r* the distance SA in the figure, we get the acceleration *a* when the planet is at A. (We could do this at any other time as well.)

How do we use this equation to figure out what the planet does next? The answer needs calculus. But here is a modest beginning even if we do not know calculus. Given the initial position and velocity at A we can estimate its position and velocity a week later as follows:

1. From the definition of velocity as the rate of change of position with time, it follows that the change in its position in one week is the velocity at A times one week (expressed in seconds if the velocity was given in meters per second).
2. Using the fact that and acceleration is the rate of change of velocity with time, we multiply by one week the acceleration (due to the gravitational force of known magnitude and direction at A) to predict its new velocity after one week. The new velocity will have a small tilt to the northwest due to the acceleration.
3. Starting with the new position and velocity after one week, we repeat this to get the same at the end of two weeks and so on. We keep doing this every week and connect the 52 dots.

You can already see a problem with this recipe: it predicts that a week later the particle will end up vertically above A, near B', because the initial velocity at A was vertical. (Its velocity will be slightly to the west of north due to the acceleration.) But it is supposed to be at B not B' and moving along the tangent to the ellipse. *The problem is with our naïve assumption that the initial velocity and acceleration remain the same for a whole week*. We would do better if we recomputed the position and velocity every minute and still better, every second, and so on. Ideally the update must be done continually to yield the correct answer.

This is a exactly what is done for us by calculus, another subject that Newton invented (concurrently with and independently of Gottfried Wilhelm Leibnitz.) In this language

$$ma = (G\,M m/r^2) \quad (3)$$

assumes the form

$$m\,\frac{d^2r}{dt^2} = \frac{GMm}{r^2}\,\hat{r} \quad (4)$$

The object on the left is the second derivative of the position r (the rate of change of the rate of change computed continuously) and $\hat{r}$ is the unit vector along the position of the particle. I do not expect people unfamiliar with calculus to follow this last step. It is not essential that you do, you just need to know that from now on it is a problem in pure mathematics. You can pass the buck to the mathematics department, unless you are Newton, in which case you invent the requisite math and solve the equations.

His solution (difficult even after 350 years of calculus) was a complete triumph. It reproduced all the results that Kepler had observed: the orbit was a closed ellipse, equal areas were swept in equal amounts of time and T^2/R^3 came out to be the same for all planets. Not only could Newton show that T^2/R^3 was the same number for all planets, he could tell you *what* that same number was in terms of other known quantities like G and M, the mass of the Sun. He found

$$T^2/R^3 = (4\pi^2/GM). \quad (5)$$

Even if you cannot follow all the intermediate details, you can at least see one aspect of the result: in Equation (3) or (4) the mass of the planet *m* cancels out on both sides. Since the only reference to the planet is through *m*, subsequent orbital properties that follow from solving the equation do not depend on the planet, as we see in the right hand side of Equation (5).

Should we be troubled by the fact that to prove the three laws of Kepler, Newton invoked two laws of his own, $F=ma$ and $F = GMm/r^2$? After all, when you invoke a Law you do not prove it, it is simply postulated on the basis of many experiments. If you were allowed one new law per observed phenomenon, anyone can do it—for each phenomenon you invoke a law that says

THEORISTS DO NOT ALWAYS FOLLOW EXPERIMENTERS BY EXPLAINING WHAT HAS BEEN MEASURED. SOMETIMES THEORISTS ANTICIPATE OR PREDICT A PHENOMENON (SAY A NEW PARTICLE) BEFORE IT IS OBSERVED.

FIGURE 3

Chandrashekhara Venkata Raman.

it happens the way it does! So the real test of a Law is that it can explain many things.

This is of course the case for Newton: his Laws of Motion and Gravitation explain a huge number of things besides planetary motion: the falling apple, the Moon, the tides, binary stars, galaxy formation, and all mechanical phenomena including rocket trips to the Moon and back and every game of billiards. On the other hand, Kepler's Laws, great though they are, are not Laws in this sense, for they do not explain other things. *You can get Kepler from Newton but not vice versa*. They were Laws when he wrote them down, since they could not be derived at that time, but they should perhaps not be called Laws after Newton *derived* them. This is, however, not an uncommon tradition. For example, even though we now know that Newton's Law of Gravity can be derived from Einstein's General Theory of Relativity, we still refer to it as Newton's Law.

As I confessed, I chose this example because the phenomena are easy to visualize. I repeat that it is far from typical: people do not collect data for forty years before writing something up (not if they want a job, tenure, or funding), something as big as our solar system just comes along only once in human history as a virgin topic for study, and no one since Newton has brought along his own laws, invented the requisite mathematics to pose the problem, and gone on to solve the mathematical equations himself. It does, however, illustrate globalization fairly accurately: Kepler was a German who worked in the observatory of the Danish nobleman, Tycho Brahe (1546–1601), and was inspired by Nikolaus Copernicus, a Pole, while Newton was English.

A more recent example that conveys another set of ideas has to do with the Raman Effect. Working in a makeshift lab in Calcutta, Chandrashekhara Venkata Raman (1888–1970, 1930 Nobel Prize) observed in February 1928 that when light of frequency f was incident on certain materials, one obtained in addition to reflected light of the same frequency f or the same color, light at a slightly different frequency f'. The importance of Raman's discovery is this. According to quantum theory, if f and f' are possible frequencies for light emitted by an atom or molecule, so is f'–f. While radiation at the large frequencies f and f' can be easily detected, radiation at the difference frequency f'–f (which can be very small) cannot be so readily detected. But it can be inferred from f and f' and this gives valuable information on the structure of the molecule. Here is an analogy. Suppose I need to weigh a baby. Rather than place the squirming baby on the scale, I get on it (the scale, not the baby), measure my weight, grab the kid and read the scale again, and from the difference of two large numbers get the baby's weight.

That this was a discovery of the highest importance is clear from the fact that the Nobel Prize followed after a remarkably short wait of two years. (Some have had to wait decades to get that early morning phone call from Stockholm and others just do not get that call at all.)

The Raman Effect was described to make the following very important point we all take for granted: *Laws of Nature do not vary with time or space.*

Thus the Raman Effect, first seen in Calcutta could just as easily be seen and verified in Pasadena. It was seen in 1926, but it can also be seen and exploited today. Newton's Laws are just as good today as they were then and will continue to govern the motion of planets for all time. If a new planet is found, its orbit size and time period will have the same value of T^2/R^3 as the Earth. The highest possible velocity for any body is that of light. This speed limit is universal and true not just in all countries but all over the universe. The constancy of the Laws of Nature over space and time is what makes it possible for humans, who have inhabited a very small part of the universe for a very short amount of cosmic time to make predictions that apply everywhere and for all time (even close to the Big Bang.) The constancy over space and time of Natural Laws, a great boon to us, is however a belief that has great empirical support, but not a logical necessity.

There is another piece of luck in our favor. The fact that the Laws of Nature are the same all over the universe only means that if I take an electron and proton and form a hydrogen atom here in New Haven, I will get the same atom as I would if I take that electron and proton to a lab half way around the globe or to a different solar system and let them combine there. By "same" above I mean the atom will have exactly the same characteristics: in chemical reactions, in the frequencies of light it will emit or absorb, etc. But what if creatures in another solar system built a collider that makes particles out of energy, took an electron and a proton produced by that collider and made a hydrogen atom from them? Will that hydrogen atom be the same as the one produced using an electron and proton from the Earth? The answer is yes*: protons and electrons (and particles like them) are the*

same all over the universe and will combine to form identical atoms everywhere and all times. Protons on Earth are identical to protons anywhere else. There is not the slightest difference between two protons in mass, charge, or the forces of interaction with other particles. Though "identical" twins are never identical and "identical" cars don't run the same way, at the basic level particles (and the atoms they form) are identical. This is due to quantum mechanics, which does not allow continuous variations in properties: either two particles are identical or they are not, there is no grey area. If you brought me an imposter electron that differed ever so slightly from the real electron, it will be exposed very clearly in a quantum experiment. For example, it will not obey the Pauli Exclusion Principle that prevents two identical fermions like electrons from occupying the same orbital in an atom. The fake electron will reveal itself by occupying the same orbital as an electron. Quantum mechanics also ensures that when the proton and electron combine to form hydrogen, only certain discrete energy levels are possible, i.e., only certain discrete frequencies of light that can be emitted or absorbed by the atom. So confident are we in this uniformity of atoms that when we see light from a distant galaxy with a wavelength that is shifted from the 21 cm wavelength of terrestrial hydrogen, we do not infer that the hydrogen there is different from hydrogen here, but that the galaxy is moving away from us and this motion causes the Doppler shift. Furthermore we use the shift to infer the galactic velocity. This is how Edwin Hubble (1889–1953) showed the universe was expanding.

Thanks to the universality of natural laws and natural phenomena, physicists in India and Japan and Poland are all seeking the same laws and exploring the same phenomena as physicists in Greenland or Iceland. This naturally fosters the exchange of ideas since we are solving the same puzzle. That we speak different languages is irrelevant, the laws of Nature are written in the universal language of mathematics. This is not all. One day, when we connect with aliens, they too will share their findings on this same quest and the "globe" in globalization will refer, not to our Earth, but to the closed and finite universe we live in.

In manifesting herself to one and all in the same fashion, Nature also serves as the ultimate arbiter of scientific disputes and the correctness of theories. If the experiments are against you, you lose, no matter who you are, and conversely, if they support you, you win regardless of who you are.

The preceding statement is true in the long run, but not in the short term. Personalities and prestige can cloud the issue in the interim. A well-known example is that of the astrophysicist Subramanian Chandrasekhar (1910–1995, 1983 Nobel Prize), nephew of C.V. Raman who we encountered earlier. As a young doctoral student at Cambridge, Chandrasekhar had deduced that certain types of stars, called white dwarfs, could not have a mass more than roughly 1.44 solar masses (the Chandrasekhar limit). If they exceeded this mass, they would undergo collapse under the pull of gravity. The collapse of a star exceeding the Chandrasekhar limit was a precursor to the idea of black holes.

When he presented his results in 1935 to the Royal Society, Britain's most celebrated astronomer, Arthur Eddington (1882–1944) took violent objection on the grounds that Chandrasekhar had wrongly used quantum mechanics and that his proposed behavior for a star was simply absurd. Many physicists knew Eddington's argument to be incorrect, but did not come out in Chandrasekhar's defense—some thought it obvious, and some were afraid to contradict Eddington. Chandrasekhar left England (where all doors were closed to him in view of the above) and migrated to the USA to become one of the most influential and respected astrophysicists in the world. His results came to be universally accepted and he won the Nobel Prize in 1983, over 50 years after his great discovery.

Theorists do not always follow experimenters by explaining what has been measured. Sometimes theorists anticipate or predict a phenomenon (say a new particle) before it is observed. I choose two examples that also illustrate generosity and globalization.

The first has to do with Einstein's prediction in 1915, based on his General Theory of Relativity, which will be briefly reviewed. Let us recall that normally we cannot see an object that is behind an obstacle since light from the object travels in straight lines and is blocked by the obstacle. Suppose there is a star behind the Sun. We cannot see it for two reasons: the Sun is so bright you cannot see the star even if it were next to it instead of behind it. Suppose we wait for a total eclipse. We still do not expect to see a star if it is hidden. Here is where Einstein's theory predicts that we can see some stars *behind* the Sun because the light they emit gets bent as it passes near the Sun and reaches our eyes. Shortly there-

FIGURE 4

Subramanian Chandrasekhar, the astrophysicist whose work was initially challenged by A.S. Eddington. The former has been more than vindicated: besides the Nobel Prize, the X-Ray observatory *Chandra* launched in July 1999, was named in his honor.

FIGURE 5

Sir Arthur Stanley Eddington.

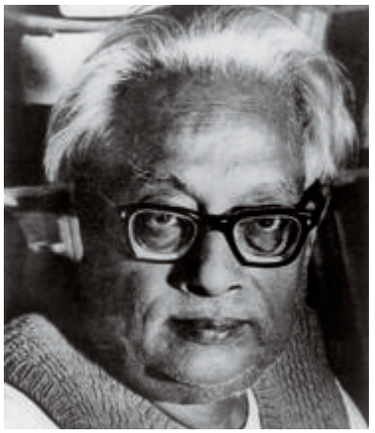


FIGURE 6

Satyendra Nath Bose.

after began the First World War in which England and Germany were adversaries. Though Einstein was born a German, his prediction was confirmed on May 29, 1919, by a British expedition to a total solar eclipse in an island near Africa *led by none other than the same Eddington* (who appeared in poor light in the last anecdote). This was a fine example of the brotherhood of scientists united by a purpose higher than the barriers erected by warring nations.

The second example begins with the Indian physicist, Satyendra Nath Bose (1894–1974) who was trying to understand how particles of light called photons that were trapped in an enclosure shared their total energy among themselves. Unlike electrons, which are fermions and obey the exclusion principle, photons are bosons: not only are they not averse to doing what the other bosons are doing, they like to mimic each other and copy the activity of other bosons. Using statistical methods that took all this into account, Bose found an answer in 1920 that he sent to Einstein, asking him if he could help him get it published. Einstein realized the merits of the paper, translated it, and had it published. A few years later Einstein realized that the method applies not only to photons but to many other bosons like He^4 atoms. (Of course the name boson derives from our protagonist.) He also realized that below a certain temperature, a collection of bosons would condense: a finite fraction of the bosons in the box would all be in the same quantum state, producing some dramatic effects. This predicted *Bose-Einstein condensation* was finally confirmed nearly 80 years later by two Americans, Eric Cornell and Carl Weiman, and a German, Wolfgang Ketterle, who shared the Nobel Prize in 2001.

After this lengthy introduction to our profession, I dedicate the rest of the article to the question of communications in recent times.

It should be no surprise that the means by which physicists communicate with each other has evolved over the centuries. In the time of Copernicus, Newton, or Galileo, years of work were summarized in huge tomes published either by the author, a society, or by some rich patron. Copernicus published his work in six volumes under the title *On the Revolutions of the Heavenly Spheres*, Newton wrote his *Principia,* and Galileo his *Dialogues concerning the two chief world systems.*

This leisurely pace became inadequate as time went by due to the exponential growth of knowledge: as the saying goes, the greater the sphere of knowledge the larger its contact with the area of darkness. We have seen that by the time we came to Einstein or Bose, communication was taking place via journals. In a period of rapidly evolving developments, publication in a journal is the author's way of establishing his priority.

One might think that with *Nature* being a fair arbiter and an equal opportunity employer of physicists, the publication world would be a level playing field for one and all. This was certainly not the case a few decades ago due to a problem that began to seriously affect Third World countries. I would now like to describe the problem and elaborate on a marvelous solution based on the web.

To appreciate the problem and the innovation that solved it, one must understand how physicists operated in the postwar era. Typically someone does an experiment that yields an interesting or unexpected result. For example, in the case of superconductivity one finds that as the wire is cooled down, the electrical resistance drops gradually and then suddenly plunges to zero, meaning a current can flow without a voltage to drive it! This result is then sent to a journal, refereed by peers, and eventually published. It is then reproduced in other laboratories. Meanwhile, theories are espoused to explain what is going on in the wire. Each conjecture is sent to some journal, refereed, and then published. Sometimes the answer to the research questions come in one fell swoop from one source, and in other cases (e.g., superconductivity) they take several decades to fall into place, and come from multiple authors, theorists, and experimentalists, dispersed the world over.

It is in this process of iterative and interactive progress that scientists in the Third World became seriously disadvantaged as the pace of research picked up, starting in the 1960s. First of all, they got copies of the journals months after they were published. These were typically accessed through libraries. If someone had an incisive response to what was published, they could submit it to a journal. The refereeing (with all its back-and-forth exchanges) took some more months since it was performed by regular mail. Eventually, the journal carried the paper. But the author had to pray that his colleagues in the West had not had the same idea in the intervening months. Matters became worse a few decades ago, when the custom of sending out preprints began in the West. Preprints were non-refereed previews of the works circulated by the authors

to a few chosen colleagues. If you were not in the club, you were not privy to this information and had to wait for it to appear in print, while those in the club had prior access. Even if you were in the club, but lived in the Third World, it took time to receive the preprints by sea mail. If you sent your own preprints (on what looked like recycled toilet paper) they just did not carry the same authority as the glossy and beautifully typeset or laser-printed equivalents from the West.

That was the problem, now here is the solution.

Our story has two parts, one well known to the general public and the other the focus of this essay.

The first concerns Tim Berners-Lee, who was working at CERN, The European Center for Nuclear Research. CERN currently houses the Large Hardron Collider and has been a focal point for international collaborations on huge accelerator based projects in elementary particle physics for decades, involving teams with more than a thousand members. Berners-Lee had the idea of a website in which members could share their results and data. The first website opened on August 6, 1991. The underlying protocol was simply given away by Berners-Lee and we all know how the web has evolved today to dominate so many aspects of our lives. I will turn to the part that affected physicists.

In 1991, Paul Ginsparg, a string theorist at the Los Alamos National Lab, set up a website (xxx.lanl.gov) where authors could upload their papers to his machine electronically. (There is a story within the story of the upload involving what is called TeX. I will come to it shortly.) The machine keeps track of each article as it arrives. The next morning readers all over the world will see the abstracts of all papers submitted in the last 24 hours. If their interest is aroused, they can download the whole paper to be read or printed out and filed. The author remains free to submit the article to a regular journal, and if the paper is published elsewhere, indicate so on Ginsparg's machine. This system has been in place for nearly two decades now. Ginsparg wrote the entire program on his own, without funding, in his spare time. It was nothing short of visionary thinking, and nothing short of brilliant to execute it and set up machinery that has never crashed as far as I know. Of course now he heads a much bigger operation at Cornell with a lot of well deserved support. The site is now called http://arxiv.org and handles papers from many sub disciplines.

As long as you have access to the Internet, you can search the electronic archive and dig up any paper back to 1991. From any one paper, you can follow the trail to yet another with the same ease. For scholars who in years past spent hours sifting through moldy library volumes, this is an incredible advance! There is no question of a missing volume, no question of the one issue you care about having "gone to the binders" or been borrowed by the Head of the Department on an indefinite loan, looking for a journal your institution does not carry, or not knowing which journal the article appeared in. There is also no danger of publishing a paper and then finding out that the same results appeared in a journal you do not read or of which you were not aware. By the same token, you cannot rightly claim that you did not know that someone had anticipated your latest work. Nowadays, in just about any area of physics the number of people who do not read the archived papers online is very small—and rapidly shrinking.

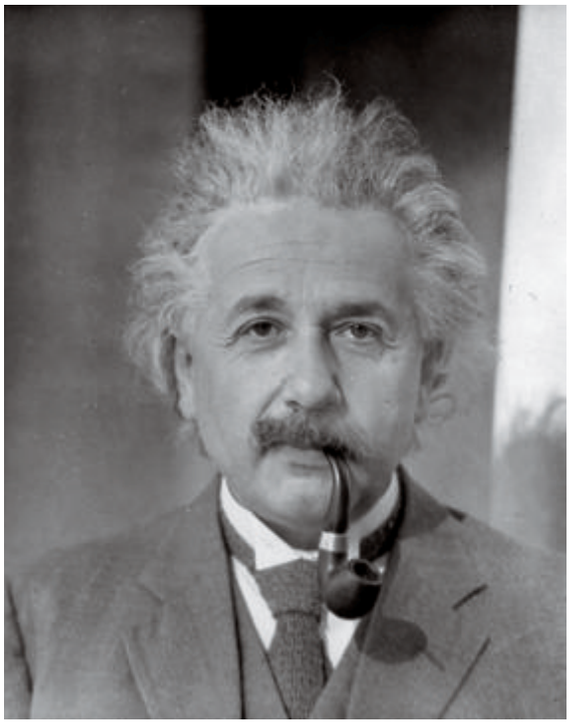


FIGURE 7

Albert Einstein.

Ginsparg's system is a great equalizer. Consider some physicist from the Third World. He no longer has to wait four to six months before he gets the copy of the new papers. If he has a response, he does not have to wait another four to six months (possibly longer, if referees have questions) to get that response published. This debilitating delay of nearly a year (which can be a kiss of death in today's fast-paced environment) is completely wiped out in the electronic version. The "inner circle" of people on the preprint list exists no more, and this applies not just to the Third World but to every sort of club that excluded

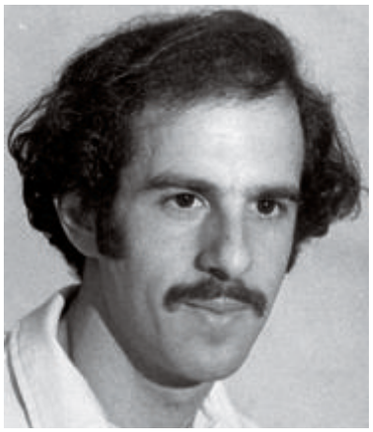


FIGURE 8

Paul Ginsparg helped to speed up scientific communication.

anyone. As for the appearance of the paper, the situation is completely reversed: the paper from the West is printed by the Third World user on Third World paper with a Third World printer and vice versa! Some of these considerations also apply to physicists in lesser-known universities in the West. In the electronic archive, as seen on the computer screen, all articles look the same; all are treated the same way and all take the same time to see the light of day, i.e., less than a day. There was a time when you had to choose between paying huge page charges and having your paper face further delays. Publishing on the network costs nothing. There is also no danger of a referee stealing your ideas while blocking the publication of your paper.

Now for the story within the story. Ginsparg's idea of a worldwide archive to which everyone could upload their papers on an equal basis runs into a serious snag stemming from the fact that the physics papers are generally filled with foreign characters and complicated mathematical expressions. Clearly one needs some kind of software to produce these formulas. This is where the problem comes in.

Consider Equation (5) from this article:

$$T^2/R^3 = (4\pi^2/GM) \quad (5)$$

which I typeset using Microsoft Word since the rest of article was easier to compose in Word. Suppose this equation were a part of a paper I am trying to upload to the archive. If I upload in the Word format I need to make sure my readers can all view it. What if they do not have this version of Word? What if I use an exotic mathematical software designed for equations involving exotic fonts? The equations may look beautiful on my computer, but illegible to readers who do not have my program. Here is where Ginsparg turned to the system invented by Donald Knuth, a computer science professor at Stanford. Knuth invented a program called TeX. In this scheme the production of papers has two parts. In the first—the so-called the raw file—you use only ASCII characters (essentially the alphabet, numbers, and a few others), which are supported by even the most primitive computer. Then comes the formula. Equation (5) above would be inserted thus:

```
\begin{equation}
\frac{ T^2}{R^ 3}= \frac{4 \pi ^2 }{GM}
\end{equation}
```

(Do not worry if this makes no sense: I will decode it later.) Then you download the (free) TeX program. When you run it, it asks for your raw ASCII file, producing an output as a Postscript or PDF file in which our equation miraculously appears as follows:

$$\frac{T^2}{R^3} = \frac{4\pi^2}{GM} \quad (6)$$

The TeX program has all the fonts you need for mathematical expressions and characters. It takes care of typesetting fractions and fractions within fractions, boldface, equation numbering, and so on.

To forward the file to another person or upload it to the archive, you have the choice of either sending the TeXed version in a PDF format (easily done with today's huge bandwidths) or, as was more common in the past, just the ASCII file, which can be downloaded and TeXed at the other end using the free program.

Just for fun, let us see how the computer knows your intentions for Equation (5). Clearly, \begin{equation} is the signal used to initiate an equation. In the next line \frac indicates you want a fraction. Every fraction command is followed by two closed curly brackets {..} that contain the numerator and denominator respectively. Notice how \pi stands for π.. \end{equation} signals a return to regular text.

Now it is true that if you want to play this game, you need to learn TeX. But it is quite intuitive and most people master it without difficulty. Most importantly, it is in your control, unlike software and bandwidth. It is also a nice language to use in email if you are describing some equation. For example you might say to a friend "Suppose G_{\mu \nu}= 16 \pi T_{\mu \ nu}..." and the reader knows you mean:

$$G_{\mu\nu} = 16\pi T_{\mu\nu} \quad (7)$$

Additionally, TeX also has a simple way of embedding any graph or chart.

Paul Ginsparg was honored with a MacArthur Prize in 2001. The revolution he initiated in a corner of particle physics has since spread to many sister disciplines. Since the site is not refereed (although there is some broad policing), you can publish anything you want. But remember that if you make a fool of yourself too often, you will lose credibility. It is common to send the papers from the archive to refereed journals both to get valuable input and build your reputation towards tenure. The delays in this process are no longer pernicious as they used to be, since your work is already "out there."

I want to close with another Internet revolution that helps with science education at a

lower level. This pertains to entire courses that are now available on the web. I had the opportunity to take part in one such experiment a couple of years ago. If you go to http://oyc.yale.edu/physics you can access my lectures on Introductory Physics from the fall of 2006. (Yale used a grant from the Hewlett Foundation to pay for the production costs.) You will have access to the lectures (video and audio), the audio transcript, problem sets, their solutions, exams, and their solutions. This is absolutely free and available to anyone on the planet. I am aware of many institutions around the world which use these as a basis for a course, of students from universities in the US and abroad using this for self-study and for supplementing their regular classes. This is, of course, not the only course Yale has made available, and Yale is not the only institution to share its resources in this way. Many institutions around the world have done so. Many years ago when I was an engineering student in India teaching myself physics, I would have loved to have access to this kind of material. I am glad the current generation is better positioned to get at this information.

This concludes my essay with its rather idiosyncratic choice of topics and examples and of characters whose lives were intertwined in curious ways: Raman was Chandrasekhar's uncle, Eddington attacked Chandrasekhar wrongly, but courageously verified Einstein's theory, Einstein helped Bose publish his work and extended it, and Cornell, Ketterle, and Wieman demonstrated Bose-Einstein condensation.

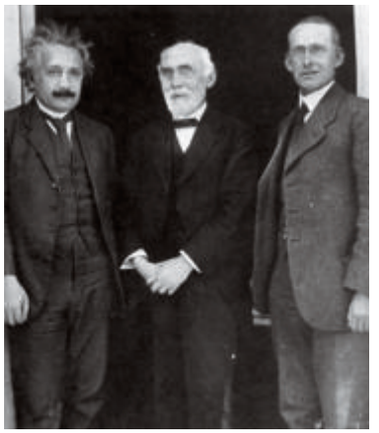


FIGURE 9

Einstein, Lorentz and Eddington.

ACKNOWLEDGEMENTS

I take this opportunity to thank Nayan Chanda, the Director of Publications and the Editor of Yale Global Online Magazine at the Yale Center for the Study of Globalization for inviting me a few years ago to write a short piece for Yale Global on which this essay is based.

HONG HAO

MY THINGS ABOUT CIRCLES NO. 3. 2006

KNOWLEDGE MARKETS IN CYBERSPACE?

BRIAN KAHIN

He is Senior Fellow at the Computer & Communications Industry Association, where his work focuses on standards, patents, open source software, and innovation policy. Kahin is also Research Investigator and Adjunct Professor at the University of Michigan School of Information. From 1989 to 1997, he was founding Director of the Information Infrastructure Project at Harvard's John F. Kennedy School of Government, the first academic program to address the social, economic, and policy implications of the Internet. He subsequently served three years as Senior Policy Analyst in the White House Office of Science and Technology Policy. He has edited ten books on Internet-related policy, most recently Advancing Knowledge and the Knowledge Economy (with Dominique Foray. MIT Press, 2006).

In an age fueled by knowledge and global markets, one might expect that knowledge would be bought and sold vigorously and often—and that knowledge markets would eclipse markets for tangible commodities such as wheat and pork bellies. Why haven't markets for knowledge exploded, along with the Internet and the Web?

MARKETS

The Web gave us global electronic commerce, opening markets for small craftsmen, and allowing hundreds of millions to buy almost anything anywhere from their own home. Global search engines such as Google help any potential buyer find any potential seller. Market aggregators such as eBay and Amazon match rare and specialized interests. Paypal, credit cards, and electronic fund transfers move money effortlessly, whether the goods are physical or virtual. The infrastructure is global by default. Borders are crossed routinely.

But new knowledge is more complicated. There are markets for knowledge, such university-developed technology (iBridge Network), patents (Ocean Tomo), and even markets for solving tough problems (Innocentive). But markets for new knowledge are "thin" and weak. New knowledge is by definition unique. It is difficult or impossible to convey remotely through standardized transactions.

Transactions demand attention. And yes, the Web has enabled transactions at a distance, but it has also greatly enabled simple transfers. Many of us who paid attention to the early Internet thought that it would offer a smorgasbord of metered content. That was the model for electronic publishing as we knew it—i.e., high-value legal and medical information. But we were wrong. The Internet and the Web made free transfers so powerful and efficient (too powerful in the case of spam) that it made transactions look intellectually and psychologically demanding. *Free* enabled us to surf effortlessly. Imagine, information too cheap to meter! (As was once said about atomic energy.)

The cost of storing, distributing, and processing information plummeted. It turned out that, as costs evaporate, there are many ways of supporting information other than payment by the drink. Much of the content on the Web was, and is, volunteered. As the Web exploded, it turned out that information was not in short supply. Attention was the scarce resource. Advertising was missing in the noncommercial research environment in which the Internet arose, but, in the US, it was advertising that made television "free." Advertising already covered most of the cost of newspapers and magazines in the large US markets. Maybe it could even cover all the costs if physical production and distribution could be eliminated, especially with the opportunity to reach new readers.

Free enabled entrepreneurs to build market share. *Free* got people in the door and engaged. The low costs of *free* created a huge opportunity for "first movers" in cyberspace. Powerful network effects suggested that each service or product category would produce only one winner, and that winner would capture the market.

Free information and content could build relationships and help sell almost anything that was not a mere commodity. Free versions sold premium versions (software). Free community sold tangible products (Amazon's community of book reviewers). Volunteered contributions promoted reputations (programmers contributing to open source projects).

The glut of transaction-free information made competition for attention intense. Advertisers bought not just eyeballs but attention demonstrated by action ("click-throughs"). Websites got very sophisticated at matching viewers and advertisers. Google's combination of algorithmic searches with paid listings was simple and stunningly effective at marrying free information and paid promotion, while keeping the two distinct. Most important, it made advertising far more efficient by linking it to specific words rather than crude demographics.

KNOWLEDGE

Paradoxically, we know too little about knowledge. Or perhaps there is too much to know. Knowledge is context-dependent and takes many different forms, whether embodied in things or in people. Knowledge packaged as "content," such as newspapers and encyclopedias, behaves much like information. In a digital world, it can be easily reproduced and broadcast all over the globe, with or without the owner's permission. But really valuable knowledge is unique, complex, and "sticky." It often resides in multidisciplinary teams with close working relationships and includes knowledge in process and knowledge of what doesn't work. This makes it difficult to measure, and for many, if you can't measure it, it doesn't count!

FREE INFORMATION AND CONTENT COULD BUILD RELATIONSHIPS AND HELP SELL ALMOST ANYTHING THAT WAS NOT A MERE COMMODITY.

Certain forms of knowledge are better at generating numbers than others: for example, textbooks, encyclopedias, journal subscriptions, computer software, patents, licensing fees, enrollments, government funding, R&D expenditures, professional services, and salaried positions. Knowledge is embedded in mass-market products with very large numbers, such as movies and automobiles, although it just sits there inextricable and immutable. For the sake of economic growth, we want more than numbers. We want useful knowledge, valuable knowledge, knowledge that leads to innovation (or that prevents catastrophes).

We would like knowledge that contributes to productive enterprise, that creates more knowledge, and that leads to innovation or at least more knowledge, such as software that enables people to do new things in new ways. The more knowledge keeps producing, the more it looks like an asset, and the more valuable it is. One of the great moments in econometrics was the decision by the US Department of Commerce to treat software as an asset rather than as an expense in calculating the national accounts.

We also want people who create new knowledge or innovate. We often hear: "Our employees are our most valuable assets," but people are not assets in the usual sense. Slavery and indentured servitude are long gone. Employees can walk out the door tomorrow—although you may be able to stop them from going to work for a competitor if they have signed a non-compete clause.

California does not enforce non-compete clauses, and this has been credited in part for the success of Silicon Valley. You may lose someone to a competitor's project but you may gain access to the right person for your next project. Innovation depends on the flow of knowledge from different sources and directions, and smart knowledge workers may be more versatile, and valuable, when they are free to find the best fit.

COLLABORATION

Transactions can be as simple as they are on the floor of a commodity exchange—a straight sale of a well-known item: only the price changes. When there are unknowns, some negotiation may be needed, but the transaction may remain a single-shot deal. If both sides are happy, they may transact again, and again, building into a relationship in which the parties increasingly trust each other. This reduces the costs of transacting and allows an increase in the scale or depth of interaction. If it looks like a long-term relationship, the parties may exchange ideas and information alongside the transactions.

Just as it enables transactions and transfers, the Internet facilitates collaboration. Not only transaction-based relationships, but ongoing joint activities including contracted R&D. But the biggest impact of the Internet has been on many-to-many collaboration, in which diverse parties work together towards common ends.

Today we take for granted that we can have an ongoing group discussion by email. In the analog world, group discussions were only practical if everybody was in the same room—or, occasionally, on the same phone call. But in-person meetings and conference calls have to be scheduled, organized, and led. Email provides informal, spontaneous, tailorable alternatives to meetings, phone calls, and up and down the chain memos. Wikis enable structured communications and the aggregation of knowledge as a group project. Other forms of groupware support processes needed for software development and other projects.

These effects of information technology fit nicely with what institutional economists see as the rationale for the firm—a vehicle organizing certain activities more efficiently than in the market. Because the firm is under common ownership, knowledge can be exchanged freely within its walls without fear that it will be misappropriated and without the burden of entering into formal transactions. In theory, at least.

Back in the 1980s, there was no public Internet. Networks were private, and email was internal to the firm. IT promised to flatten hierarchies, accelerate the sharing of information, and make the knowledge of all employees available throughout the firm. *Knowledge management* was touted as a tool for optimizing the sharing and use of knowledge within the firm. Inspired by what IT could do, knowledge management recognized the need to overcome habit and engage people in effective sharing.

Other changes were underway, driven by global trade, increasing competition, the logic of specialization, and strategic focus. Companies divested themselves of units they saw becoming less competitive or less integral or complementary to core competence. The most famous example is IBM, which sold the PC

business that had long reigned as an industry standard, as it focused increasingly on the provision of a full-range of IT-related services.

OPEN INNOVATION

Outsourcing was initially driven by the cost advantages in moving manufacturing to low-cost countries, such as China. But large companies began reconsidering the value of maintaining high-cost R&D labs. The not-invented-here syndrome withered as high-quality products and technology appeared from new sources worldwide. Product managers saw that they could often contract for or acquire technology on the outside as needed more efficiently than they could develop it in house—and without being obligated or locked in to whatever the company was producing. Nor of course did it make sense to be locked into a single outside partner. R&D management became more the art. It required an understanding of developments worldwide together with strategic acquisition, building relationships with other firms and universities, and learning to collaborate.

"Open innovation" means looking to the outside choices for innovation—specifically, the research, components, and other ingredients that the firm needs to develop innovative products and services. It does not necessarily mean "open" in the sense of nonproprietary, free, or transparent. But it implies understanding how the global innovation ecosystem works, not just a willingness to acquire pieces of technology from others.

As products and services have become more complex and supply chains have broadened and deepened, the nature of innovation has changed, in some sectors more than others. In systems industries, such as information and communications technology, innovation is less about isolated inventions and more about the way things go together—integration, interoperation, and design. In this context, value arises from sharing knowledge, not just capturing it and excluding others from using it.

New products and services do not come out of the blue, they build on functions and features that users know—and on standards that everyone in the industry uses. Investments build on other investments, past, present, and future, because components, systems, and habits are designed to work together. Common specifications at critical points keep producers from being locked into particular suppliers and users from being locked into producers. Users want their information to flow back and forth across product boundaries. Their biggest investment is the information itself, and they want as much freedom as possible to manage it as they see fit.

INFRASTRUCTURE

The Internet is the driving paradigm for interoperability. It showed how an unregulated, nonproprietary platform could be rapidly picked up and used by anyone for a variety of purposes. Anyone could provide Internet services, and anyone could build new functionality on top of the Internet independent of the service provider. Unconstrained, either vertically or horizontally, network effects went wild. More connections, more uses, and more demand all fed each other. Unlike the proprietary networks of the 1980s, the Internet offered a public global addressing system that had two tiers mapping precisely to each other: numbers for routing and names for identification.

Once on the Internet, you could use it freely for email, remote log-in, file transfer, or any of the other services that might come along. You did not have to subscribe to each individually, and could even implement new services on your own, provided you could find others to interact with. Instead of "service" in the sense of one-way offering from a provider to a customer, "service" on the Internet was a commonly agreed-on protocol implementable by anyone, peers as well as providers. And the scope of the service was defined by the implementers: the distribution of an email to five people created its own network.

At the same time, data networking radically changed the economics of communications and information sharing: it offered digital text on a physical infrastructure that was built for voice and paid for by the costly economics of voice. Text is so efficiently encoded that adding it was virtually costless. Too cheap to meter.

And text is not just content. It can be searched, mapped, and matched against other text, and specify its own location. It can provide information about itself. Using domain names, it can create networks.

Introduced in 1993, the World Wide Web was a service so powerful that it created another platform on top of the Internet. The Web combined two protocols: HTTP, a protocol for linking and transmitting information

over the Internet; and HTML, a protocol for displaying information. It was a higher level of infrastructure based purely on information—infrastructure that anyone could assemble if they knew how to imbed links in text and uplink linked pages.

Hyperlinks, both internal and external, provide context—a simple but important step from mere content toward knowledge. Now documents can define their relationship with each other and actively transcend their own boundaries. Previously, footnotes and bibliographic references required the reader to act and slowed the construction of context.

In 1911, Alfred North Whitehead wrote:

> It is a profoundly erroneous truism, repeated by all copybooks and by eminent people when they are making speeches, that we should cultivate the habit of thinking of what we are doing. The precise opposite is the case. Civilisation advances by extending the number of important operations which we can perform without thinking about them.

Of course, we want to think. We just do not want to be distracted by self-consciousness, routine operations, or unnecessary transactions. We do not want to pause to evaluate the transaction, seek budget approval, negotiate terms, or consult lawyers. We want our thinking agile and uninterrupted.

Information technology has given us the tools and the infrastructure to make research and analysis faster and more efficient. In many fields, working drafts are widely shared, often openly. We search on key terms to scope and calibrate our thinking. Search enables us not only to discover key documents but also to see the relationships among them. We can do all this with minimal attention to the process because what the technology is doing is buried out of sight and out of mind.

For academic researchers producing knowledge is closely tied to using knowledge, so the immediacy of the Web is very valuable. But it clashes with the vestiges of print culture. Ironically, the Web may work better for established scholars, who can post papers on open access servers where their work is quickly recognized and read. Young scholars lack name recognition and may be desperate to publish in prominent established journals that forbid prior exposure on the Web. The famous get more famous, while the unknown struggle in the shadow of the old print chain with its asymmetrical relationships, enforced exclusivity, and transactional barriers.

FROM PRODUCT TO PROCESS

The power of the emerging knowledge infrastructure puts more value on process, intellectual skills, and capacity. Peer-review validation and formal publication are still important, but as knowledge flows accelerate, leadership is seen in debate and exchange. We no longer fill students' heads with knowledge, we teach them to think. Intellectual property is still important, but in technology-empowered, fast-moving environments, other factors are ascendant: absorptive capacity, learning curve mastery, and first-mover advantages.

In developed economies, the service sector now dominates—and the labor devoted to the production of things diminishes. Intense global competition has commoditized manufacturing, making it less profitable and attractive than differentiable services that build on long-term relationships and revenue streams. Services can be customized and enhanced to meet customer needs. Services build on skills uniquely available in advanced economies, including competencies associated with supply chain management, R&D coordination, and international asset deployment, marketing, and franchising.

Yet we know much more about manufacturing, agricultural, and mining than we know about services. Even basic data like R&D expenditures are problematic. Services are not an established part of the management curriculum. Major companies have pushed the case for "service science" as a subject of both research and education, but with little impact to date.

It is not even clear what we mean by "service." The term evokes a fundamental asymmetry that distinguishes sellers from buyers, providers from customers. It suggests one-way delivery rather than a two-way relationship. Yet in an ecosystem where complements abound, it is not always clear which way is up—or down. Since value can be added from different directions, it makes more sense to speak of value clusters than of value chains. It is not the objects within the cluster that are important, but the vitality of the cluster and its ability to keep generating new value.

But how ecosystems keep generating new value is not intuitive to outsiders. Policymakers

understand the pipeline model, in part because it looks like the assembly line for an automobile. Research goes in one end; universities turn research into patents, patents are licensed to companies, who turn them into products, and products come out the other end. Patents provide controlled exclusivity, which keeps the pipe intact and justifies the investment needed to keep the process flowing. The process is simply taken for granted, since it always looks the same.

PATENTS

It is tempting to see patents as the currency of the knowledge economy. Compared to other forms of knowledge, patents look like pieces of property with defined boundaries that can be controlled and transacted in the marketplace. In principle, patents promote public disclosure in return for the patent owner's right to exclude others from using the technology. So they seem to solve the basic paradox of transacting knowledge. You don't know what the value of knowledge is until you have it, but once you have it there is no need to pay for it.

The patent system was designed for a simpler world of machines and materials that did very specific things and were used to do those things without modification. However, information technology is distinguished by the extraordinary scope and scale of functional knowledge for an infinite variety of purposes that can be embedded in a very small space, such as chip or computer program loaded into memory. As the cost of transmission and storage has plummeted, a full-featured 10 Megabyte software program can be stored in a hard drive on "real estate" worth less than one-tenth of one cent. Yet, a single program will have thousands of "function points," a measure of the complexity of the code (around 100,000 in Windows XP). The program will have many overlapping patentable functions at higher levels of abstraction as well, all the way up to the main purpose of the program. Most of this functionality is in the public domain, either because it was never patented or the patent has expired. However, unlike copyright law, patent law does not allow independent creation as a defense. So innovators are charged with knowledge of all patents. In principle, they are obliged to look—to do clearance searches to determine whether the product or service they are developing infringes someone else's patent.

Where do they start? One person's "clever hack" may be another person's patent. The language used to describe software is abstract, ambiguous, and changes over time. The functions in your software must then be matched against what are often dozens of claims within the patent to evaluate the possibility of infringement. If it looks like there may be infringement, you can redesign your software to "invent around" the claims—or you can investigate further as to whether various claims within the patent are valid. Since it is commonly assumed that half of software patents are invalid, it may be worth assessing the validity of a problem patent. However, a legal opinion on infringement costs more than $13,000 on average in the US. If infringement appears possible, an opinion on the validity of the patent costs an additional $15,000+. These average figures are *per patent*, and since any function may be candidate for infringement, these figures can multiply very quickly for complex products, especially if the inventive step standard is low. In fact, it is much cheaper to seek a patent than to do product clearances, since applying does not even require searching. These high transaction costs make more sense in pharmaceuticals where there is one principal patent per product—but not for the complexity of IT.

Paradoxically, we think of digital technology as infinitely precise in the way it handles digital information and content. But patents on digital technology, especially software, are, as scholars describe it, merely "probablistic." Major companies have dealt with the complexity of the technology and the proliferation and uncertainty of patents by building up large defensive portfolios and cross-licensing these portfolios to each other. This gives them "freedom to operate," at least with respect to their principal competitors. However, small companies who bring few patents to the table are at a disadvantage and must pay for access to portfolios. They may be better off withdrawing from the product market and using their patents aggressively against companies producing for the market.

As noted, individual patents may help promote transactions in technology (such as contract R&D) because they allow sharing of knowledge to take place while preserving control under the patent. A patent-focused transaction may also help allocate risk and responsibility for unknown patents that may be owned by others.

But as transactions become complex and start to look more like Web-empowered collaboration, patents raise many questions about who controls how much, now and down the road. A simple joint research project requires agreement on who brings what patents to the project and how others in the project can use these rights. It also requires agreement on how technology developed in the course of the project will be owned, managed, and licensed—not only for the core collaborators but also for future collaborators, spin-offs, and outsiders. The more uncertainty in the project (and innovative projects tend toward uncertainty), the more difficult it will be to anticipate and address contingencies. What happens as collaborators come and go? How easy should entry and exit be? When does the project become a joint venture with continuing life—or a new company? Remember, that the easiest way to deal with coordination problems may be within the walls of a single firm. At the same time, information infrastructure enables many-to-many collaboration that previously could be done only within the firm relying heavily on face-to-face interaction.

Many of these problems arise in the development of information technology standards, a collaborative enterprise critical to advancing innovation. In earlier times, participants were far fewer and more homogenous. Patent interests and producers were well aligned, and everybody knew each other. Today an immense diversity of interests, large and small, upstream and downstream, converge on critical standards projects. There is advantage to hiding patents and asserting them only after the standard has been finalized, adopted, and widely implemented.

Where large numbers of implementers are expected, which is typically the case with software standards, there is great pressure to require that any patents be licensed royalty-free so the standard will be adopted quickly, widely, and without giving legal advantage to anyone. Yet this does not solve the problem of patent holders outside the process, who have agreed to nothing and may do well by ambushing the many users of a free, widely implemented standard.

FENCES IN CYBERSPACE

In the real world, borders are two-sided. They separate one jurisdiction from another—or ownership of one parcel of land from another. The standardized interface in digital technology is a similar common border. Like the fence in real space, it separates one component from another. But an interface is not just a bright line in the sand; it is a "smart border" that enables information to move across it.

A patent looks like a fence. But it is not a joint fence between two landowners established by common agreement on a common border. Rather, it is a fence constructed in words by one party, trying to claim as much as possible—against the world, rather than any identified neighbor.

Contrary to what many assume, patents are not rights to exploit technology. They are only rights to keep others from doing so—a negative right. Patents are fences, rather than the knowledge behind the fence. At least they are aspirational fences. Just where the fences are depends on what the claims mean, and what trial judges think they mean is overturned on appeal 30 to 40% of the time.

Nonetheless, the fences seem to work reasonably well in pharmaceuticals, where exclusivity is the norm, researchers read patents, borders are as well-defined as molecules, and the high costs of R&D and clinical testing more than justify the high costs of dealing with patents.

But the defensive portfolio races in IT are basically a way to overlook fences among competitors while buttressing market position (ideally by creating patent "thickets") so as to discourage new entrants. High demand pushes patent offices toward a customer service model, which makes patents easy to get, for startups as well portfolio owners. However, companies fail, especially startups, and their patents end up acquired by a variety of patent aggregators, speculators, and "trolls."

What drives value in these patent markets is the opportunity for arbitrage based on "being infringed." The winners are those whose fences have been inadvertently embedded in somebody's valuable product, and research shows that less than 3% of software patent lawsuits in the US allege copying. In other words, over 97% of infringement appears to be inadvertent.

How can this happen? As leading patent scholar Mark Lemley explains:

> ...both researchers and companies in component industries simply ignore patents. Virtually everyone does it. They do it at all stages of endeavor. From the perspective of an outsider

> to the patent system, this is a remarkable fact. And yet it may be what prevents the patent system from crushing innovation in component industries like IT.

As Texas Instruments (TI) testified before the Federal Trade Commission:

> TI has something like 8000 patents in the United States that are active patents, and for us to know what's in that portfolio, we think, is just a mind-boggling, budget-busting exercise to try to figure that out with any degree of accuracy at all.

And if a well-resourced company like TI doesn't know what's in its own portfolio, how can SMEs make sense of the hundreds of thousands of patents that they face in the marketplace?

As I would put it: In a virtual world where functional knowledge is massive and cheap, knowledge of patents has become virtually unaffordable.

How did we get here? Wasn't the patent system supposed to be about promoting public disclosure of knowledge? How did the patents end up undermining the market for product and services?

INSTITUTIONALIZING IGNORANCE

In a world gone global, patents remain territorial, a creation of national law that extends only to the border of the country. The TRIPS agreement, negotiated in the 1980s as part of the process behind the World Trade Organization, did not create a global patent system, nor did it harmonize national laws. The idea was to set minimum standards to which all countries could adhere.

TRIPS states:

> ...patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.

Slipped in between two broadly accepted principles of trade polity is a prohibition against discriminating against fields of technology. Where did that come from? Are technologies so anthropomorphic that they are victimized by discrimination? Isn't knowledge all about discriminating among different things, so that they can be treated differently? Patents are awarded to technologies that are different, not to those that are the same.

The clause illustrates the dangers of international agreements negotiated in rarefied secrecy. It was put there to assure that all signatory countries would allow patents on drugs as products, but instead of making the pharmaceutical industry's interest explicit, it was recast as a lofty principle of nondiscrimination. Despite the fact that this nondiscrimination provision was without precedent in any national laws, it became a virtually unchallengeable constitutional principle that appeared to lock the world into a naïve view of technology and an inability to develop evidence-based patent policy.

Scholars have argued persuasively that discrimination does not mean differentiation. But nuance is hard to sustain. When lawyers invoke "international obligations," the conversation ends.

CONCLUSION

The institutionalized ignorance of TRIPS is only the most concrete sign of the general problem. The scope of knowledge has outgrown our ability to make sense of it. A coherent perspective on knowledge and where it is going in a world of weak borders may be too much to ask for. But we can at least see some of the gaps and failings.

The disciplines that we might look to are limited by their own epistemologies. What is, in a real sense, everybody's business ends up being nobody's business. Knowledge management could not be extended beyond the firm because it ran into legal controls on knowledge that did not operate within the firm. If service science is to connect, it must somehow assimilate collaboration science. The insularity of the patent system leads to discriminating results, disfavoring some and favoring others.

Knowledge today takes new and diverse forms that are addressed within different communities. It's no longer just know-how, know-why, know-what, etc.

For example, there is the growing importance of software with its many aspects and levels of abstraction, the critical role of standards as a vehicle for moving information, layers of information infrastructure built on the Internet and the Web, the expanded role of patents (especially with respect to information technology and abstract subject matter), and the rise of social networks and environments. Is it even possible to look at such diverse forms as

IN A VIRTUAL WORLD WHERE FUNCTIONAL KNOWLEDGE IS MASSIVE AND CHEAP, KNOWLEDGE OF PATENTS HAS BECOME VIRTUALLY UNAFFORDABLE.

a functional whole? At the same time, we are increasingly aware that knowledge is sometimes a liability, that it can be incomplete, misleading, or infringing, as well as wrong.

Can we at least agree on words? There are many indispensable words that resist definition, and I admit to using many of them: networks, open, innovation, service, markets, and knowledge itself. They carry too much freight, too much nuance, too much context for simple public discourse By spawning unrecognized diversity, they end up meaning too much—and therefore meaning too little. Nonetheless, these words occupy a lot of space and are secure in their own inertia.

So I have used them.

JOAN FONTCUBERTA ▸
MUNDO, 2005
GOOGLEGRAMA 04:11-S NY, 2006

MAN-INDUCED CLIMATE CHANGE

WALLACE S. BROECKER

Wallace Smith Broecker received his PhD in geology from Columbia University in 1958, joined the faculty in 1959, and, since 1977, has been Newberry Professor of Earth and Environmental Sciences at Columbia's Lamont-Doherty Earth Observatory. His major research interest has been the ocean's role in climate change. He was among the pioneers in radiocarbon and isotope dating, and the first person to recognize and name the Ocean Conveyor Belt. A prolific researcher, teacher, and author, he has published over 400 scientific articles and is the author or coauthor of several textbooks. His most recent book, *The Great Ocean Conveyor: Discovering the Trigger for Abrupt Climate Change*, published in spring by Princeton University Press. In 1979, he was elected to membership in the National Academy of Sciences. He is also a member of the American Academy of Arts and Sciences, a Fellow of both the American and European Geophysical Unions, and a Foreign Member of the Royal Society. Among numerous other awards, in 2009 he received the Frontiers of Knowledge Award in Climate Change from the BBVA Foundation.

INTRODUCTION

Nearly everyone on the planet has by now encountered the words "global warming." They appear almost daily in our newspapers and on television. Dozens of books on this subject and countless magazine articles appear each year. I hold the perhaps dubious distinction of having been the first to use them in print. In 1975, I published a paper in *Science* entitled "Climate change: Are we on the brink of a pronounced global warming?" In it I offered an explanation as to why, despite a continuing rise in the atmosphere's CO_2 content, Earth temperature remained very nearly constant from 1940 to 1975. My hypothesis was that an extension of the 80- and 180-year periodicities in air temperature recorded in the Camp Century Greenland ice core in the centuries before the Industrial Revolution suggested that the expected man-induced CO_2 warming had, by chance, been compensated by a natural cooling. Further, if this were the case, the Earth was poised for a turn around, for the natural cooling was about to turn the corner and become a natural warming. If so, nature would join forces with made-made CO_2 and the Earth would warm. As it turned out, my prediction was right on. A year after my paper was published, the Earth began warming and has continued to do so right up to today. But to my chagrin, the 80- and 180-year cycles so prominent in the record from northern Greenland have not shown up in any subsequent climate record (including those from ice cores in central and southern Greenland).

To be sure, the naysayers point to this unexplained temperature plateau as support for their claim that global warming is little more than a tempest in a teapot. With equal vigor, they point to the advances of mountain glaciers that took place during the seventeenth and nineteenth centuries and to the warm condition that allowed the Vikings to colonize Greenland a millennium ago as evidence that CO_2 is not to blame. Rather, they would like to believe that it's *all* natural, perhaps driven by the Sun.

Those of us who firmly believe that CO_2 has warmed and will continue to warm the planet, look upon these past temperature changes as background fluctuations that will surely continue. Further, we believe that the impacts of CO_2 and other so-called greenhouse gases are not yet large enough to have pushed us beyond the reach of these natural fluctuations. But we have likely experienced the last of natural plateaus and downturns. Until we rein in the rising greenhouse gases, these natural ups and downs will likely only serve to modulate the steepness of a continuing warming.

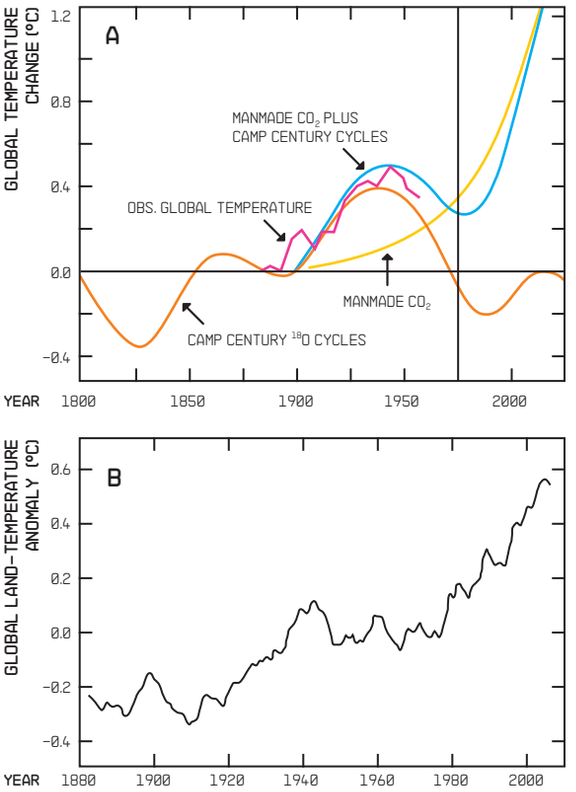


FIGURE 1

A) Diagram reproduced from my 1975 *Science* paper. The solid curve is the global temperature record available to me at that time. The dotted curve is my guess regarding the temperature rise attributable to man-made CO_2. The light dashed curve is my guess regarding the natural fluctuations in global temperature based on the 80- and 180-year cycles seen in the oxygen isotope record from the Camp Century Greenland ice core. The bold dashed curve is the sum of my two guesses.

B) The updated global temperature record. Although my prediction turned out to be qualitatively correct, the 80- and 180-year cycles on which it is based have not shown up in any other long climate record.

GREENHOUSE PHYSICS

Physics demands that the increases in the concentrations of gases like CO_2, which are capable of capturing quanta of outgoing Earth light, must warm the planet. The reason is that when these gases reemit the captured energy, only one half is sent toward outer space. The other half is sent back toward the Earth's surface. As a result, in order to balance the energy received from the Sun, the Earth must compensate by emitting more earth light. To do so, the Earth's surface must become warmer.

Were CO_2 and the other manmade greenhouse gases (i.e., methane, nitrous oxide, CFCs…) the only players, our impact on Earth temperature would be not nearly so worrisome. But a powerful feedback occurs. As the planet gets warmer, the vapor pressure of water rises. Because they are so much more abundant than CO_2 molecules or those of any other greenhouse gas, water molecules dominate the atmosphere's ability to capture outgoing Earth light (i.e., infra-red rays). For each degree Celsius Earth temperature rises, the vapor pressure of water

THE NAYSAYERS POINT TO THIS UNEXPLAINED TEMPERATURE PLATEAU AS SUPPORT FOR THEIR CLAIM THAT GLOBAL WARMING IS LITTLE MORE THAN A TEMPEST IN A TEAPOT.

increases by 7% and consequently the amount of water vapor in the atmosphere increases by a similar amount. This mushrooms the primary impact of manmade greenhouse gases by a factor of about three. So, a doubling of atmospheric CO_2 content from its 280 parts per million pre-industrial value to the 560 parts per million value we are likely to reach by this century's end is projected to warm the planet by about 3.6°C instead of the 1.2°C rise expected from CO_2 alone.

To my knowledge there is only one scientist with unquestioned credentials who denies this water vapor enhancement of the CO_2 warming. He is Richard Lindzen, a renowned atmospheric physicist at MIT. While not questioning the basic physics described above, he concludes that, rather than enhancing, the warming water vapor will work to reduce it. His argument involves a redistribution of the atmosphere's water vapor; he admits that more will be present in the tropical atmosphere but hypothesizes that less will be present in the extra tropical atmosphere (i.e., above its drylands). Upwelling of high moisture-content air in the tropics creates a dense cloud cover that greatly impedes the loss of Earth light. By contrast, down welling of low moisture content air in the extra tropics provides a major escape hatch for Earth light. So Lindzen would put the extra water vapor where it would be least effective and by drying the air in the extra tropics, he opens the escape hatch even wider. The problem is that no one, including Lindzen, has created a fully-fledged computer simulation that accomplishes this feat. All such simulations lead to a more nearly uniform increase in water vapor and hence a large enhancement of the primary warming.

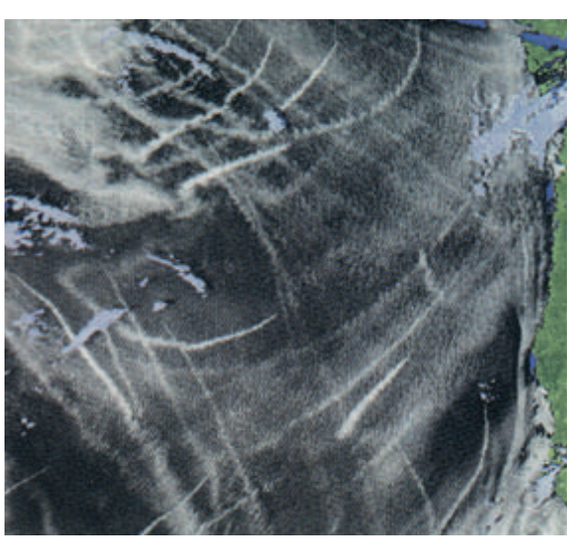


FIGURE 2

Bright streaks in the low-lying cloud cover off the west coast of North America produced by the aerosols contained in the smoke from the passing ship traffic.

While Lindzen's reputation as a scientist remains intact, his battle against mainstream science wears thin. Further, the fact that he will argue with equal forcefulness that there is no proof that cigarette smoking is linked to lung cancer makes it tempting to write him off as a contrarian.

AEROSOLS AND CLOUDS

Bedeviling attempts to understand what is going on today and what the future holds are the impacts of man-made aerosols on the Earth's radiation budget. These aerosols both reflect away incoming sunlight and absorb outgoing Earth light. The sulfur released by burning coal ends up as light-colored sulfuric acid aerosols, which act primarily as solar reflectors and hence tend to cool the Earth. The carbon released during biomass burning ends up in dark-colored soot, which, like greenhouse gases, captures Earth light and hence tends to warm the Earth. Unlike greenhouse gases, which have well-defined optical properties and are uniformly distributed throughout the atmosphere, aerosols have complex optical properties and are concentrated in the regions adjacent to their sources. Because of this, a large uncertainty exists regarding their contribution to man-induced climate change. While opinion has it that cooling by sulfate currently outweighs warming by soot, there is concern that the ongoing increase in soot emissions will turn the tables and aerosols will soon enhance rather than impede warming.

In thinking about this one has to keep in mind that as aerosols remain aloft for only days to weeks before being purged from the atmosphere by rainfall. By contrast, CO_2 molecules will remain airborne for hundreds of years before being taken up by the ocean. Hence as time goes on, the importance of CO_2 relative to aerosols will become ever larger.

In addition to their direct role as perturbers of the Earth's radiation budget, aerosols have an important indirect role. They serve as condensation nuclei required to form raindrops. The more condensation nuclei present in a cloud, the more droplets that will form. As a fixed amount of water is available for condensation, the droplets will be smaller. Importantly, this makes the cloud more reflective. As shown in Figure X, a dramatic demonstration of this indirect impact can be found in the bright trails created by the smoke rising from ships passing beneath the low cloud cover.

Taken together, our inability to assess the contribution of natural climate fluctuations and to assess the contribution of aerosols makes it impossible to evaluate whether the warming CO_2 and other greenhouse gases have created is consistent with the expectation.

FUTURE PROSPECTS

Each year we currently burn fossil fuels containing about 7 gigatons of carbon. All the CO_2 thus produced is released to the atmosphere. A bit more than one half remains airborne. The remainder is taken up by the ocean and by the terrestrial biosphere. Although the ocean uptake is well understood, that by the terrestrial biosphere remains a mystery. It is so large that it more than compensates for CO_2 release associated with deforestation (about 1 G ton C/yr). The result is that the CO_2 content of the atmosphere is currently rising at the rate of 2 ppm/yr. As of the end of 2009, it was about 390 ppm which is 110 ppm higher than its pre-industrial value.

Under the Kyoto Accord, the industrial nations (but not the USA) have agreed to make modest reductions in their carbon burning. But these small reductions are being more than eclipsed by greatly expanded energy use in China, India, and other traditionally poor countries. As this situation will very likely prevail during the next several decades, the expectation is that the rate of CO_2 rise will increase to at least 3 ppm/yr. At 3 ppm/yr, CO_2 would increase by 150 ppm in the next 50 years bringing the total to 540 ppm or only 20 ppm short of double the pre-industrial level (560 ppm).

WHAT SHOULD WE DO?

It is clear to everyone that increased efficiency in energy use is not only essential but also a win-win effort. And, of course, we must go all out to develop and implement affordable non-fossil fuel energy sources. But, regardless of how effective these measures are, the world is in for a change in climate that will alter the pattern of rainfall and melt ice caps. Hence, we must prepare to deal with these changes.

I fear that conservation and alternate energy alone will not be capable of bringing the rise in CO_2 to a halt for this requires that we reduce our current CO_2 emissions by tenfold. As around 85% of the world's energy is currently derived from fossil fuels, this means that stopping the CO_2 rise will involve replacing virtually all our energy generation systems (including those used by automobiles, ships, and airplanes). Only through very large-scale use of nuclear and photovoltaic power would this be possible. Wind, geothermal, solar thermal, and vegetation likely lack the potential to become the dominant players.

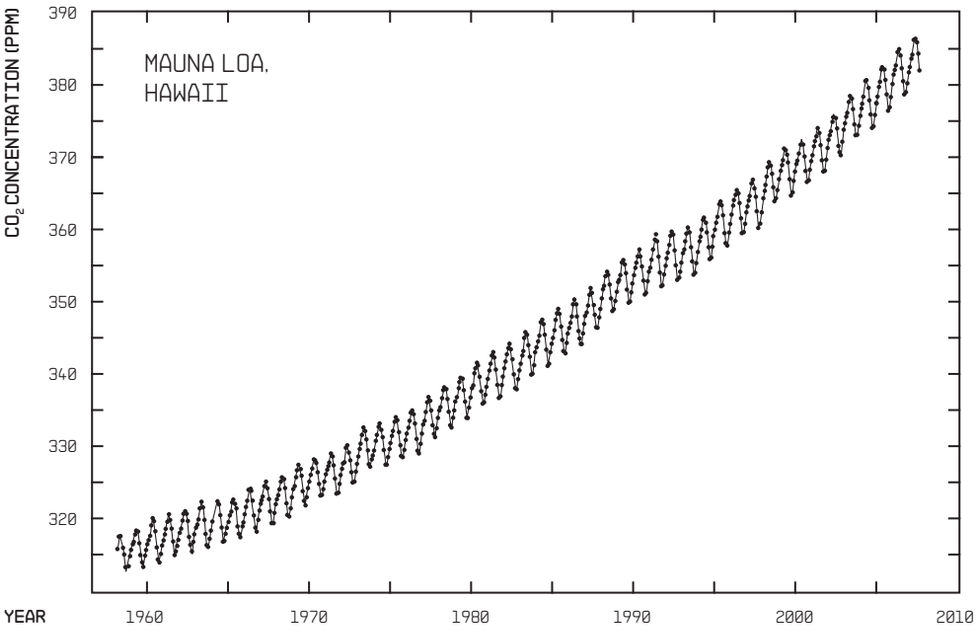


FIGURE 3

Charles David Keeling's record of the CO_2 content of the air at high elevation on the island of Hawaii. The wiggles reflect the season cycle of photosynthetic uptake and respiratory release of CO_2 by Northern Hemisphere plants. The steepening of the record reflects the steady increase in fossil-fuel burning.

This being the case, it is essential that we prepare to capture and store CO_2. Even if a minor miracle occurs and we do find a way to obtain the world's energy without burning carbon, there will very likely be a call to bring the atmosphere's CO_2 content back down. I say prepare because there is much we need to learn about both the capture and the storage of CO_2.

CO_2 CAPTURE

Most of what's been written about CO_2 capture involves the exhausts from electrical power plants. The consensus appears to be that rather than stripping it from the hot stack gases of conventional coal-fired plants, it would be better to build what is called coal gasification plants. In these plants the coal is treated with steam converting it to carbon monoxide and hydrogen. The hydrogen is then used to generate electricity in a fuel cell and the CO is converted to CO_2, which is captured, liquefied, and piped to a storage site. However, to date no such plant is operative.

My colleague Klaus Lackner has convinced me that direct capture of CO_2 from the atmosphere is a superior strategy. He points out that despite the low concentration of CO_2 in air the

FIGURE 4

An artist's conception of Klaus Lackner's air-capture module. The ring above the building consists of 30 mattress-sized filter units filled with CO_2-absorbing plastic fibers. The blue doors show the vacuum chambers in which the CO_2 is removed from the filters by treatment with steam. Each such unit is capable of sequestering one ton of CO_2 each day.

cost of direct capture is comparable with that from electrical power plants. The reason is the energy cost is documented by a single step in the process, namely the removal of the CO_2 from the capture medium.

Over the last 6 years, Lackner and his associates have developed an economically feasible means of air capture. The cost would be about 30 dollars a ton of CO_2 (equivalent to an increased cost of 25 cents per gallon for gasoline or 2 cents per kilowatt hour for electricity). Further, as the collectors would be placed close to the storage sites, the cost of piping CO_2 from power plant to storage site would be largely eliminated.

Lackner's devices would be modular. Each would retrieve one ton of CO_2 per day from the atmosphere (i.e., the daily amount created by 20 automobiles). The components of each unit would fit into a standard shipping container. The cost of each unit would be about that of an automobile. Hence a 5% surcharge on automobile purchases would pay for the manufacture of these devices.

The capture medium used in Lackner's device is a plastic fiber with built-in ligands (positively charged molecules). When exposed to air, H_2O molecules occupying the ligand sites are replaced by CO_2 molecules. When the CO_2-loaded fibers are then subjected to steam at 40°C, H_2O molecules replace the CO_2 molecules. This cycle has been repeated hundreds of times without any diminishment of the fiber's uptake capacity. Nor do the fibers deteriorate from exposure to urban air.

Lackner envisions that the prototype device once constructed would be as shown in Figure 4. Thirty mattress-size collectors would be assembled in a circle above the unit housing the vacuum chambers. Thirty more would reside in the chambers. Using an elevator, the fiber packs would be rotated from exposure to air to treatment with water vapor. Once loaded with collectors, the chamber would be evacuated. Steam would then be introduced. Following this, the CO_2-residual steam mixture would be pumped out and compressed, liquefying much of the residual water vapor. The remaining vapor would be removed on a drying agent and, finally, the dry CO_2 would be further compressed until it liquefied. It would then be piped off to storage.

Lackner's modular strategy would allow for continuing improvement of the unit's design. He would start with the equivalent of a 1934 Ford and eventually end up with that of a 2009 Toyota!

CO_2 STORAGE

Whether captured in electrical power plants or retrieved from the atmosphere, the CO_2 must be stored. The ideal would be to react the CO_2 in a chemical plant with magnesium (Mg) extracted from olivine and pyroxene minerals in ultrabasic rock (or its serpentinized equivalent). The Mg CO_3 manufactured in this way would last forever. But until some means to reduce the very large energy cost associated with this approach has been found, lower cost storage options will have to be used. Four archives have been suggested: 1) as liquid CO_2 in aquifers whose pore space is currently filled with hyper saline water, 2) as a solid CO_2-H_2O clathrate in lakes beneath the Antarctic continent, 3) as HCO_3 in the deep sea, 4) as Mg and Ca bicarbonate ions or Mg and Ca carbonate minerals in basalt or ultrabasic rock. To date, none of these repositories has been adequately tested: questions about the costs and environmental consequences remain for each.

AQUIFERS

The most talked about option is storage in hyper saline aquifers. These aquifers are widespread at one to two kilometers depth in continental interiors (and beneath shallow marginal seas). As the host rock is sandstone, there would be little opportunity for neutralization of the CO_2. It would remain in liquid form. The advantage of this option is that these aquifers are not under international control as are the deep sea and Antarctic ice cap. The disadvantage is that the

people living above them are bound to have safety concerns, and, where the law permits, likely claim ownership.

BASALT

Several large regions of the planet are covered with thick sequences of basaltic lava flows. These flows are thought to have formed when giant plumes of hot rock originating at the core-mantle boundary ascended to the Earth's surface. Prime examples are found in Brazil, in India, in Siberia and in the northwestern USA. It has been proposed that if CO_2 dissolved at high pressure in water were injected at depth in these flows, it would dissolve pyroxene and the olivine minerals in the basalt releasing magnesium ions. These positively charged ions would immediately react with CO_2 molecules converting them to bicarbonate (HCO_3) ions, and in this way, permanently immobilizing them. As the reaction proceeded, carbonate (CO_3) ions would form and eventually a $MgCO_3$ solid would precipitate.

Of the many questions regarding this approach, the major one is the extent to which the CO_2 would leak back to the atmosphere (through the ubiquitous fractures) before it was able to react with the host rock. In order to evaluate the competition between reaction and leakage, an experiment is currently being conducted in Iceland whose terrain consists entirely of basalt.

DEEP OCEAN

Although in my estimation storage of CO_2 in the deep Pacific Ocean is certainly an appealing option, many voices oppose it. Of these, Greenpeace is the most vocal. My proposal is to pre-load this vast reservoir with roughly the amount of CO_2 which will get there on its own over the next few hundred years. In other words we would short circuit the delivery of CO_2 to this vast reservoir. Most of this CO_2 would be immobilized by reacting with resident carbonate and borate ions to form bicarbonate ions. Roughly 200 gigatons of C as CO_2 could be stored without raising the partial pressure of CO_2 in the water more than it has been raised to date in the atmosphere. We know from ^{14}C measurements on the bicarbonate in deep Pacific waters that its isolation time there is about one millennium. We also know from the distribution of ^{3}He released from ridge crests that on this time scale the entire deep Pacific becomes well mixed. The best means of addition would be to pipe the liquid CO_2 down to more than 3.5 km, for at this depth it becomes denser than sea water. We also know that the liquid CO_2 would react with water to form a clathrate slush ($7H_2O_4 + CO_2$) which would sink to the sea floor. Of course, the clathrate would, on the time scale of decades, be dissolved into the surrounding sea water.

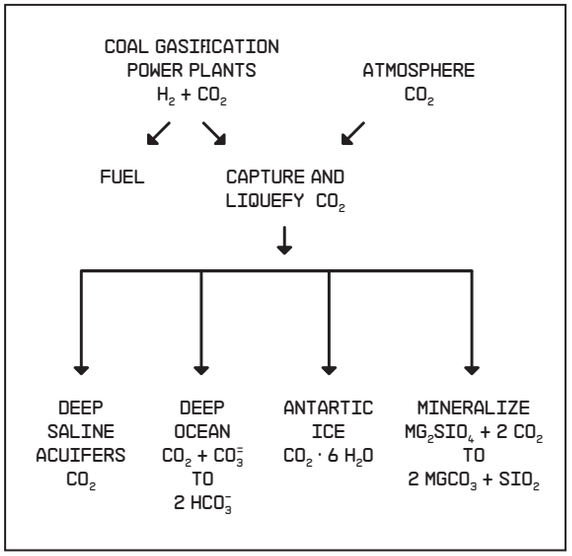


FIGURE 5

Two possible modes of CO_2 capture and four of CO_2 storage.

In my mind, the damage to the benthic creatures would be localized to the chemical halos in the vicinity of the injection sites. In order to assess extent of this damage, pilot experiments must be conducted. Several tons of liquid CO_2 would be delivered to the abyss from a drilling vessel. Sensors would be deployed and tracers added to the CO_2 so that its dispersal could be tracked. Also cameras would be placed to observe the reaction of the abyssal swimmers.

ANTARCTIC LAKES

Somewhat surprisingly from a storage point of view is that the best storage sites lie beneath the Antarctic ice cap. Were the liquid CO_2 piped into any one of the hundred or so lakes underlying the ice cap, it would react with water and form a CO_2-H_2O clathrate, which would sink to the lake's rock floor. Lacking carbonate or borate ion, the waters of these lakes would not have the capacity to redissolve the clathrate. Hence it would remain in solid form until thousands of years in the future the slow motion of the ice carried it to the edge of the ice sheet where it would be discharged into the sea.

The heat given off during the formation of the clathrate would be dissipated by melting ice from the lake's roof. It turns out that the amount of water generated in this way would roughly balance the consumption of water by clathrate formation. Hence, the volume of water in the lake would not be depleted.

THE EXPECTATION IS THAT THE RATE OF CO2 RISE WILL INCREASE TO AT LEAST 3 PPM/YR. AT 3 PPM/YR, CO_2 WOULD INCREASE BY 150 PPM IN THE NEXT 50 YEARS BRINGING THE TOTAL TO 540 PPM OR ONLY 20 PPM SHORT OF DOUBLE THE PREINDUSTRIAL LEVEL (560 PPM).

But, of course, those concerned with preserving the pristine state of the Antarctic plateau would surely howl. Further, the existing international law against mining in Antarctica would likely prevent the construction of the apparatus needed to capture CO_2 and pump it beneath the ice cap, and, of course, also the construction of the housing, etc., for the people who installed and operated this equipment. But, as we face an extraordinary challenge, no option should be ruled out without being given careful consideration.

ULTRABASIC LOCK

The Earth's mantle is made largely of three elements: magnesium, silicon, and oxygen. Surprisingly, slivers of mantle material pierce the crust and outcrop at many places. For example, much of the bedrock in Oman is ultrabasic rock or its serpentinized equivalent. The magnesium in these rocks is a tempting ingredient for permanent sequestration of CO_2 as the mineral $MgCO_3$. Two approaches have been considered. One is to mine the rock, dissolve it in a factory and then mate the magnesium with CO_2. The products (magnesite and opalline silica) would then be dumped back in the hole created by the mining operation. Unfortunately to date, no one has figured out how to do this at an acceptable energy cost. Another idea is to do it in situ. CO_2 would be injected into the rock. As its reaction with the rock gives off both heat and also increases the volume of the rock (and as a result opening cracks) perhaps a self-sustained reaction could be created. Again much research would be required to determine whether this process could be harnessed.

COUNTERMEASURES

What could be done if the drive to squelch the buildup of CO_2 in the atmosphere fails? In the late 1960s, a Russian meteorologist, Mikhail Budyko, proposed that the input of solar radiation could be reduced by loading the stratosphere with SO_2. There, the sulfur dioxide would react with an oxidant to produce sulfuric acid aerosols that would reflect away sunlight and in this way cool the Earth.

In the mid 1980s, John Nuckolls, a physicist at Livermore National Laboratory, and I decided to take advantage of new information and update Budyko's scenario. Model simulations had shown that, in order to compensate for a doubling of atmospheric CO_2 content, 2% of the Sun's incoming radiation would have to be reflected back to space. As H_2SO_4 aerosols back-scatter only 10% of the solar rays that strikes them, in order to reduce insolation by 2%, these aerosols would have to intercept 20% of the incoming sunlight. This would require the sulfuric acid aerosols produced from about 30 million tons of SO_2. As the aerosols would remain aloft in the stratosphere for about one year, 30 million tons would have to be sent up annually.

A call to Freeport Sulfur Company provided the yearly SO_2 cost (i.e., about 10 billion 1980's US dollars). A call to Boeing indicated that the purchase and operation of the fleet of seven hundred 747 aircraft needed to carry the SO_2 to the atmosphere would involve an annual cost of 20 billion 1980's US dollars.

Nuckolls and I put together a paper entitled "An Insurance Policy Against a Bad CO_2 Trip." In addition to the above, it included some words regarding the environmental side effects of such a remedial action (i.e., additional acid rain, ozone reduction, etc.). We then sent this draft around to several prominent scientists (Frank Press at the National Academy of Sciences, Bert Bolin who at a later date headed the IPCC, Jerry Makman of NOAA's Geophysical Fluid Dynamics Laboratory, and others). Each advised us not to submit the paper for publication. One reason was their fear that it would provide an excuse for government inaction. We heeded their advice. The only published record of our thoughts was a short piece in *The Daily Telegraph* [Figure 6]. It wasn't until over a decade later that Nobel Laureate Paul Crutzen published an article on this subject.

My fear is that we will not move at a fast enough pace on CO_2 emissions reduction and the planet will become sufficiently warm that a majority of nations will opt for the SO_2 bailout. As the aerosol Band Aid will cost ten times less than any scenario for stemming the CO_2 buildup, the temptation to adopt this path will be large.

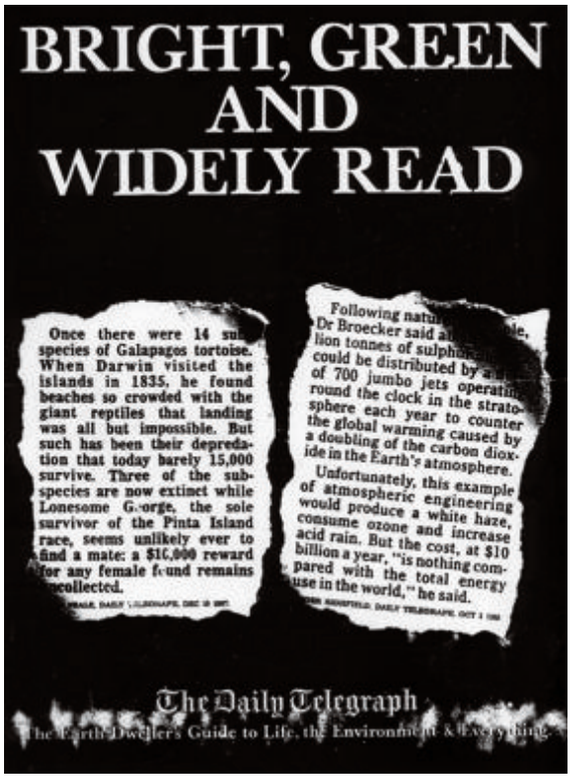
THE NEXT TWENTY YEARS

It is my view that it will take at least two decades before a meaningful international agreement can be reached. Although the realization that we must do something has become widespread, there remains a deep resistance to anything that might be viewed as a carbon tax, and a deep suspicion that the terms of any binding treaty would be violated by our economic competitors. But, as the planet warms, the ecologic changes,

the parching of drylands, and the melting of ice will become ever more evident. These changes will increase the pressure to bring the CO_2 rise to a halt and hopefully force the world's political leaders to sign a treaty that has teeth in it.

If this scenario is correct, then it is of the upmost importance that the intervening time be used to further the development both of methods for the production of non-carbon energy and of methods for the capture and storage of CO_2. Although industry has a strong profit incentive to do the former, this is not the case for the latter. Hence, government will have to step in. As time is of the essence, we must not let the next two or three decades slip doing as little as we've done during the last two or three.

As a citizen, I wish that I could live to observe how the world responds to this huge environmental challenge. As a scientist, I wish I could live to observe the impacts of what the late Roger Revelle termed man's greatest geophysical experiment. But, alas, as I'm approaching my 78th birthday, I surely won't be around when the big crunch arrives!


BRIGHT, GREEN AND WIDELY READ

Once there were 14 sub- species of Galapagos tortoise. When Darwin visited the islands in 1835, he found beaches so crowded with the giant reptiles that landing was all but impossible. But such has been their depredation that today barely 15,000 survive. Three of the subspecies are now extinct while Lonesome George, the sole survivor of the Pinta Island race, seems unlikely ever to find a mate: a $10,000 reward for any female found remains uncollected.

Following natu... Dr Broecker said a... ble, lion tonnes of sulphu... could be distributed by a... of 700 jumbo jets operatin... round the clock in the strato- sphere each year to counter the global warming caused by a doubling of the carbon dioxide in the Earth's atmosphere.

Unfortunately, this example of atmospheric engineering would produce a white haze, consume ozone and increase acid rain. But the cost, at $10 billion a year, "is nothing compared with the total energy use in the world," he said.

The Daily Telegraph

The Earth Dweller's Guide to Life, the Environment & Everything

FIGURE 6

Clip of an article published in the United Kingdom's newspaper the *Daily Telegraph*.

DIONISIO GONZÁLEZ

HALONG V. 2008

BIODIVERSITY AND GLOBALIZATION

THOMAS E. LOVEJOY

He currently holds the Biodiversity Chair at the Heinz Center for Science, Economics, and the Environment based in Washington, DC, and was President in 2002–8. Previously, he was the World Bank's Chief Biodiversity Advisor and Lead Specialist for Environment for Latin America and the Caribbean as well as Senior Advisor to the President of the United Nations Foundation. Lovejoy was the first to use the term Biological Diversity (in 1980). He conceived the now ubiquitous "debt-for-nature" swap programs and initiated and has led the largest experiment in landscape ecology, The Biological Dynamics of Forest Fragments project in Amazonian Brazil. He also founded the series *Nature*, the popular long-term series on public television. He currently serves as Chair of the Scientific and Technical Advisory Panel of the Global Environment Facility (GEF), the largest international source of environmental funding. In 2001, Lovejoy was awarded the prestigious Tyler Prize for Environmental Achievement and in 2009 the BBVA Foundation Frontiers of Knowledge Award. Lovejoy holds BS and PhD (biology) degrees from Yale University.

Ours is very much a living planet populated by myriad life forms—as Darwin termed it: "endless forms, all beautiful"—and since no organism can exist without affecting its environment, globalization has significant implications for biological diversity. The converse is equally true.

Biological diversity is a relatively recent term meant to encompass the variety of life on Earth at all levels of organization from the genetic to the diversity of biomes (major biological formations, e.g., tropical rain forest). It is the subject of one of the major environment treaties that came out of the Earth Summit in Rio de Janeiro in 1992, but has been the subject of research and environmental management far longer than that.

THE LINNAEAN DREAM: EXPLORING LIFE ON EARTH

An important area of research that can be aided by globalization and modern information technology is the exploration of life on Earth. Begun formally in the eighteenth century by Linnaeus and his 17 disciples (who went out into the world to collect and describe plants and animals) using the Latin binomial system of species names, this is still an active field. Indeed the estimates vary but all concur that only a small fraction of species—ten per cent?—have actually been described by science. The reality is we cannot even say within an order of magnitude with how many species we share the planet.

The classification of organisms has always been a global exercise even in its earliest days. It requires travel and collection of specimens in distant places. It is based on comparison to specimens of known plant and animal species residing in reference collections in different places. No single country has enough taxonomic experts to identify specimens from all groups of organisms.

There is a grand opportunity, yet to be sufficiently recognized or addressed, to complete that exploration. A Frontier of Knowledge indeed. In recent decades we have learned of communities that depend on the primary energy of the Earth (around deep sea vents), of a vast array of microorganisms in seawater, organisms living two miles below the surface of the Earth, and more. The Tree of Life of my school days—with two mighty trunks, one plants and the other animals (with other forms of life at the base)—has been transformed. Today it is rather like a low spreading bush; plants and animals are but two terminal twigs. All the rest consists of microorganisms of various sorts with strange appetites and metabolisms many dating from the earliest days of life on Earth.

All of those discoveries have been made without the great concerted effort this deserves. This is in so many ways more important than space exploration. This is after all the grand living library not only for the life sciences of how biological systems work, but also with immeasurable benefit for humanity. Single species can morph from the esoteric to the valuable. For example, a species of slime mold from the banks of the Zambesi River has compounds useful in the treatment of tumors resistant to taxol (which itself derives from yew tree genus Taxus).

The Encyclopedia of Life based at the National Museum of Natural History at the Smithsonian Institution is poised to capture information electronically as it is discovered—with a "page" for each species covering the essence of its biology. All that is needed for the *Encyclopedia* to fulfill that vision in a reasonable time is recognition of its fundamental importance, and a concerted effort to rein in runaway extinction rates.

BIODIVERSITY AS AN ENVIRONMENTAL INDICATOR

In the late 1940s a young freshwater ecologist, Ruth Patrick, began studying the number and kinds of organisms in streams and rivers in the Mid-Atlantic States. With her colleagues she demonstrated that the number and kinds of species in these ecosystems, in particular of diatoms (algae with distinctive silica boxes), was the consequence not only of the natural physics, chemistry, and biology of the watercourses but also of the stresses from human activity in the watershed.

Ruth Patrick demonstrated that biological diversity provides the best measure of human impact on ecosystems. Sometimes called the "Patrick Principle," it applies not just to freshwater but to all ecosystems including terrestrial and marine. It lies at the base of all environmental management and science.

Environmental problems are by definition ones that affect living systems. What this means is that in addition to biological diversity loss being considered as a problem in itself, all environmental problems affect biological diversity. As a consequence biological diversity integrates all environmental problems—from chemical pollution to climate change—which is what makes it so challenging to address.

THE CLASSIFICATION OF ORGANISMS HAS ALWAYS BEEN A GLOBAL EXERCISE EVEN IN ITS EARLIEST DAYS. IT REQUIRES TRAVEL AND COLLECTION OF SPECIMENS IN DISTANT PLACES. IT IS BASED ON COMPARISON TO SPECIMENS OF KNOWN PLANT AND ANIMAL SPECIES RESIDING IN REFERENCE COLLECTIONS IN DIFFERENT PLACES.

INVASIVE SPECIES ARE TODAY REGARDED AS ONE OF THE MAJOR CAUSES OF EXTINCTION AND AS A MAJOR ENVIRONMENTAL PROBLEM.

INVASIVE SPECIES

In a sense first formally recognized as an environmental problem with Charles Elton's 1958 book *The Ecology of Invasions by Animals and Plants*, alien invasive species are particularly exacerbated by globalization. Increased trade and travel make it easier for plants, animals, and diseases to arrive in places where they are not native and are often less constrained by other organisms than are native species. Invasive species are today regarded as one of the major causes of extinction and as a major environmental problem.

The native earthworm fauna of the northeast United States has been pushed out by invasive worm species. The Philippine Brown Tree Snake has eliminated much of the native avifauna of Guam. Island species have been particularly vulnerable to invasive species including domestic animals—the Stephen Island Wren was exterminated by the lighthouse keeper's cat—and also deliberate introductions like mongooses or incidental ones like rats.

The Black Sea anchovy fishery has been undercut entirely by an introduced comb jellyfish (introduced with ballast water from the Atlantic waters of the western hemisphere), which basically short-circuited the food chain of the quarter-of-a-billion-dollar annual fishery. Ballast water is a frequent way in which aquatic organisms are transported around the world to locations where they can cause enormous problems, e.g., zebra mussels first in the Great Lakes and then later through much of North America.

Insect pests travel around the world and wreak havoc in new locations. The corn borer made it from the United States to Europe, probably as an unnoticed airfreight passenger. Tree pests like the Asian long-horned beetle and emerald ash borer are creating huge problems with native tree species in the United States, where they arrived as unintended passengers in the wood of shipping crates. Sometimes the introduction is deliberate, e.g. rabbits in Australia, or incidental to deliberate decisions as in the Burmese pythons liberated by pet owners to the point of being a major pest in the Everglades.

Disease organisms are part of the alien species picture also. Dutch elm disease and the American chestnut blight have made dramatic changes in eastern forests of the United States. The American elm was the desired shade tree in American cities; Hillhouse Avenue in New Haven Connecticut—itself termed the Elm City—was said by Charles Dickens to be the most beautiful street in America. The American chestnut was close to a keystone species in eastern US forests: not only with trees of enormous girth but its chestnuts a major food source for many species. West Nile virus took but five years to spread coast to coast once it appeared in the United States, aided by the spread of an invasive mosquito species, the Asian tiger mosquito (Aedes albopictus).

OVERHARVEST OF VALUED SPECIES

Historically the first impact of people on biological diversity has been with overharvest of a species valued as a resource. It clearly was happening before recorded history. As people spread through the islands of the South Pacific they had a major impact on the native avifauna; this was only recognized when ornithologists began studying middens and semi-fossil remains. The almost entire elimination of the great bison herds of North America is a classic example in historic time. The history of whaling is essentially fishing down one species and then moving on to repeat the same pattern with another, and yet another. The whaling history is an early form of globalization with stocks being fished out of one distant part of the world after another to feed markets in North America and Europe primarily. Whale oil was considered so valuable that ships would go to sea for years at a time pursing whales in waters many thousands of miles distant from home port.

The state of global fisheries is a dramatic example in which one fish stock after another has been fished down to low productivity with 70% of all ocean fisheries now depleted and large fishing fleets converging on the remaining ones at a rapid pace. Fortunately there is growing awareness of the importance of replacing that predatory approach with one which husbands and manages stocks in a sustainable fashion.

Overharvest continues to be a major problem, whether it be for global fish markets, including high value ones such as the Japanese one for blue fin tuna, for oriental medicine and food markets, for timber (e.g., mahogany), etc.

HABITAT DESTRUCTION AND MODIFICATION

Habitat destruction has long been considered as the single greatest impact on biological diversity. Half of all tropical forests are gone and the annual toll of tropical deforestation continues at

a high rate. Much of Europe was deforested to create the landscape we know today. Most of the eastern United States was deforested by the end of nineteenth century but a lot is in the process of recovery as better farmland was encountered farther to the west and as the economy transitioned from a primarily agrarian state. Most of the great prairie grasslands of the United States have been converted to industrialized agriculture. Globally 38% of the land (not including Antarctica) has been converted to agriculture. About half of the world's wetlands have been drained or converted to other purposes since 1900.

About 40 years ago attention began to be paid to an unremarked handmaiden of habitat destruction, namely habitat fragmentation. Fragmentation is a close to ubiquitous aspect of habitat conversion in any part of the world with fragments of forest (or other habitat) being left behind sometimes deliberately for conservation purposes but most often just incidentally.

What in many ways drew attention to it was the theory of island biogeography. Initially a paper and then a book by Robert MacArthur and Edward O. Wilson, the theory endeavored to understand the differing number of species on real islands. The essence of the theory was the number on any given island was set by the balance between the immigration rate and the extinction rate. What was particular intriguing was the rates were set in part by the size of an island and in part by the distance from a colonizing source. It was elegant in its simplicity.

Two aspects were of particular interest from a conservation perspective. Large islands held more species than small islands. And islands that had always been islands ("oceanic islands") generally held fewer species than similar size islands that had once been continuous with a mainland. An example would be Trinidad, which had been part of South America when sea levels were lower at the time of the last glaciation. Such islands were termed "continental islands."

The conclusion was drawn that a continental island, like Trinidad, had held as many species as an equivalent area of mainland South America, but had been losing species since isolation from sea level rise. The interpretation was that this loss would continue until it came to a dynamic equilibrium around the same number of species as an equivalent oceanic island.

It was not a great jump to think about habitat fragments (such as forest fragments) as the equivalent of islands in a sea of agriculture or other habitat. Obviously they are not isolated by water but certainly sit in a very different habitat so the island analogy wasn't too big a stretch. The questions arose quickly: do fragments lose species after isolation? Do bigger fragments hold more species than smaller? Does the species loss follow an order or pattern?

All this led to an enormous controversy in the scientific literature with one group asserting that it implied conservation areas had to be large, and another asserting that the theory of island biogeography was neutral. In a sense the latter were correct in that the theory treated all species as equal. But all species clearly are not and one could infer from species with large home ranges or low densities that large conservation areas would be important.

Basically the only "data available" were from Barro Colorado Island (BCI), a former Panamanian hilltop rendered an island by the rising waters of Lake Gatun (created for the Panama Canal). Originally known as the Canal Zone Biological Area it later came under the administration of the Smithsonian Institution. Regular bird studies over decades showed the loss of species. Other available data were some forest fragments in southern Brazil with the larger showing more species than the small fragment. It was not clear whether they were comparable or what had been the original state.

So the debate known formally as the Single Large or Several Small (SLOSS) raged mostly for lack of direct data (other than BCI). Nobody had actually seen species loss taking place so it was hard to derive suggestions for conservation design and management.

I continued to worry about the subject because it was so central to sound conservation practice. The Monday before Christmas 1976 I was in a meeting discussing it at the National Science Foundation with John L. Brooks, Frances C. James, and Daniel Simberloff, when I had the wild idea that the Brazilian law that then required 50% of any project in the Amazon remain in forest might be used to conduct a giant experiment in landscape ecology.

The idea would be to create a series of fragments of different size in the course of development for cattle pasture, where we could study them before isolation as fragments and also compare them with similar sized plots in intact forest. Such ideas rarely turn into reality but in this case it did with the input of many, including Brazilian colleagues and institutions. And so was born what is now known as the Biological Dynamics of Forest Fragments Project for

which William Laurance and I were honored by the 2008 Frontiers of Knowledge Prize in Ecology and Conservation Biology.

Thirty years of research has yielded a lot. The size question is answered in favor of large: 100 hectare fragments lose half their forest interior bird species in less than 15 years, so for the moment a minimum size of 100,000 ha seems in order for Amazon forest conservation units. The changes turn out to be far more complex than envisioned: for example, isolated fragments tend to lose biomass because larger trees become vulnerable to windthrow when no longer protected by surrounding forest. The influence of the surrounding matrix (e.g., pasture, young secondary growth, or whatever) has a real influence on the fragments themselves.

The conclusion is that even though fragments have their own value and are certainly better from a biodiversity point of view than no forest, they cannot be considered as equal to forest in their contribution to biodiversity conservation.

CHEMICAL POLLUTION

Biological systems are potentially affected by manmade chemicals with which there has been no evolutionary experience, and all are exacerbated by globalization and markets that move things and affect places far distant. Chlorinated hydrocarbons such as DDT had major effects on species like Peregrine Falcons, Bald Eagles, and Ospreys at the end of long food chains, primarily through affecting calcium metabolism and hence the ability to lay healthy hatchable eggs. Those and other compounds show up in places far distant from original use, carried by air and water currents and working their way through food chains, and appearing in Antarctic penguins and in the Arctic in marine mammals and Inuit people.

There are currently about 70,000 different human-made chemicals with another 1,500 being created every year. The persistent organic pollutants are the subject of a special treaty but only 12 are listed, far fewer than should be. The chlorinated fluorocarbons, which affect the ozone layer, are managed separately under the Montreal Protocol. In addition there are heavy metal problems such as mercury, probably the subject of a new international agreement. There is growing concern about a class of chemicals that act as endocrine disrupters. What is clear is the effect of most of this vast array of artificial molecules is unknown, let alone the potential for negative synergistic interactions.

DISTORTION OF GLOBAL CYCLES

On top of this is human activity at a scale that is distorting major global cycles. Problems with sulfur on a regional basis, primarily through the combustion of sulfur laden coal and the creation of acid rain are in a sense but an overture—although one repeated in most continents of the world. At the Hubbard Brook experimental forest in New England it appears that the acid rain has leached the soil sufficiently that forest growth has been seriously affected. Very frequently the movement of pollutants in air and water crosses boundaries in another form of globalization.

One of the earliest problems to be noted with a global cycle is that of nitrogen. Today there is about twice as much biologically active nitrogen available as occurs naturally. The most prominent effect is the proliferation of dead zones in coastal waters, where the chemical imbalance caused by continental runoff essentially leads to oxygen depleted waters in which few organisms can grow. The first major dead zone was in the Gulf of Mexico primarily from runoff from the Mississippi watershed. There are now more than 100 around the world and the number is growing.

The ultimate form of globalization and environmental challenge is the distortion of the carbon cycle, namely climate change.

CLIMATE CHANGE

In 1896, Swedish scientist Svante Arrhenius asked the important question: why is the Earth a habitable temperature for humans and other forms of life? His answer was greenhouse gases and the greenhouse effect. He even made a projection of what doubling the natural level of greenhouse gases would do to the Earth's temperature.

What Arrhenius could not have been aware of is that the average temperature of the planet over the last 100,000 years shows a lot of abrupt natural climate change. For the last 10,000 years it also shows a period of remarkable stability. That implies two important things. Firstly, the entire human enterprise for 10,000 years has operated on the assumption of a stable climate—even when we find reason to talk about its much finer variability, namely the weather. Secondly, all ecosystems have been adjusting to a stable climate.

That is changing through the addition of greenhouse gases to the atmosphere from two sources: the burning of fossil fuels (coal, oil, and gas), which is essentially the consequence of ancient

plant productivity, plus current deforestation/biomass loss, which releases the energy trapped from the Sun by modern photosynthesis. Life is built on molecules of carbon and when combusted releases large amounts of carbon dioxide.

Carbon dioxide concentrations in the atmosphere have climbed to just shy of 390 parts per million (ppm) having started at pre-industrial levels of 280 ppm. The global climate system has begun to respond. The Earth is currently about 0.8 degrees warmer than in pre-industrial times and an additional 0.5 degrees is essentially in the works, which would bring the average temperature rise to 1.25 to 1.3 degrees.

The physical environment is changing primarily between the solid and liquid phases of water. Northern hemisphere lakes are freezing later and the ice breaking up earlier every year. Glaciers are in retreat in most parts of the world, including those in the Andes that are the water supply for cities like La Paz, and in the Himalayas where they feed the major rivers of China and India. Most tropical glaciers (on top of high peaks like Kilimanjaro) are retreating at a rate such that they will all be gone by 2015.

The most extreme of these kinds of change involve the Arctic Ocean sea-ice. The first summer during which an ice-free Arctic Ocean is projected has been changed from 2100, to 2050, to 2015, and maybe even sooner. In addition Greenland glaciers are melting faster than projected adding glacier melt to the sea-level rise occurring simply because of the expansion of water at warmer temperatures.

In addition there is a statistically significant increase in wildfires in the American West, and perhaps elsewhere, as a result of longer dryer summers and earlier snow melt. There is also the distinct possibility of increased frequency of more intense tropical cyclones as well as severe weather events in general.

Not surprisingly living nature is showing lots of change as well. Many plant species are flowering earlier every year. Animal species are also changing their timing with some birds migrating, nesting and laying eggs earlier. In addition, species are beginning to change where they occur, moving both poleward (i.e., northward in the northern hemisphere) and upward in altitude. The American Arbor Day Foundation found it necessary to publish a new hardiness zone map, which guides tree lovers as to which species they can expect success with where they happen to live. All of these changes taking together are statistically robust. There can be no question: nature is on the move almost anywhere anybody has looked in the world.

These changes are occurring in aquatic systems as well, with changes in plankton and fish distribution in the oceans. The highly productive sea-grass communities of the great Chesapeake Bay estuary are moving steadily northward because sea grass has a strict upper temperature under which it thrives.

Changes are occurring in the tropics as well. The legendary cloud forest of Monteverde in Costa Rica is experiencing increasingly frequent dry days because clouds are forming at a higher altitude. This has serious consequences for a forest type that depends on condensation from clouds for almost all its moisture. It is believed the first species recorded as driven to extinction by climate change is the Golden Toad of Monteverde. Climate change is implicated as one of the factors involved in the spreading amphibian extinction crisis.

Tropical coral reefs are suffering serious negative effects. Just a slight increase in water temperature causes the fundamental partnership at the basis of the coral reef ecosystem to fail: the coral animal ejects the alga partner creating what is termed a bleaching event. This occurred for the very first time in 1983 and will happen with ever greater frequency as warming increases.

Of course the most dramatic effects are being seen on wildlife with ice related natural history. The polar bear is the iconic species in that context, but others are also showing what is known as a decoupling event, when two species closely coordinated in their biology decouple because one relates to temperature change and the other to another factor. The Black Guillemot nests on land at the edge of the Arctic Ocean and flies to the edge of the sea ice to feed on the Arctic Cod that is found close to or immediately under the edge of the ice. As that edge retreats from the shore the journey eventually becomes too great a distance and the nest and the colony fail. Decoupling events are being recorded all over the world, not just in Arctic regions.

Looking ahead (but not very far), clearly species at high altitudes will be in trouble as a class simply because at some point there will be no farther up to go. The American Pika, which occurs in several spots at high altitude in the Rocky Mountains, is currently being studied as a candidate for the Endangered Species list as a consequence. In addition, island species will be in jeopardy because their required conditions will move beyond the limits of the island itself.

THERE ARE CURRENTLY ABOUT 70,000 DIFFERENT HUMAN-MADE CHEMICALS WITH ANOTHER 1,500 BEING CREATED EVERY YEAR.

Moreover, species on low lying islands like the Key Deer will be in jeopardy from sea level rise.

Looking ahead the picture is even more challenging. In the past, as climate changed species moved in response, but today much of the landscape has been converted to non-natural state essentially creating an obstacle course to dispersal. The probability of successful dispersal will be lowered as a consequence.

In addition, it is known that in the past as species responded to climate change they did so as individual species not as biological communities. Each species will disperse in its own direction and at its own rate. What this means is that ecosystems will disassemble and the surviving species will assemble into a novel ecosystem configuration rather hard to envision.

Ecosystem failure is already beginning to happen. Coral bleaching is a clear example in the oceans. The first example in terrestrial systems involves the massive mortality of trees in boreal forests because milder winters and longer summers confer an advantage on the native pine park beetle It is estimated 22-million acres will be affected in North America and the phenomenon appears to be occurring in Europe as well.

Beyond that is the prospect of system change. The hydrological cycle that provides half the rainfall to the Amazon forest, as well as rainfall to southwestern Brazil and northern Argentina, has been projected by the Hadley Center to degrade and cause "Amazon dieback" at 2.0 degrees increase. The greatest recorded drought in Amazon history in 2005 may in fact have been a preview of that scenario. More important when coupled with current deforestation and fire, the tipping point for Amazon dieback appears to be much, much closer.

Major system change is already occurring in the oceans. Increased CO_2 in the atmosphere has increased acidity because some of the CO_2 is converted to carbonic acid. The oceans are already 0.1 pH units more acid than in pre-industrial times; in relative terms that is 30% more acid. Acidity is a major problem for the tens of thousands of species in the oceans that build skeletons and shells from calcium carbonate, including zooplankton important to food chains. Coral reefs are especially vulnerable because their form of calcium carbonate, aragonite, begins to corrode and dissolve at lesser acidity than the other form calcite. It is hard to be sanguine about the future of coral reefs, and effects have already been seen at the base of food chains in the North Atlantic and off Alaska.

HOW GLOBALIZATION COULD WORK FOR BIOLOGICAL DIVERSITY AND SUSTAINABILITY

So biological diversity and ecosystems clearly are highly sensitive to climate change. With ecosystem failure and system change happening in the oceans and in the offing in the Amazon, it becomes clear that greenhouse gas concentrations are already higher than they should be. Two degrees temperature increase over pre-industrial levels will be disastrous for ecosystems. Rather we should be thinking about no more than 1.5 degrees and the 350 ppm limit suggested by climate scientist Jim Hansen. The problem of course is that concentrations are already close to 390 and climbing rapidly—beyond the worst-case scenario of the most recent report from the Intergovernmental Panel on Climate Change (IPCC).

This only makes the need for an energy transformation to a low carbon base yet more urgent. Of course it also means that a lot of work needs to be done to make ecosystems more resilient in the face of the climate change they will experience. This latter is a relatively new field, but certain things are obvious: the more natural connections are restored in landscape the more easily species will be able to move in response to the changing climate. Places facing dryer conditions or the loss of glacial melt will require very thoughtful resolution between demands for water for direct human uses and the water ecosystems will need.

Ecosystems can make an important contribution to reducing atmospheric concentrations of CO_2. In fact a significant amount of CO_2 has been lost to the atmosphere from ecosystems over the last three centuries—perhaps on the order of 200 billion tons. It continues to be emitted at the average rate of 1.5 billion tons a year principally from tropical deforestation and biomass burning. So one of the first priorities is to prevent further emissions from deforestation—a major topic in the upcoming climate negotiations.

Beyond that, however, there is a potential for a positive contribution of removing CO_2 from the atmosphere by restoring terrestrial ecosystems on a planetary scale. This would involve reforestation, restoration of grasslands and degraded grazing land, and management of agriculture in ways that build up carbon in soils. It is not easy to put a precise number on the potential sequestration (the technical term) from terrestrial ecosystem restoration but I believe if thoughtfully

pursued it could be in the order of 150 billion tons (3 billion tons/year for 50 years). That is roughly equivalent to pulling down atmospheric levels down by 40 parts per million (the difference between current levels and the imagined limit of relative safety for ecosystems). There is almost certainly an additional amount that could be sequestered by management and restoration of marine (including coastal) ecosystems.

The challenge to producing a precise number for this potential sequestration is that of competing land uses (as well as a changing climate affecting ecosystems and their potential). Out of the single land base of the planet must come food for the present and growing human population, biofuels (as part of the substitution for fossil fuels), biological diversity conservation, and carbon sequestration. This is going to require wisdom and coordination at a level yet to be seen except in local instances.

What is abundantly clear is that the time is past when we can afford an ad hoc approach to the environment and contenting ourselves with the consequences. We must finally recognize the planet works as a biophysical system, and that it has to be consciously managed as such. Edward O. Wilson refers to this as Wilson's Law: if the planet is managed only as a physical system, the living systems will be seriously damaged. Conversely, if the planet is managed for its biological systems, the physical aspects will be taken care of adequately.

If ever there was a challenge and an opportunity for globalization, it is caring for the magnificent living planet of which we are fortunate to be a part.

ANTONIO BUENO ▸
LANDSCAPES UNDER SURVEILLANCE, 2007

ROADS TO RUIN:
EXPANDING TRANSPORTATION NETWORKS IMPERIL GLOBAL BIODIVERSITY

WILLIAM F. LAURANCE

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"The best thing you could do for the Amazon is to bomb all the roads."

Dr. ENEAS SALATI,
Technical Director, Brazilian Institute for Sustainable Development, Rio de Janeiro, Brazil

"Highways are the seeds of tropical forest destruction."

Dr. THOMAS E. LOVEJOY,
Biodiversity Chair, Thomas H. Heinz Center
Washington, D.C., USA

"In the Congo, rapidly proliferating roads—and the ivory hunters they bring—are decimating the African forest elephant."

Dr. STEPHEN BLAKE,
former Inventory Coordinator of the MIKE (Monitoring of Illegal Killing of Elephants) Program in central Africa

VILIFYING ROADS

As the quotes above illustrate, environmental scientists often take a very dim view of roads and highways in the vicinity of natural ecosystems. This perspective is strikingly different from that of many economists and regional planners, who typically extol the "opening up" of frontier regions by new roads as a good thing (e.g., Simuyemba 2001; Duval 2008). Why such a dramatic difference in perception?

Here I evaluate the impacts of roads from a broad environmental standpoint. At the outset, I describe how and why economic globalization is promoting rapid road expansion in many previously road-free areas. I then highlight the manifold environmental impacts of roads on native ecosystems and wildlife. Finally, I consider some strategies to reduce the impacts and extent of roads. As will quickly become apparent, I hold a deeply ambivalent view of roads: they are a necessary part of contemporary life, but they are sometimes environmentally devastating.

Two caveats are needed before I proceed further. First, in a functional sense there can be a strong distinction between a "highway," which is a major paved thoroughfare that provides year-round access to a region, and a "road," which is generally smaller and may or may not be paved. For simplicity, however, I will use the term "road" for either. Both are examples of linear infrastructure, which also includes power lines, gas lines, railroads, and canals. Linear infrastructures are among the most ubiquitous features of human activity in the world today.

Secondly, I will focus here exclusively on tropical nations. These are the areas I know best, having spent the better part of three decades living and working in them. More importantly, tropical nations harbor much of the world's biodiversity—sustaining at least half of the planet's species in just 7% of its land area (Primack 2006)—and are where roads are expanding most swiftly.

ROADS AND RAINFOREST BIODIVERSITY

Roads and other linear infrastructure have serious environmental impacts on natural habitats worldwide (Forman and Alexander 1998; Trombulak and Frissel 2000), but tropical rainforests seem specially vulnerable (Laurance *et al.*, in press).

Firstly, from a biological perspective, rainforests have a complex architecture and uniquely humid, dark, stable microclimate. They sustain many animal species specialized for living in forest-interior and understory conditions [Figure 1], some of which strongly avoid abrupt forest edges along clearings and rarely cross even narrow forest openings. Other tropical species are vulnerable to hunting, road-kill from vehicles, elevated predation, and species invasions near roads. The net effect is that, by virtue of their unique characteristics and abundance of ecologically specialized species, rainforests and their wildlife are exceptionally vulnerable to roads and other linear clearings.

Secondly, from a socioeconomic perspective, tropical rainforests are strongly concentrated in developing nations, many of which are experiencing further population growth, rapid economic development, and intense natural-resource exploitation. As a result, roads are running riot. For example, Brazil has just punched a 1200-kilometer-long highway into the heart of the Amazon (the BR-163) and is in the process of constructing another, 900-kilometer-long highway (the BR-319) that will cut into nearly

ROADS AND OTHER LINEAR INFRASTRUCTURE HAVE SERIOUS ENVIRONMENTAL IMPACTS ON NATURAL HABITATS WORLDWIDE, BUT TROPICAL RAINFORESTS SEEM SPECIALLY VULNERABLE.

FIGURE 1

Myriad species, such as this lemuroid ringtail possum (*Hemibelideus lemuroides*) from northern Queensland, Australia, are specialized for the dark, humid conditions of tropical rainforests (photo © Michael Trenerry).

NAME AND LOCATION*	SYNOPSIS OF IMPACT
EXISTING ROADS	
BELEM–BRASÍLIA HIGHWAY, BRAZIL	Paved in the 1960s, this 1500-km highway has spawned a 400-km-wide slash of deforestation across eastern Amazonia
CUIABÁ–PORTO VELHO HIGHWAY, BRAZIL	This 1500-km highway, funded by the World Bank, has promoted rampant forest loss in southwestern Amazonia
CUIABA–SANTARÉM HIGHWAY, BRAZIL	Visible as a "line of fire" at night, this recently paved highway cuts for over 1200 km into the heart of the Amazon
ECUADORIAN OIL ROADS	Roads associated with two 400-km-long oil pipelines have opened up much of Ecuadorian Amazonia to destructive colonization, with major impacts on indigenous groups
SAMLING ROAD, SARAWAK, MALAYSIA	This 300-km road, recently built by Samling Timber Corporation, is opening up northern Sarawak, Borneo to industrial logging
ANDAMAN TRUNK ROAD, ANDAMAN ISLANDS, INDIA	Running 420 km across four nearby islands, this highway promoted both massive deforestation and social upheaval for the indigenous communities of the islands
DOUALA–BANGUI ROAD, CAMEROON–CENTRAL AFRICAN REPUBLIC	Completed in 2003, this highway cuts 1400 km across the northwestern Congo Basin and has promoted massive logging, poaching, and forest loss
ROADS UNDER CONSTRUCTION OR PLANNED	
MANAUS–PORTO VELHO HIGHWAY, BRAZIL	This 900-km paved highway will link the nearly pristine central Amazon to major population centers to the south
TRANSOCEANIC HIGHWAYS, PERU–BOLIVIA–BRAZIL	Already hotspots of deforestation and frontier lawlessness, this triad of paved highways will link Brazil to the Pacific Ocean and lucrative export markets in China
TRANS–CONGO ROAD, DEMOCRATIC REPUBLIC OF CONGO	Funded by China, this 1600-km road will cut across the Congo Basin, from the southeast to northwest, providing access to rich mineral and timber resources
NORTH–SOUTH ECONOMIC CORRIDOR, INDOCHINA	This 1500-km highway will provide a direct link between aggressive timber importers in China and Laos, Cambodia, Thailand, and Myanmar, whose forests are rapidly shrinking
LEUSER ROAD PLAN, SUMATRA, INDONESIA	This network of 450 km of main roads and 1200 km of minor roads is likely to open up surviving forests in northern Sumatra to illegal logging, poaching, and deforestation
MAMBERAMO BASIN ROADS, PAPUA, INDONESIA	Spanning 1400 km, this China-funded road network will crisscross pristine forests in northwestern New Guinea

FIGURE 2

Roads to ruin. A sampling of the most environmentally destructive roads in the tropics and others imminently planned or under construction.

* Compiled from refereed publications, technical reports, and consultations with tropical researchers, environmental organizations, and conservation websites such as www.mongabay.com.

pristine forest. A triad of new highways is slicing across the Andes Mountains, from the Amazon to the Pacific. New road networks in Sumatra are opening up some of the island's last remaining forests to predatory loggers and hunters. A recent study found 52,000 kilometers of new logging roads in the Congo Basin (LaPorte *et al.* 2007). These are but a small sampling of the new roads and highways penetrating into the world's last tropical frontiers [Figure 2].

GLOBALIZATION AND ROADS

Economic globalization is playing an ever-bigger role in road expansion and tropical deforestation. Tropical forests are disappearing at an average rate of 10–13 million hectares a year (FAO 2005)—the equivalent of roughly 50 football fields per minute. While this rate has remained relatively constant over the past few decades, the underlying causes of deforestation have shifted dramatically—from mostly small-scale, subsistence-driven deforestation through the 1980s, to far more industrial-driven deforestation more recently (Geist and Lambin 2002; Rudel 2005).

Beginning around the end of the Second World War and continuing through the late 1980s, tropical deforestation was mostly a consequence of two factors. The first was explosive growth of the human population in developing nations (Myers 1993). From 1950 to 1990, for example, the populations of the three biggest tropical nations, Brazil, Indonesia, and the Democratic Republic of Congo, collectively rose by more than 250%, from 146 million to 368 million people (UN 2004). The second factor promoting deforestation was government policies for rural development, such as agricultural loans, tax incentives, forest-colonization programs, and rural-road construction (Rudel 2005). Such initiatives, especially evident in countries like Brazil and Indonesia (Fearnside 1997), promoted large influxes of colonists and shifting cultivators [Figure 3] into frontier areas and caused alarming forest loss.

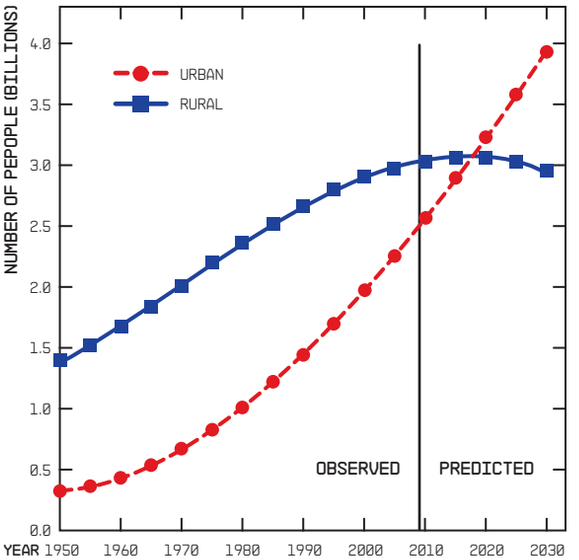
More recently, however, the impacts of rural peoples on tropical forests seem to be stabilizing. Although many tropical nations still have considerable population growth, strong urbanization trends (except in Sub-Saharan Africa) mean that rural populations are growing more slowly [Graph 1], and are even declining in some areas (UN 2004). The popularity of large-scale frontier-colonization programs has

also waned (Fearnside 1997; Rudel 2005). If such trends continue, they could begin to alleviate some pressures on forests from small-scale farming, hunting, and fuel-wood gathering (Wright and Muller-Landau 2006).

At the same time, globalized financial markets and a worldwide commodity boom are creating a highly attractive environment for the private sector. Under these conditions, large-scale agriculture—crops, livestock, and tree plantations—by corporations and wealthy landowners is increasingly emerging as the biggest direct cause of tropical deforestation (Rudel 2005; Nepstad *et al.* 2006a). In Brazilian Amazonia, for instance, large-scale ranching has exploded, with the number of cattle quadrupling, from about 20 to 80 million head, since 1990 (Smeraldi and May 2008). Industrial soy farming has also grown dramatically in Amazonia (Fearnside 2001). In Southeast Asia, expansion of industrial oil palm and rubber plantations has become a major driver of deforestation (Koh and Wilcove 2008). Surging demands for grains and edible oils, driven by rising standards of living in developing countries and the global thirst for biofuels, are also spurring these trends (Von Braun 2007; Scharlemann and Laurance 2008).

Road expansion and demand for new agricultural land often go hand in hand. In Brazil, for example, the powerful soy lobby has been a major proponent for the construction of new paved highways into the unexploited heart the Amazon. The lobby wants these highways so they can easily transport millions of tons of soy to the Amazon River, where it can then be exported internationally (Fearnside 2001). Other industrial activities, especially logging, mining, and oil or gas development [Figure 2], are also providing a key economic impetus for road building in tropical frontiers (Laurance 2001; Laurance *et al.* 2001; Asner *et al.* 2005; Finer *et al.* 2008).

Globalization is having another important impact on tropical deforestation. Historically, it is the nations with the highest population densities that have tended to lose the most forest (Wright and Muller-Landau 2006) and have the most threatened species (Sodhi *et al.* 2009). However, this relationship may be weakening because of international trade (Laurance 2007a; Butler and Laurance 2008). For instance, even a nation like Gabon, with a population density of fewer than five people per square kilometer on average, could lose much of its forest as China



GRAPHIC 1

Past and projected changes in rural and urban populations for developing nations, based on data from the UN Population Division. Projected changes are for a 'median' population-growth scenario (Adapted from Engelman 1998).

aggressively buys up huge stocks of the country's raw timber, mineral, and oil resources (Laurance *et al.* 2006a). Thus, globalization may increasingly de-link the relationship between local population density and environmental degradation, so that even sparsely populated nations can be rapidly exploited and deforested.

ROADS AND RAINFORESTS

Roads can have wide-ranging impacts on natural ecosystems. Some are a direct consequence of road building, maintenance, and vehicle traffic, whereas others—often the most devastating—are a result of greatly increased physical accessibility to the forest (see Laurance *et al.*, in press). Here I briefly summarize some the main effect of roads on rainforests.

PHYSICAL DISTURBANCES AND POLLUTION

In the tropics, as elsewhere, roads can seriously affect local soils, streams, and water quality (Trombulak and Frissel 2000). Roads are typically constructed using a cut-and-fill approach to help level local topography. Unless culverts are installed at frequent intervals, the filled areas impede drainage, especially in regions that receive heavy wet-season rains. This can cause flooding on the upstream side of the road that kills rainforest vegetation [Figure 4a]. On the downstream side of roads, water flow is often greatly impeded, causing streams to fail.

Road-cuts and local sand- and gravel-quarrying operations are major sources of erosion [Figure 4b], with each hectare bleeding from 35–500 metric tons of sediments into nearby

FIGURE 3

The changing drivers of tropical deforestation: Small-scale cultivators versus industrial road expansion in Gabon, central Africa (photos: William Laurance).

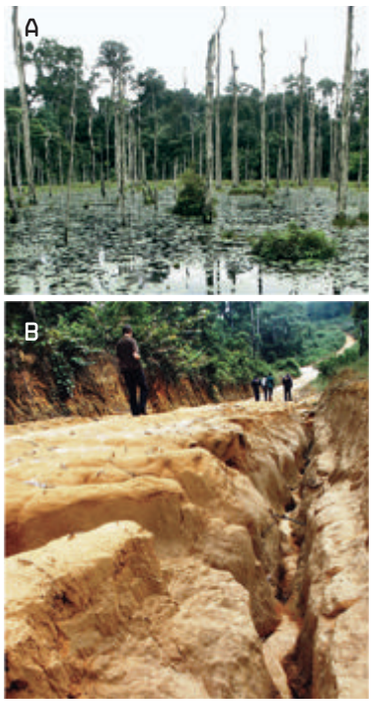


FIGURE 4

Damage from road works: **(A)** forest flooding and **(B)** heavy erosion along roads in the Congo Basin (photos: William F. Laurance).

streams each year (Bruijnzeel 2004). These sediments degrade water quality and clog up streambeds, killing many fish, aquatic insects, and other stream-dwelling wildlife.

Finally, roads and vehicles can be a chronic source of pollutants. Dust, heavy metals, nutrients, ozone, and organic molecules are elevated within 10–200 meters of roads (Trombulak and Frissel 2000; Pratt and Lottermoser 2007a). Chemical pollutants and nutrient runoff from roads are especially harmful to nearby streams and wetlands, with pulses of waterborne pollutants entering aquatic ecosystems when rainfall is heavy (Pratt and Lottermoser 2007b). Such contaminants can have wide-ranging effects; for example, many aquatic insects are acutely sensitive to water pollution, waterborne nutrients can promote blooms of algae that deplete the water of life-giving oxygen, and heavy metals are toxic to many animal species.

EDGE AND BARRIER EFFECTS

A road slicing through a rainforest is a highly artificial environment. Forests along road clearings are typically drier, hotter, and windier than are forest interiors. These changes can kill some trees near the clearing from heat stress or windthrow, and the higher light levels along roads promote a proliferation of disturbance-loving vines and weeds (Murcia 1995; Laurance *et al.* 2002b; S. G. Laurance 2004).

Being ecologically specialized for dark, humid conditions, many rainforest animals tend to avoid the foreign disturbance created by roads and their abrupt forest edges. Examples include strictly arboreal species, such as certain monkeys, sloths, and possums; understory bats specialized for flying in dense, cluttered environments; understory birds [Figure 5] with a strong psychological avoidance of clearings; and larger mammals that shun humans or traffic noise near roads (Goosem 2001, 2007; Develey and Stouffer 2001; S. G. Laurance *et al.* 2004).

For rainforest specialists, roads can seriously impede their natural movements, dispersal, and gene flow, leading to population isolation and fragmentation (Laurance *et al.*, in press). Such deleterious effects are likely to be compounded as road density increases, with road-dominated landscapes becoming increasingly hostile terrain for rainforest specialists. In concert with other impacts, such as hunting or road-kill, roads can have a serious impact on population survival.

ROAD-KILL AND HUNTING

Many animals are killed along roads from collisions with vehicles [Figure 6] (Goosem 1997, 2007) or from human hunting or trapping near roads. In terms of population survival, chronically elevated mortality is most serious for species that are rare, range over large areas,

FIGURE 5

Many understory birds, such as this black-headed antbird (*Percnostola rufifrons*) from central Amazonia, avoid forest clearings and edges (photo: Susan Laurance).

or have low reproductive rates, such as predators and larger-bodied mammals and birds (Bennett and Robinson 2000).

Road-kill from vehicles is limited to the road surface itself. Hunting by humans, however, can create zones of elevated mortality and animal avoidance within at least 5–10 kilometers of roads, and possibly much further for wide-ranging species (Lahm *et al.* 1998; Laurance *et al.* 2006b, in press; Blake *et al.* 2007). Populations of the African forest elephant, for example, appear to be depressed up to 50 kilometers from roads (Blake *et al.* 2008). Notably, the traits that predispose a species to road-kill, such as slow movement, poor eyesight, and forest edge-favoring behavior, are very different from those, such as large body size, gregarious social systems, conspicuous calls or displays, and the use of regular pathways, that predispose them to hunting or trapping by humans (Laurance *et al.*, in press). Thus, roads affect a broad spectrum of species with widely varying characteristics.

FIGURE 6

Many rainforest animals, such as this Malayan tapir (*Tapirus indicus*), are killed by collisions with vehicles (photo © Lan Ching Fong, World Wide Fund for Nature-Malaysia).

INVASIONS OF EXOTIC SPECIES

Many exotic species love roads, which provide avenues for invading forests. Among others, such invaders include little fire ants (*Wasmannia auropunctuta)*, exotic earthworms, non-rainforest vertebrates, fungal die-back (*Phytophthora* species), and myriad weed species (Dawson and Weste 1985; Walsh *et al.* 2004; Brown *et al.* 2007). Some of these invaders are having major impacts on tropical ecosystems. Little fire ants, for instance, are proliferating throughout African rainforests around 60 times faster along logging roads than through undisturbed forest, and kill or blind native species such as monkeys, apes, leopards, and insects (Walsh *et al.* 2004). Invasions can occur with surprising rapidity; for example, non-rainforest frogs, leafcutter ants, lianas, and exotic weeds are already penetrating into remote areas of the Amazon, using the verges of recently constructed roads as invasion corridors (Gascon *et al.* 1999).

Road-borne invaders affect people too. In Ecuador, for example, human enteric pathogens are 2–8 times higher in villages near roads than in more remote areas (Eisenberg *et al.* 2006). Increased incidences of dengue fever (Dutta *et al.* 1998), malaria (Hayes and Ferraroni 1981), and HIV (Carswell 1987) have been reported in people living near roads in India, Brazil, and Uganda, respectively. By accelerating invasions of novel and potentially lethal pathogens, roads penetrating into remote frontiers also threaten indigenous groups attempting to live with limited or no contact with outsiders. The Surui Amerindians of Brazilian Amazonia, for instance, have been driven to the edge of extinction by roads and the new infectious diseases they bring (Butler 2009).

HUMAN INVASIONS

In the tropics, roads greatly facilitate invasions of hunters, miners, colonists, and land speculators—a phenomenon dubbed the "Pandora's Box Effect" (Laurance 1998). In Brazilian Amazonia, for example, ~95% of all deforestation and fires occur within 50 kilometers of highways or roads [Figure 7] (Laurance *et al.* 2001). In Suriname, most illegal gold-mining operations are located near roads (Laurance 2008), whereas in tropical Africa, hunting intensity increases so sharply near roads that it strongly affects the large-scale distribution of forest elephants, buffalo, duikers, primates, and other exploited species (Lahm *et al.* 1998; Laurance *et al.* 2006b; Blake *et al.* 2007, 2008). Roads can greatly increase trade in bushmeat and wildlife products; for example, eight killed mammals were transported per hour on average along a single highway in Sulawesi, Indonesia (Lee *et al.* 2005).

Many formerly remote tropical regions, such as the Amazon (Laurance *et al.* 2001), Congo

FIGURE 7

Roads promote forest destruction.

(A) Close association between frontier roads and deforestation in Brazilian Amazonia (image from NASA).

(B) Clustering of forest fires (red) and deforestation (yellow) near roads in northern Bolivia in 1997 (image from Marc Steininger, Conservation International).

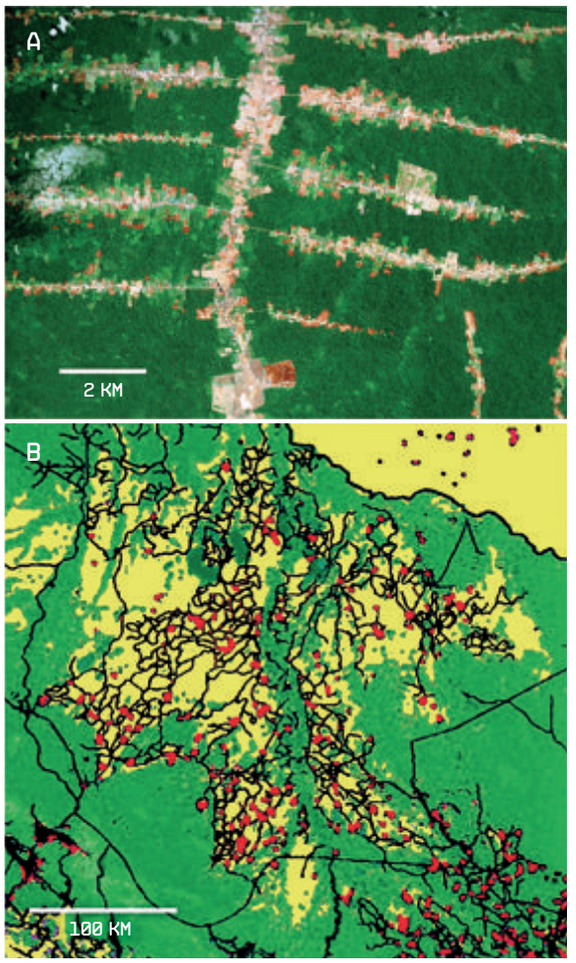
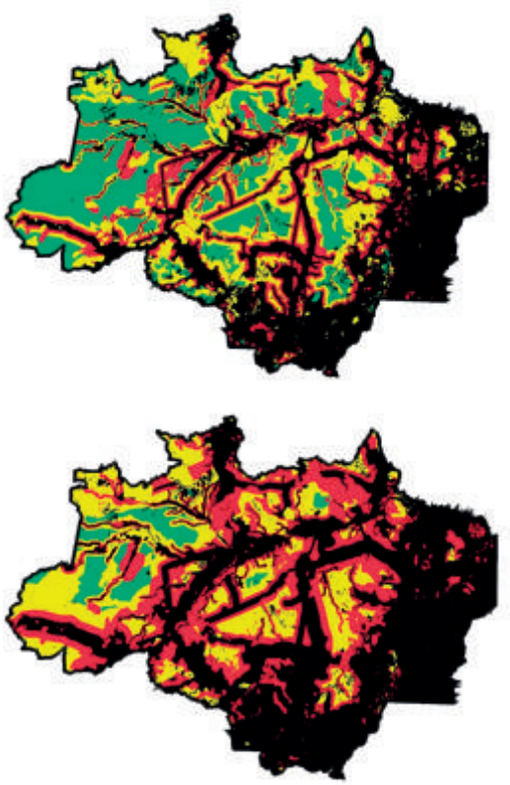


FIGURE 8

As illustrated by these "optimistic" (above) and "non-optimistic" (below) scenarios, forests in Brazilian Amazonia will be profoundly affected by existing and planned roads and paved highways. Both models show projected forest cover for the year 2020. Areas in black are projected to be deforested or severely degraded, whereas those in red, yellow, and green will be moderately degraded, lightly degraded, and pristine, respectively, according to computer models (from Laurance et al. 2001).



Basin (LaPorte *et al.* 2007), New Guinea (Shearman *et al.* 2009), and Borneo (Curran *et al.* 2004), are now being assailed by expanding road networks, particularly from industrial timber operations and oil, gas, and mineral projects. Paved highways, which provide year-round access to forests, typically have much greater impacts on forests and wildlife than do unpaved roads (Laurance *et al.* 2002a; Fearnside 2007; Soares-Filho *et al.* 2006), which tend to become inaccessible in the wet season.

By opening up new lands for colonization, proliferating frontier roads can also depress land prices across a region (although land prices near the road itself will typically rise because of greater access to markets). Lower land prices create a disincentive for landowners to invest in more-sustainable land uses (Laurance *et al.* 2001). Agriculture in the Amazon, for instance, is overwhelmingly dominated by fire-based methods, such as slash-and-burn farming and forest burning for low-density cattle ranching and charcoal production. These fire-based methods deplete soil nutrients so badly that farmlands are often abandoned after a few years, and also promote wildfires during periodic El Niño droughts (Cochrane 2003). Were land not so cheap and readily available, landowners would have a greater incentive to invest in more sustainable and profitable farming methods, such as agroforestry, tree plantations, and fruit crops, which are not fire-based (Laurance *et al.* 2001).

REDUCING THE IMPACTS OF ROADS

Measures to diminish the environmental impacts of roads fall into two categories: local strategies to reduce road impacts, and regional efforts to limit the expansion of roads into ecologically sensitive areas.

LIMITING ROAD EXPANSION

In simplest terms, roads can be thought of as the enemies of rainforests. Although roads are often an integral part of economic development, poorly planned roads can lead to massive forest disruption. In particular, roads that penetrate into remote frontier regions [Figure 2] should be avoided wherever and whenever possible. Paved highways are particularly damaging as they tend to spawn networks of secondary roads that dramatically increase the spatial scale of their impact (Perz *et al.* 2008); for example, the Belem-Brasília Highway, completed during the early 1970s, has now evolved into a 400

FIGURE 9

Logging trucks queue up at a highway in Malaysian Borneo (photo by Jeffrey Vincent).

kilometer-wide swath of forest destruction and secondary roads across the eastern Brazilian Amazon (Laurance 1998). In efforts to project the future of the Amazon ecosystem [Figure 8], the locations of roads are the greatest single factor influencing expected spatial patterns of forest loss, fragmentation, and degradation (Laurance *et al.* 2001; Soares-Filho *et al.* 2006).

Large-scale efforts to expand regional highway networks in South America, South and Southeast Asia, and Sub-Saharan Africa are cause for great concern. Across all of these regions, perhaps the most notable trend in recent years is growing investment by China in frontier roads that will sharply increase access to mineral, oil, and timber resources. Maintaining large, roadless areas of intact forest should be among the highest priorities for regional conservation managers.

MANAGING TIMBER OPERATIONS

Industrial logging is currently occurring in about 28% of the world's tropical forests (Asner *et al.*, in press), and is probably the greatest single driver of road expansion in forest frontiers. In the tropics, nearly all logging is selective, with loggers using bulldozers and other heavy equipment to extract a limited number of trees from the forest (typically 1–10 trees per hectare). However, depending on harvest intensity, anywhere from 20–80% of the overhead forest-canopy cover can be destroyed, with logging tracks and roads proliferating throughout the forest and causing substantial soil damage, erosion, and fragmentation of the understory vegetation (Fimbel *et al.* 2001).

Many forests in the Asia-Pacific region have already been severely depleted by loggers [Figure 9]. Surviving forests in the Amazon, New Guinea, and Congo Basin are now experiencing explosive timber expansion, with the Congo alone having at least 52,000 kilometers of recently created logging roads (LaPorte *et al.* 2007). In the Amazon, forests penetrated by roads from logging operations are about 400% more likely to be deforested than are unlogged forests (Asner *et al.* 2006).

Most logging in the tropics suffers from poorly planned and excessive road building (Putz *et al.* 2000). Efforts to reduce logging damage focus strongly on roads, with measures such as minimizing road works via careful pre-harvest planning, restricting roads wherever possible to flatter slopes and ridgelines, limiting widths of logging roads, minimizing stream crossings to reduce damage to streamside vegetation, and prohibiting logging during wet periods to reduce soil erosion and stream sedimentation (Fimbel *et al.* 2001). In addition, greater attention should focus on closing logging roads after harvest operations (such as by destroying key bridges or otherwise rendering the road impassable) to reduce post-logging invasions of forests by illegal colonists, hunters, and miners.

From an environmental perspective, some schemes for logging expansion appear especially alarming. In Brazilian Amazonia, for example, plans are afoot to log dozens of widely scattered National Forests—many located in remote, largely pristine areas—that could ultimately span over 50 million hectares (Verissimo *et al.* 2002). The vast network of new roads

GLOBALIZATION MAY INCREASINGLY DE-LINK THE RELATIONSHIP BETWEEN LOCAL POPULATION DENSITY AND ENVIRONMENTAL DEGRADATION, SO THAT EVEN SPARSELY POPULATED NATIONS CAN BE RAPIDLY EXPLOITED AND DEFORESTED.

required for such an enterprise dramatically increase forest invasions, hunting, and land speculation in frontier areas. Similarly, efforts are underway to open up some of the last surviving forests in northern Sumatra to industrial logging [Figure 2].

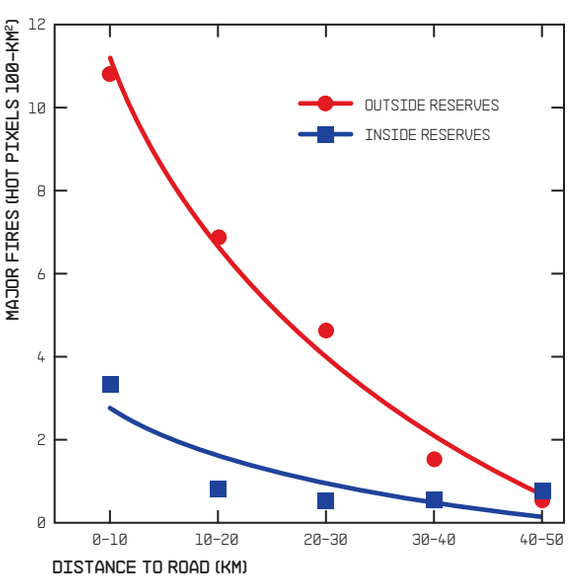
REDUCING HUMAN INVASIONS

When roads in frontier areas cannot be avoided, unplanned forest loss and invasions by illegal colonists can be reduced by creating protected areas along the road route in advance of road expansion (Fearnside 2006; Nepstad *et al.* 2006b). In the Brazilian Amazon, for example, forest destruction has been more severe along the Cuibá-Santarém Highway, which had few protected areas in place prior to road construction, than along the Porto Velho-Manaus Highway, where 13 protected areas were established before or during road construction (although the latter is still incompletely paved and could suffer further in the future; Butler 2008a). More generally, forest fires are far less frequent near roads in Amazonian protected areas and indigenous lands than near roads in unprotected forest [Graphic 2] (Adeney *et al.* 2009).

Another strategy to reduce human invasions is establishing railroads rather than roads in frontier areas. Incursions into forests can be partially controlled because trains stop only at designated locations, and these can be situated strategically to limit invasions of environmentally sensitive areas. In Brazil, for example, a railroad has been advocated instead of the Manaus-Porto Velho Highway, which could greatly increase forest colonization in central Amazonia (Butler 2008b).

GRAPHIC 2

Incidence of human-lit forest fires at varying distances from roads, comparing areas inside versus outside protected areas in Brazilian Amazonia (Adapted from Adeney *et al.* 2009).



PROPERLY ASSESSING ROAD IMPACTS

Among the most serious hindrances to effectively limiting and mitigating roads is that, in many developing nations, environmental-impact assessments (EIAs) of proposed roads focus solely on the road route itself, ignoring the impacts of roads on forest invasions, hunting, and secondary-road expansion (Laurance 2007b). In Brazil, for instance, EIAs of major new Amazonian highways were often confined to a narrow swath along the road route itself, sometimes recommending such paltry mitigation measures as "helping" animals to move from the planned route before road building (Fearnside 2006). In other cases, such as for certain mines, hydroelectric dams, and other large developments, the EIA focuses on the project itself but ignores the impact of the roads it will inevitably spawn (Reid and Souza 2005). New roads will continue to be major drivers of forest disruption so long as the EIA process is so fundamentally flawed.

ROAD-DESIGN STRATEGIES

In nature reserves and other areas of high conservation significance, various measures can be used to minimize road impacts. The most important principle is that road density should be minimized, and roadless core-areas maximized, to sustain disturbance- and hunting-sensitive wildlife and reduce exotic-species invasions (Peres and Lake 2003; Blake *et al.* 2008). Flooding from road works can be minimized by installing large culverts at regular intervals under roads. Edge and barrier effects can be limited by minimizing road widths so that some forest-canopy connectively is maintained and allowing secondary growth, which provides a partial buffer against harmful edge effects, to proliferate along forest margins (S. G. Laurance 2006). Bridges over watercourses that include both a corridor of unflooded vegetation and natural streambed are especially effective for allowing animal movements, but culverts can also provide avenues for movements of smaller animals (Goosem 2007).

CONCLUDING REMARKS

Efforts to promote road expansion in the tropics are perhaps the most striking example of how globalization and regional economic integration in developing nations can be directly at odds with nature conservation. Economists and infrastructure planners typically see frontier road expansion in a positive light, whereas those

alarmed by rapid deforestation perceive it in opposite terms, given the logistical challenges, expense, and near-futility of frontier governance once the roads go in.

All is not hopeless, however. Because frontier roads play a key role in promoting tropical deforestation and global carbon emissions (see Lovejoy, this volume), forest carbon-trading initiatives could increasingly focus on limiting and mitigating such roads. For example, such funds could potentially be used to help plan and minimize regional road works, establish protected areas in advance of road establishment, regulate road access, promote railroads rather than roads where feasible, and close down the environmentally most destructive roads (Laurance *et al.*, in press).

Globalization and rapid economic development are leading to a massive proliferation of destructive roads in the world's last surviving tropical frontiers. Actively limiting these frontier roads, I assert, is by far the most realistic, cost-effective approach to promoting the conservation of tropical nature and its crucial ecosystem services. As Pandora quickly learned, it was far harder to thrust the evils of the world back into the box, than to simply not open it in the first place.

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THOMAS MAILAENDER ▸
CATHEDRAL CARS. 2004

CULTURAL GLOBALIZATION RECONSIDERED

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INTRODUCTION: THE WORLD IN YSTAD

One sign of the maturity of the concept of globalization is its application to ever more particular aspects of human life. From the enormous list of published titles containing the phrases "Globalization and…" or "The Globalization of…," we can now move way beyond general analyses of political, cultural or economic globalization, through more specific but still fairly broad categories—health, sport, literature, family, war, sex, love, religion—and on to decidedly special interest reading. So without going through too many pages on *Amazon*, we can find, inter alia, texts on The Globalization of Mining, Globalization and The Great Exhibition, Globalization and Bioinvasion, Globalization and Islamic Finance, Globalization and Veterinary Medicine, Globalization and Cape Verdean Women, Globalization and The Good, and the rather splendidly specific, Globalization and Sushi.

What this tells us is something more than the cynical fact that publishers know how to ride a good wave. It tells us that globalization, over the relatively short historical spell of twenty-odd years, has become one of the routine ways in which we—that is to say ordinary citizens, and not just academics—grasp modern cultural existence.

Despite the ubiquity of the idea, it retains a good deal of unresolved complexity. This is particularly so in the sphere of culture, consisting as it does in the peculiar entanglements of globalizing political, economic and technological dynamics with human meaning construction, identity and imagination. As we become more familiar with the process, and as we encounter its effects in more and more instances of everyday life, so its subtleties and its contradictions become more apparent. This has at least taken us beyond the more simplistic initial responses. Most serious commentators, for instance, no longer automatically assimilate the idea of cultural globalization entirely to the category of cultural domination—of cultural imperialism, Westernization, Americanization, and so on. And the prediction that globalization would lead to a wholesale homogenization of global culture—a proposition still actively canvassed amongst intellectuals up to the end of the Twentieth Century—now seems almost touchingly naïve in our age of cultural and political turbulence. But we still have a long way to go both in conceptualizing cultural globalization and in making sense of the vexed cultural-political issues it is generating for us.

This discussion attempts to contribute a little to this task. Firstly, by reconsidering the way we approach cultural globalization conceptually. Secondly, by revisiting two of the main controversies that globalization has engendered, the fate of cultural diversity and the incorporative effects of commodification. And, finally, by offering some thoughts on the issue of cultural cosmopolitanism.

To launch this discussion I want to draw briefly on another of those specialist discussions of globalization that I began with. Not, however, one of the standard "Globalization and…" genre; an altogether more oblique and coruscating piece.

In his article, "Henning Mankell, the Artist of the Parallax View," the philosopher Slavoj Zizek gives us, in under four pages, the globalization of the detective novel. His focus is Mankell's best selling "Kurt Wallander" series, set in the small town of Ystad in southern Sweden. There are three main moves in Zizek's analysis.

Firstly, he observes that the impact of globalization on detective fiction is, counter-intuitively, to emphasize the *local* context, exemplified in the mundane, often drab, provincial environment of Inspector Wallander's Ystad. He contrasts this turn to the "eccentric local" with the paradigmatic settings of, "classic XXth century modernism" in the detective genre: metropolitan cities like London, New York, or Los Angeles. Zizek argues that this popular attraction of very particular locales represents a more general cultural phenomenon, a new articulation of the cosmopolitan imagination:

> A true global citizen is today precisely the one who (re)discovers or returns to (or identifies with) some particular roots, some specific substantial communal identity—the "global order" is ultimately nothing but the very frame and container of this mixing multitude of particular identities. (Zizek, 2004:1)

This sense that the global is in itself insubstantial, no more than a "frame and container" for a multitude of particular identifications, is crucial for grasping the impact of globalization in the cultural sphere. No one actually inhabits the global: neither physically (since embodiment ties us all to localities) nor imaginatively (since meaning requires particularity). To understand the force of cultural globalization then, we need to study *localities* and the way they are being transformed.

GLOBALIZATION, HAS BECOME ONE OF THE ROUTINE WAYS IN WHICH WE—THAT IS TO SAY ORDINARY CITIZENS, AND NOT JUST ACADEMICS—GRASP MODERN CULTURAL EXISTENCE.

This brings us to Zizek's second move, which is to explore the specificity of Ystad as a setting for the novels. Here the attractions of locality cannot be assigned to a nostalgic retreat into an imagined ideal of *Gemeinschaft*—one of the more commonly assumed responses to the challenges and threats of globalization. Mankell's stories are tinted in the somber hues of the Scandinavian climate and pervaded by a *Bergmanesque* existential angst. But more significantly, Zizek detects in Ystad signs of, "the long and painful decay of the Swedish welfare-state":

> Mankell evokes all the traumatic topics which give rise to the New Right populism: the flow of illegal immigrants, soaring crime and violence, growing unemployment and social insecurity, the disintegration of social solidarity. (Zizek, p. 3)

The cases that Wallander eventually solves —in, it has to be said, fairly conventional acts of textual closure—are built around some key sources of the anxiety and uncertainty of global-modern life in the developed world. Most significant of these are the structural economic instability that results from unruly global market forces, and the incursion of various carriers of difference into settled localities. Although Mankell's plots confront the entire range of issues that trouble the liberal conscience of contemporary Swedish society, as Zizek notes, a recurrent theme is the triggering of often-gruesome consequences in Ystad by events in less favored parts of the world. Ystad's implausibly high murder rate is thus often complicatedly linked to questions of racism and xenophobia, the plight of refugees, sex slavery, the trading of human organs in the Third World, or criminal gangs from the post-communist states of Eastern Europe. Admittedly Sweden's ultra liberalism—as expressed, for example in its immigration policies—tend to intensify matters. But we can none the less form a general question from considering the constant, consequential presence of the world in Ystad: what can locality actually *mean* in a world so penetrated by distant forces?

There is a final move in Zizek's terse analysis, in which he brings into play Mankell's own biography to reflect on the possibility of reconciling the experiences and costs of global modernity in affluent Ystad with those in the Third World. His conclusion is not optimistic. But I don't work as fast as Zizek and I'm going to defer this issue for as long as possible.

GLOBALIZATION AND LOCALITY

Zizek's analysis of the detective genre gives us some clues to the way we might produce more precise general conceptualizations of cultural globalization. Tightening up our conceptualizations is not, of itself, going to solve the mysteries of globalization—for this we need, like any good detective, to do painstaking empirical work. But it will help us at least to ask the right sorts of question.

The example of Mankell/Wallander's Ystad suggests two things in this respect: firstly, that the key concept that should concern us is not the global but the local and, secondly, that the way we understand the local must itself be more precisely formulated. Let's take these one at a time.

What is the global? Where is the space of the global? If we ask these questions, we end up with answers that have very little purchase on the economic, political, and cultural dimensions of globalization. The global is the entire physical territory of the world, or, perhaps more relevantly, the global is the entire populated territory of the world. We can't make the specification any narrower than this or we loose the force of the concept entirely. And yet these huge scales give us very little help in understanding what globalization is or how it affects us. Of course it is true that the environmental implications of industrial capitalism have potentially global scale, affecting all the landmasses, the oceans, and even the atmosphere. But this is not the point.

The point is that the global is not a space or even an *entity* that we can meaningfully understand as being causally implicated in globalization. It is not the same as global capitalism—by which we mean a system of production and consumption networked across most, but certainly not all, of the *localities* of the world (and showing great variation in its concentration within these localities). Neither is it a *political* space: for it is abundantly clear that the nation-state system still vigorously divides the space of the global. And as we shall see in what follows it is only rather vaguely imaginable as a cultural space.

None of this would matter too much, were it not for the fact that the idea of "the global" has slipped into becoming the imagined key figure in the globalization process. In many accounts, the "global" and the "local" are conceived as distinct categories existing in a dichotomous relationship. This has given rise to some deceptively simple analyses of the polarization of interests involved: most significantly the idea that the

culture of the local is threatened by the global. Where this occurs, debates tend to become both unclear (because we are not really sure what this threatening entity "the global" actually is) and entrenched. A prime example of this, as we shall see in the following section is the ongoing argument over cultural imperialism.

In fact, it is really just an accident of naming that is to blame for saddling us with the concept of the "global." "Globalization" was never itself a very precise term to describe the process we are dealing with, but unfortunately it has now become irrevocably inscribed. But if we *define* globalization in its simplest and least controversial terms, we see that what it really refers to is a complex and rapidly developing network of connections and interdependencies operating between *localities*. We can conceive of globalization, then, in very basic terms as the implications of the increasing "flows" around this global network of interconnections of virtually everything that characterizes modern life: flows of capital, commodities, knowledge, information and ideas, people, crime, fashion, images, beliefs, and so on (Castells 1996; Tomlinson 1999; Urry 2003). None of this requires us to think in terms of an entity called the "global." Globalization has never in fact been global. So let's be bold and do away with the category of "the global" once and for all.

The appropriate spatial context in which to study cultural globalization, then, is the locality. These are the places where we live—when we are not traveling between them—and where cultures are both generated and experienced. Of course the concept of the locality is not without its ambiguities. We generally conceive of the local according to vague and overlapping criteria: as specific geographical places; as a measure of scale; according to a type of social formation —"community"; in terms of judgments of cultural taste and value—so "authentic" or "parochial"; or even in terms of historical endurance. Often, indeed, the abstract idea of a locality seems to clothe itself in our minds in the features of a more concrete settlement, like a village. But we don't escape the ambiguities here either, as David Matless's elegantly meandering definition shows:

> *Village*: A scale of meaning, often tinted with community; regularly small in anatomy; set in country or, if in the town, pretending to a like spirit of belonging; a site set apart for a true life; a site of inbreeding and bestial manners, of forelock tugging and pathetic servility; a commune of persons made whole in equality and harmonious with a fruitful earth belonging to all or none; a place for microcosmic stories and the raveling of lives. (Matless 2004: 161–62)

Despite these ambiguities I think the concept of the local is indispensable in grasping the context of our embodied (and so necessarily located) existence, and I am going to suggest a simple way of dealing with the imprecise idea of locality in relation to the process of globalization. This is to use a single dimension, derived from the definition of globalization as a process of increasing complex connectivity. Thus, I suggest that we should understand localities in terms of the degree of connectivity they possess: from relatively high connectivity to low connectivity (I will leave the reader the interesting task of providing their own examples). The point is that it is this degree of connectivity that is the determinant of the transformation of localities, as it allows distant events, processes, and relationships into our everyday lives.

The "reaching in" of the distant exists in different modalities, but it is present in most of the everyday practices of high connectivity localities. It exists in our interaction with a globalized electronic media, which routinely brings news, images, information, and entertainment from across the world into our homes; in the use of communications technologies such as mobile phones and the Internet, enabling more or less instant contact across continents; in the increasing use of Internet search engines like *Google*, rather than local physical stores of information like public libraries, to access information. But it is also found in consumption practices, as people in developed economies are exposed to wider and wider varieties of "global goods" in stores and supermarkets; in food culture, as local-ethnic restaurants make the choice to eat Italian, Chinese, Thai, Indian, Turkish, American, or Japanese food a commonplace of globalized urban life. It is these sorts of activity—now so taken for granted in the advanced economies and growing at such a pace in the urban sectors of the developing world—that are the indicators of cultural globalization. But more significantly, it is through such everyday practices that globalization reaches deep into our individual cultural "worlds," our understanding of what *counts* as home and abroad, our horizon of cultural and moral relevance, and our sense of cultural identity (Tomlinson 2003, 2007).

WE CAN CONCEIVE OF GLOBALIZATION AS THE IMPLICATIONS OF THE INCREASING "FLOWS" AROUND THIS GLOBAL NETWORK OF INTERCONNECTIONS OF VIRTUALLY EVERYTHING THAT CHARACTERIZES MODERN LIFE: FLOWS OF CAPITAL, COMMODITIES, KNOWLEDGE, INFORMATION AND IDEAS, PEOPLE, CRIME, FASHION, IMAGES, BELIEFS, AND SO ON.

This will do, for the moment, so far as refining our concepts is concerned. Let's see how this might help when we come to approach real issues and problems.

GLOBALIZATION AND CULTURAL DIVERSITY

As I suggested in my opening, many of the earliest critical responses to cultural globalization were framed in terms of a supposed threat to cultural diversity. In a sense there existed a ready-made critical framework for this in the ideas of cultural imperialism and Americanization that have been around in one form or another for half of the twentieth century (Tomlinson 1991). Very few serious critics today, however, unequivocally support the idea that globalization is no more than a process of cultural imperialism.

This said, the wider debate over cultural diversity has certainly not lost its vigor, particularly in the field of cultural policy and within organizations such as UNESCO. There seem to me to be two aspects to this ongoing debate. The first is the (partly) empirical question of whether globalization in fact presents a threat to cultural diversity. The second is the cultural-political question of the *value* that should be attached to cultural diversity, particularly as it is invoked in the justification of cultural protectionist measures by political regimes.

The main reason why the first question remains unresolved is the difficulty in providing clear empirical evidence. Partly this is a matter of the sheer scale of the task. Although individual cases of the loss of particular cultural practices—including, significantly, the loss of languages—are well documented (Crystal 2000; Nettle and Romaine 2000) it is a more difficult task to tie this process (which after all has always been a part of historical cultural change) to the impact of contemporary globalization. And even if this causality can be established, it then becomes a monumental task to gather these particulars into a general thesis about the overall loss of cultural diversity, given the fact that new cultural practices, new languages variants, and so on are constantly being generated. The result of this dearth of hard evidence has been that most discussions have been based on impression and intuition or at best, have enlisted anecdotal evidence.

Very recently, however, some clear evidence has begun to emerge in at least one area, and I will return to this presently. But before this, I want to suggest that the way in which we *frame* the question of globalization in relation to cultural diversity can make a lot of difference to the intuitions we form.

If we persist in imagining globalization in terms of the empty category of globality, we will be tempted to fill this category up with particular bits of culture—commodities and brands—which we can loosely think of as "global" simply because they are widely distributed around the world. From here it is a small step towards the false deduction that McDonalds, Coca-Cola, and Starbucks constitute a threat to cultural diversity. We have set off down the wrong interpretative path and collected some persuasive impressions along the way (for surely there *do* seem to be Western brands everywhere we travel…), which add weight to the intuition. Hence, the imagined threat of incipient global uniformity.

But if we understand the impact of globalization in the way suggested in the previous section —that is to say, rejecting for good and all the concept of globality and focusing instead on the general increase in the connectivity of localities—we begin down a quite different path of thought, in which globalization seems highly unlikely to result in a wholesale homogenization of culture. Let us stay with the example of food culture to illustrate this.

So imagine a provincial locale, let us say this time the high street of a small English country market town in the years before the most recent global recession. There may perhaps be a McDonalds here (though this will depend on the viability of the customer base) but there is also quite likely an independent Polish food store or a Portuguese café to serve the tastes of the agricultural workers who are here as labor migrants from the EU. This is of course a net *increase* in the cultural diversity of the town—and no one is going to feel a homogenizing threat from *kabanosy* or *caldo verde*. But the example suggests more than this. It demonstrates that local food culture is certainly robust enough to follow its consumers around the world—and by no means vulnerable to domination by global brands.

This point is further confirmed if we consider the much bigger case of China, whose enormously varied regional food culture has arguably been greatly enhanced by globalization: that is with the rise in consumer power stemming from China's economic growth and entry into the global market since the 1980s. What is interesting about the Chinese case is that, though the consumption of Western fast food as the emblem of an imagined cultural modernity may be

popular, the actual food itself is not (Yan 2000) and forms only a relatively small proportion of a booming indigenous restaurant culture in which variety, innovation, and indeed, food fashion, are key elements.

It becomes clear from these examples that increasing connectivity is not simply a conduit to global cultural uniformity, but beyond this its effects on cultural diversity are liable to be complex. We cannot ignore the vulnerability of some traditional cultural practices to the reach of globalization. This is because the increasing range of cultural experience, and the sense of pluralism that accompanies increasing connectivity presents a challenge to the meaning construction founded on tradition. It does not inevitably follow, however, that traditional practices must be lost to cultural modernity. Globalization may in fact in certain circumstances lead to the rediscovery of certain traditional tastes and practices. Again the case of China is instructive.

The opening up of China's economy since the "Open Door" policy has undeniably seen a flow of globalized cultural goods and a certain level of popular fascination with Western tastes. But at the same time China's economic growth has produced a rather spectacular renaissance in artistic production—stagnant during the most ideologically rigid era of the communist regime—with reinterpretations of classical traditions in music, painting, architecture, and so on. Young women in Beijing and Shanghai are now able purchase traditional Chinese dresses, *Qipaus*, which had been virtually lost to their parent's generation due to a combination of economic centralization and implicit sumptuary regulation (Tomlinson 2003). On a more profound level, there have been significant revivals of interest in Buddhism, Taoism, and Christianity amongst urban populations with rising incomes who seek belief systems to replace communist ideology (Cheow 2005; Williams 2007).

All this suggests that the fate of cultural diversity under globalization is likely to be a much more complicated issue than it at first seems.

As I said earlier, one of the problems attending this is the inherent difficulty of empirical investigation of cultural processes on this scale and the resultant paucity of evidence. However, a recently published study by Pippa Norris and Ronald Inglehart (2009) into the cultural impact of global communications—specifically news media—at last begins to correct this. Norris and Inglehart argue that the threats to cultural diversity arising from exposure to a globalised media have commonly been exaggerated and they test this out in a meticulously conducted empirical survey of both individual and social outlooks and beliefs. Their research draws broadly on the World Values Survey and European Values Survey conducted between 1981 and 2007, which together constitute the largest data set ever compiled in this area, covering 93 countries; and more specifically in terms of media use, on the most recent fifth wave survey of 57 countries conducted between 2005 and 2007. In both of these sets, the representation ranges across economic and political spectra from some of the lowest to the highest per-capita income societies, and from mature liberal democracies to authoritarian regimes. In terms of scope then, this is pretty much the best data we currently have.

Perhaps the most interesting of Norris and Inglehart's findings are contained in what they call the "firewall thesis of conditional effects." By this they mean that there exist a series of intervening factors at social institutional, economic, and social psychological levels that serve to *moderate* the influence of cultural imports on national cultures, particularly those outside the affluent West. These are of course precisely the societies generally judged to be at risk from the culturally homogenizing effects of globalization. So at the institutional level, low levels of trade integration with the global market, low levels of economic development and investment in communications systems, and often associated low levels of access to information and media freedom will all combine to reduce the impact of global media on national populations. In addition to this, they point to those individual factors—the lack of economic resources and skills—which obviously prevent full engagement with media and communications systems. Finally and perhaps most significantly in terms of meaning construction, they argue that there exists a social-psychological "firewall" in the shape of "socialization filters involved in the acquisition and transmission of core attitudes and enduring values. These firewalls, individually and in combination, help protect national cultural diversity from foreign influence" (Norris and Inglehart 2009, 30).

Their findings are not moreover limited to the situation of non-Western societies. They go on to demonstrate that even in those societies with the lowest levels of institutionalized "firewalls"—that is to say the most affluent, high connectivity, liberal democracies—a growing

consensus on a range of cosmopolitan values does not mean that individual cultural differences are disappearing:

> …even amongst post-industrial societies such as the United States and Britain, Sweden and Germany, and Japan and South Korea, which are tightly interconnected through communications networks, trade flows, and economic interdependence, having the greatest share of cultural trade in audiovisual programs, there remain distinctive and persistent cultural differences that show no signs of disappearing. These societies do not share a monolithic Western culture toward which developing societies are converging. Instead, both developing societies and Western societies are changing in ways shaped by broad forces of modernization, while retaining distinctive national cultures. (Norris and Inglehart 2009, 209)

Though Norris and Inglehart's empirical work on news media focuses—as they are careful to point out—on only one aspect of the cultural flows involved in the globalization process, their work does much to support the intuitions of those cultural analysts who, over a long period, have been skeptical about the homogenizing threat of globalization.

However, the debate over cultural diversity at a policy level is not only an empirical one and their comment about the shaping of global cultural experiences by "the broad forces of modernization" points us towards the second question we need to address in relation to cultural diversity today. That is, to put it at its most simple, the relative value to be accorded to diversity in relation to other modern values and principles, such as freedom of expression, human rights, and so forth. As I suggested earlier, this becomes a particular problem in relation to the justification of cultural protectionist measures.

THE POLITICS OF DIVERSITY

The forums in which this debate has been mostly played out have been United Nations agencies, particularly UNESCO. Up until the turn of the present millennium, UNESCO tended to give a fairly straightforward priority to the protection of cultural heritage and thus of cultural diversity. However since that time the discourse of UNESCO has changed to reflect a more sophisticated understanding of the dynamics of cultural influence, appropriation, and change. Though still promoting a broad agenda based around the preservation of cultural heritage, there has been a move towards reconciling the genuine claims of some communities to the retention of unique and particular cultural identities, with the recognition that, in some circumstances, such claims can mask forms of illiberalism and domestic cultural domination. So for example the 2000 *UNESCO World Cultural Report* states that, "Often, cultural injustice is blurred beneath definitions of diversity that turns norms into essentialist, never-changing values outside history…." (p. 25).

This is not just an advance in the conceptualization of culture: it addresses the real problem of what has been called the "cultural fundamentalism" (Stolcke 2000) involved in some attempts to defend traditional practices. The appeal to cultural autonomy and in a certain sense, rather ironically, to the modern sympathy of cultural relativism can be used to defend many different cultural attitudes and practices that conflict with universal human rights. These include restrictions placed on the freedom of women, repressive policies towards the expression of sexual orientation, illiberal attitudes towards disability, the discriminatory treatment of ethnic minorities and so forth. The recognition of these issues can be read in UNESCO's *Universal Declaration on Cultural Diversity* (2001) in which the aspiration to give the rights to cultural diversity the same status as human rights is expressed within a thoroughgoing pluralism. That is to say, the right to diversity is explicitly conceived as existing *within* national and ethnic communities—and not merely, as in some analogy with political sovereignty—between nation states.

Making this stipulation work however requires a shift in the conceptualization of cultural diversity and probably the most significant move here has been towards seeing diversity not as an end in itself but rather as of *indirect* value. For example, the United Nations Development Program's 2004 *Human Development Report* states that: "It would be a serious mistake to regard cultural diversity as valuable no matter how it is brought about…. Cultural diversity is not a value in itself, at least not in the human development perspective…. The value of cultural diversity rests on its positive connection —as is often the case—with cultural liberty." (UNDP 2004: 23–24). This understanding of the value of cultural diversity as a facilitator of freedom stems particularly from the work of the

Nobel Laureate economist Amartya Sen, who provided the conceptual framework for the UNDP Report and developed this approach in his book *Identity and Violence* (2006). Effectively what it does is to treat cultural diversity as a sign of the exercise of cultural liberty. Indeed it treats it as only a *possible* outcome, since, as the UNDP Report rightly points out, "the exercise of cultural liberty may sometimes lead to a reduction of—rather than an increase in—cultural diversity, when people adapt to lifestyles of others and choose in a reasoned way, to go in that direction…." (p. 23).

The attractions of this way of understanding the value of cultural diversity are several. First, by tying diversity so closely to the exercise of individual and collective freedom, it denies its use in the justification of any repressive policies; secondly it recognizes the validity of communal choices for sameness over difference—as for example the choice in favor of the conveniences and comforts of technological modernity over traditional ("authentic") ways of doing things; and thirdly it avoids the difficult question of why the existence of diversity *in itself* should be regarded as a primary good—a question that is not convincingly answered by analogies sometimes made with significance of biodiversity in the environment.

To summarize, then, the arguments presented here over the relationship between globalization and cultural diversity. In the previous section I suggested that what evidence there is casts great doubt on the thesis—or rather the speculation—that globalization is leading us towards an undifferentiated global culture. And in this section we have seen that international policy discourse in bodies like UNESCO have similarly shifted away from an unqualified defense of cultural diversity at all costs, to a more nuanced stance in which the emphasis is upon the protection of cultural liberty. However these arguments do not put the globalization process entirely in the clear so far as possible adverse culture impact is concerned. For what they do not address is the question of the overall *quality* of cultural experience in a globalized world. A difficult question to which there is probably no definitive answer. But in the following section we will try, at least, to see what is at stake.

CULTURE AND COMMODIFICATION

How can we judge the quality of culture? One way of approaching this difficult question is to consider the most basic role that culture plays in human existence: that is as a resource and a context for the generation of *meaning*. Culture provides the resources for framing a "life narrative": providing communally derived answers to the enigma of human existence, giving us reasons for living, and an imagination of the best ways of living together—of flourishing.

If we accept this rudimentary idea of the role of culture, it follows that some cultural contexts might be judged "richer" than others. This is the qualitative judgment, and it does not imply the imposition of an ethnocentrically derived universal standard—"the one-true-just way of living." Rather for a cultural context to be richer or poorer in this conception means providing greater or lesser scope within which to construct meaningful life narratives. This is a significant issue when we consider the impact of globalization. For it may be that one of the core features of globalized cultural experience—the tendency towards the commodification of culture—involves a restriction of the scope for the generation of meanings proper to human flourishing. This concern indeed is implicit in the stipulation of Article 8 of the UNESCO *Universal Declaration on Cultural Diversity*, which states that cultural goods, "as vectors of identity, values and meanings, must not be treated as mere commodities or consumer goods."

If there is little evidence that global capitalism is producing a homogenization of culture, there can be little doubt that a significant proportion of cultural practices across the globe have become commodified. By commodified, I mean quite simply converted into entities with intrinsic market value, goods, and services to be bought and sold. The concern here is that this process comes to redefine cultural practices and experiences, to change them being the direct expression of meaning—even if this be no more than in the simple reiterations of everyday life—into something else, something less directly sustaining. The worry is that the commodification of culture involves the over-writing of the nuanced data of the everyday by a powerful but banal master code. And this has been taken by some commentators to signal a serious threat to the integrity of culture. For example, the sociologist Zygmunt Bauman has argued that the grip of the capitalist market is now more or less complete within modern cultures:

> It colors inter-human relations at work and at home, in public as well as in the most intimate private domains. It… recasts the destinations

> and itineraries of life pursuits so that not one of them bypasses the shopping malls. It relentlessly hammers home the message that everything is or could be a commodity.... Whatever [the] market touches turns into a consumer commodity; including the things that try to escape its grip. (Bauman 2005: 88–89)

If Bauman and similar critics of commodification (e.g., Lipovetsky 2005) seem to exaggerate the case, this may—perhaps—be because cultural commodification has become so all pervasive that we are no longer sensitive to it. Perhaps we need an example to give us some historical perspective.

Choosing another example from that laboratory of rapid cultural change that is contemporary China, we can consider the Chinese National Museum of Fine Art in Beijing. When I first visited it in the 1990s, it was an austere sort of place. There were plenty of interesting pictures but very little in the way of interpretative material. And perhaps the most striking thing, nothing whatsoever for sale. No postcards, no posters, no books. And no coffee bar. To western eyes this seemed to signal a lack of sophistication in interpretational skills and entrepreneurial "heritage management" practices on the part of the state-run galleries (something which has in the intervening years been rapidly corrected). And yet the example is perhaps more instructive in the way it reveals core aspects of the common sense that has developed around the presentation practices of art and heritage within global capitalist modernity.

For, by contrast, the internal layouts of almost all public cultural spaces—museums, art galleries, heritage sites—route visitors through to a terminus in a shop, where the experience can be more concretely repurchased in the form of postcards, books, posters, souvenirs, and T-shirts. It is plausible to argue that this routine re-presentation of art works or of heritage sites as commodified entities to be purchased, in replica, as the endpoint of the visit serves to redefine the cultural experience as a whole. Arguably, it reinforces an already widespread disposition to interpret cultural meanings in terms of exchange relationships and within the narrow compass of the aspiration towards individual private appropriation.

And the example also illustrates a subtle aspect of the impact of commodification on cultural diversity. For here we can see that *a form* of cultural diversity is preserved and perhaps even promoted by the influence of the capitalist market: the display and interpretation of national, regional, or local art and heritage arguably benefits from commercial underpinnings, since this takes pressure off the economic resources of the state or the locality. However at the same time it is clear that this diversity is presented within a single dominant *cultural register*. That is to say, diversity comes to be experienced not as intrinsic to the existence of distinct local communities, but rather as an array of consumer choices. Commodification we might say repackages cultural diversity as a product range.

There is a powerful, market logic to this process that is very difficult to oppose. Priyamvada Gopal for example, cites the example of the Starbucks coffee chain's new strategy of "de-branding"—that is, of giving its stores new names and more "community personality." What this strategy is based on, she shows, is a corporate ambition to generate profits even out of anti-corporate cultural sensibilities: "the transformation of the quirky, the unique and the countercultural into mainstream commodity culture" (Gopal 2009). This is indeed a depressing thought and one can understand Gopal's wondering, like Bauman, if it is, "further evidence of the futility of resisting the gigantic enclosure that is corporate globalization" (ibid).

My answer to this however—and I suspect it would also ultimately be Gopal's—is no. This is because an over-estimation of the scope of commodification inevitably tends to involve a rather poor account of human agency, of the dynamics of cultural appropriation, and of the capacity of individuals and collectivities to generate meaning and value in contestation with market logics. Moreover, this implicitly weak view of grass-roots cultural agency, which arises from a totalizing account of the grip of the capitalist market, leaves us little scope for conceptualizing and developing viable regulative policy proposals. And it will be some form of regulation—as a systemic expression of cultural will—that has most chance of curbing the ambitions of the corporate actors.

Registering the will to preserve the integrity of cultural expression means not over-estimating the scope of the commodification thesis. And this means insisting on those parts of everyday cultural experience that do indeed escape the grip of the market: deeply-structured senses of national or ethnic identity, a whole range of activities related to religious observance, local communal activities such as music making

or amateur dramatics, volunteering and charity work, teaching your children to swim, having a gossip or a joke, feeding the neighbor's cat.... These and many other common practices are not negligible exceptions to an iron rule of market control: as they are enacted and experienced within different local contexts and traditions they produce the "thickening" of cultures (Geertz 1973) that in various ways preserves cultural distinctions and chaffs against the smooth advance of a uniform capitalist culture. More importantly, they are reminders that we must approach commodification—however powerful it has become in inflecting contemporary culture—as but one aspect of the complex, contradictory and fluid nature of reflexive modernity, which intrinsically involves the expression of cultural agency (Beck, Giddens, and Lash 1994).

CULTURE AND COSMOPOLITANISM

I want to conclude with a few brief thoughts on how culture relates to the contemporary debate over cosmopolitanism (Beck 2006; Delanty 2006; Tomlinson 2002; Vertovek and Cohen 2002). We can approach this by returning to Slavoj Zizek's reflections on the work of Henning Mankell. In his final move, Zizek broaches one of the fundamental moral-cultural problems of our time: how to find some single perspective, some "common denominator" between the cultural condition of affluent Ystad and that of the "Third World Other" that so often comes to disturb it:

> Every exclusive focus on the First World topics of late capitalist alienation and commodification, of ecological crisis, of the new racisms and intolerances, etc., cannot but appear cynical in the face of Third World raw poverty, hunger, and violence; on the other hand, the attempts to dismiss the First World problems as trivial in comparison with the "real" Third World permanent catastrophes are no less a fake—focusing on the Third World "real problems" is the ultimate form of escapism, of avoiding to confront the antagonisms of one's own society. (Zizek, p. 4)

Zizek finds some sort of answer to this dilemma in Mankell's our biography: the fact that he divides his time between Sweden and Mozambique, where he uses his personal resources to run a small theatre company in Maputo, writing and directing plays performed by local actors. This splitting of life between the two worlds is not, for Zizek, any form of resolution. On the contrary, he calls Mankell the "Artist of the Parallax View" precisely because this choice of division of life refuses to find any shallow closure:

> Aware that there is no common denominator between Ystad and Maputo, and simultaneously aware that the two stand for the two aspects of the same constellation, he shifts between the two perspectives, trying to discern in each the echoes of its opposite. (Zizek, p. 4)

For Zizek, then, the unevenness of globalization means that there exists "no neutral language enabling us to translate one [perspective] into the other." There are various ways of interpreting this. One is that we lack a common moral or aesthetic discourse that can do justice to the enormous disparities that globalization confronts us with—and this may well be true. But another is that we are somehow eternally locked within our separate cultural-experiential worlds with no hope of ever breaking out. In resisting this rather bleak conclusion, I shall suggest that we may be rather more optimistic about the prospects for cultural cosmopolitanism

Is it possible to find a perspective outside of our own cultural experience and the prejudices this fosters? I think it is important first of all to confront the difficulties. The historical record shows that a sort of default position for human cultures is one of ethnocentrism. It is intuitive to understand one's own culture as the way things inevitably are—and from this it is a short step to considering it as the one, true, enlightened, rational, and good way of living. This tendency is doctrinally and discursively structured into many traditional and religious worldviews, but it is a mistake to see it as limited these. Ethnocentrism is also extremely widely distributed in modern secular cultures as an intuitive way of understanding our place in the world. Relativizing our particular cultural experience requires rather difficult efforts of hermeneutic distancing and affective imagination, demanding the ability to conceive of our own experience as not necessarily at the centre of the cultural universe. This is difficult, but not impossible.

One way of understanding this possibility is by considering the closely connected issue of cultural identity. Are we inevitably constrained by our identification with our locality from developing a cosmopolitan outlook, a sense of belonging to the world as a whole? The answer I think

GLOBALIZATION MAY JUST IN THE LONG TERM PROVIDE THE RESOURCES NECESSARY TO SHAPE ATTITUDES OF CULTURAL OPENNESS AND TOLERANCE, PLURALISM, EMPATHY AND RESPONSIBILITY.

is that we *are* constrained, but that this is not inevitable.

Take the most powerful of cultural identifications—that of national identity. As nearly everyone now agrees, this is not a "natural" form of identification, but one involving a great deal of deliberate cultural work. Indeed, far from being natural, spontaneous forms of attachment, cultural identities in general are mostly modern inventions: ways in which our experience is institutionally organized for us. The nation state puts a huge effort into constantly reminding us of our belonging—through education, national ritual, and particularly through the national media (Billig 1995). The same applies to religious identities, constantly reinforced by the practices of religious institutions. Insofar as we tend to prioritize our national or religious identities, we can see that this is the result of the effort that has gone into their construction.

The second thing to recognize is that cultural identities in modern societies are *plural*. We don't just have a national, an ethnic, or a faith-based identity. We also have a gender identity, a sexual identity, an age identity, a professional identity, a familial identity, and so on. Modern people carry with them, as it were, a *portfolio* of identity positions, which they draw upon in different contexts and which they routinely juggle and negotiate—and sometimes have to reconcile.

Understanding cultural identities in this way can give us at least some cause for optimism in regard to the question of building relevant cosmopolitan attitudes. For if we take cosmopolitanism here to mean identification with wider human communities than the locality, the *ethnie*, the nation or the faith community, we can understand it as another type of global-modern identity to be built into our portfolio.

Of course we have to recognize that it won't arise spontaneously. Like all identity positions it has to be worked at. And for many reasons it is at a disadvantage in comparison with other identity positions. Unlike national identity it does not have the resources of the state to draw upon; unlike religious identity it does not have the traditions, observances, and doctrines of a faith community. And besides this, there are the problems of moral and cultural distance, mediation, and abstraction. Our inherited moral sympathies and imaginations are powerful but largely proximate, when what we need to develop is a long-distance moral sensibility (Bauman 1993; Boltanski 1999; Chouliaraki 2006).

But despite all of this, it seems to me that the increasing connectivity of globalization is overall inclined to *increase* rather than to diminish our capacity for cosmopolitan identification. Thus, through the routine experience of a global media and the cultural narratives of identification they can provide (Robertson, forthcoming, 2010), greater levels of mobility, increased interaction with other cultures within multicultural urban settings, more globally aware educational programs in schools and universities, and so on, the positive potential of high connectivity is that it weakens the tendency to ethnocentrism that has been pretty much an historical constant of cultural outlook. To this extent, globalization *may just* in the long term provide the resources necessary to shape attitudes of cultural openness and tolerance, pluralism, empathy and responsibility. This is, of course, a long way short of predicting a better world on the horizon. However, what is important is to resist the idea that our various particularities of cultural location somehow *in principle* rule out the possibility of wider cosmopolitanism identifications and commitments. For to resist this is to reserve a place for the project of building cosmopolitan culture on the crowded agenda that globalization sets for us.

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A NEGATIVE ANTHROPOLOGY OF GLOBALIZATION

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[1]

Ouro Preto in the Brazilian State of Minas Gerais, far away from the Atlantic coast, is a well preserved baroque town with a bit less than a hundred thousand inhabitants today—but it may well have been the wealthiest and most powerful city on the American continent around 1700 when, under the name of "Vila Rica," it provided the Portuguese Crown with gold and precious stones. Despite a steady flow of tourists with historical interests, Ouro Preto cannot be reached by air or by train, which adds to the impression that it is a place far away from the present. About fifteen kilometers away lies Mariana, a smaller and also very beautiful (though less spectacular) town that hosts the cathedral of the local diocese and several buildings belonging to the University of Ouro Preto. These buildings were the reason why, on five subsequent late August days, I went five times from my fancy hotel in Ouro Preto to Mariana and back, with a car and a driver from the University. Now, there is nothing for the die-heart sports fan that I am, especially in Brazil, like talking soccer with professional drivers or conductors—but this driver was different. For when I asked him about his favorite soccer team (expecting that it would be one of the two major league clubs from Belo Horizonte, the State capital), he almost bluntly replied that he did not care about soccer, that the one person in the family who liked sports was his son, whereas his own idol had always been the late Michael Jackson. And my driver went on to speak, with enthusiasm, true compassion, and many details, about Michael Jackson's life and its tragedies, on the road from Ouro Preto to Mariana and back, and he also talked about the innovations that his hero had introduced to the world of show-business, about his music and his dancing. By the time we were arriving in Mariana the first time he even sang—almost without any accent although he was solidly monolingual—several Michael Jackson hits from many years ago. I, by contrast, Michael Jackson's fellow Californian, just knew his name and that he had recently died, and I would certainly not have been able to identify any of his songs all by myself. Thus our conversation was a typical scene of hybridity, as we have come to call it in the age of globalization, a type of scene that often makes conversation difficult because it has knowledge distributed in mutually unexpected ways.

There is of course no need to travel to the Brazilian inland or to any other far-away looking location for whoever wants to experience effects of globalization. Each time that we sit down in front of our computer to do e-mail, probably the most powerful condition and the certainly most powerful effect of globalization are at our fingertips, quite literally. For, provided that we have the required addresses, the computer makes our colleague next door and an e-mail user, say, in Australia equidistant for all (or at least: for most) communicative purposes. It does not take me one fraction of a second more to be present on a computer screen in New Zealand than on the screen of a computer that stands in my own office. Obviously, computers do not give tangibility to the persons whose words and reactions they bring so close, but they can make them visible and audible for us in real time. *Globalization is about information (in the largest possible sense of the word) and the consequences of information transfer being increasingly detached from and independent of specific physical places*.

GLOBALIZATION IS ABOUT INFORMATION (IN THE LARGEST POSSIBLE SENSE OF THE WORD) AND THE CONSEQUENCES OF INFORMATION TRANSFER BEING INCREASINGLY DETACHED FROM AND INDEPENDENT OF SPECIFIC PHYSICAL PLACES.

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As soon as we mention or even describe effects of globalization, the temptation seems to arise, quite inevitably, of either praising or condemning them. Forty million albums with music from all countries, cultures, and historical periods have now become available to him, my fried Gary told me the other day, thanks to an electronic program that only costs a few dollars per month, and how unimaginable that would have been only a few years ago, when he made the transition from collecting records to collecting CDs. Conversely, we intellectuals do not ever miss an opportunity to frown, with august pedagogical responsibility, at the contemporary overflow of opportunities to communicate and at what it has done to shorten the attention span and to dry out the fantasy of the younger generations (never of course our own fantasy!), or we complain, with a touch of Marxist sourness, about yet another step in the apparently never ending alienation of producers from their products (not to speak of the ensuing excesses of economic exploitation). All of this critique and all of that euphoria just add, endlessly, to the two only and symmetrically opposite attitudes and discourses that have accompanied the different stages of modern culture for centuries now, without providing any true analytical power or insight. This is why I will try to keep my text at a distance from praising globalization or from nagging about it. Nor will I engage in any detailed descriptions

of globalization phenomena, however worthwhile they may often be for the simple reason that some of the truly important globalization specialists of our times are among the authors of this volume, and I could never compete with their expertise.

What I will try to do instead of praising, criticizing, or analyzing phenomena of globalization—and what is meant to define the specific perspective of my contribution to this book—can best be described as bringing together two different but convergent movements of reflection. In the first place, I want to focus on globalization from an existentialist perspective, in other words: I want to understand how globalization typically transforms structures and situations of individual life (rather than writing about its impact on "society," on the "economic system," or on "politics"). I will do so under a premise that has belonged to existentialism since its very beginnings in the first half of the nineteenth century, and this is the assumption that absolute (or divine) norms of what makes an optimal human life and how one can achieve it, are not (or perhaps no longer) available to us. The second, complementary movement of reflection, I will explain from a historical angle. Early existentialism turned its central challenge, i.e., the difficulty of believing in a God whose will was hard (if not humanly impossible) to identify, into what we call "negative theology," i.e., into the paradoxical conception of a divine order wrested from that silent God. In a similar way, I will try to argue along the lines of a "negative anthropology," i.e., I want to speak about some metahistorically and transculturally stable components of human life, at a time when an extreme degree of skepticism seems to make such claims unacceptable. In doing so, I will rely on my intuition that the process of globalization, by leaving some universal needs and desires of human life unattended, has paradoxically helped to make these very needs and desires more visible—because we notice, in our everyday lives, how they remain unsatisfied. So my discussion of globalization is "anthropological" by trying to identify some universal conditions of human existence; and it is "negative" due to the suspicion that some of these structures become more apparent the less they are in play.

In the third part of this essay, I will continue to build my argument by contrasting the historically specific future that not only intellectuals expected to arrive in the mid-twentieth century with the early twenty-first century present as it has by now established itself. On this basis, in part four I will show how globalization can be seen as an extension of modernity, due to its convergence with the Cartesian motif of eliminating the body as a part of human self-reference. Modernity and globalization thus imply a tendency of making us independent from the dimension of space. In part five, I will identify and describe further aspects of globalization in their specific relation to the Cartesian tradition, whereas part six will deal with reactions to globalization and how they may enable us to delineate a "negative anthropology." In concluding, in part seven I will point to possible lines of convergence between this argument and other philosophical positions of our time.

[3]

There is a ride in the oldest of all Disneylands in Anaheim, CA, called "Futureland" that I find to be of particular historical interest, so much so indeed that I believe it should be renamed, together with the entire park perhaps, into "Futureland of the Past"—for it beautifully stages the future that the world expected to emerge in the mid-1950, when Disneyland first opened its doors. This ride features small, two-seated cars that leave no freedom of choice or any individual agency to their drivers. Instead, each car is supposed to "find" the way through a relatively complex itinerary of curves, hills, and intersections "all by itself," thus producing an impression of "automatic driving" within a powerful traffic system that takes care of all human needs of movement and locomotion. Such dreams of "automatic" life have always and inevitably implied the imagination of a State that—benignly—overpowers, absorbs, and determines all individual life, much like an optimistic version (it's Disneyland after all) of Orwell's 1984. Other rides are inspired—until the present day and this somehow means: counterfactually—by the past utopia of space traveling: they give you the illusion of very shaky and at some point even precarious flights to remote galaxies—or the scary impression of fast movements and sharp turns within the absolute darkness of the Universe. Finally and thirdly, the old Disneyland is filled with leftovers of our former belief in "robots" as more or less humanly shaped machines (their smaller versions tend to look like vacuum cleaners) who were supposed to do all the inferior work that human laziness has always hoped to get rid of—and that the predominantly social-democratic spirit of the twentieth century has indeed declared to be unworthy of human beings.

Now, I think it is remarkable that none of these three dominant dimensions from the now historical future of the mid-1950 has become either real in our present nor by any means probable for the future that we imagine. The overpowering ideas of the "total" State, "total" also in the sense of claiming to take care of the totality of human wishes and needs, the ideas whose hyperbolic version inspired Orwell's novel, have vanished with the demise of the Communist governments in Eastern Europe after 1989, regardless of whether one hails or regrets this development. The obvious new and general tendency is a reduction and even an active withdrawal of State power, as it is reflected by the new concept of "governance" that describes informal orientations for interactive behavior, which, rather than being imposed by State law, are emerging between national States and (often multinational) corporations. We might then well say that we dispose of much more freedom (we are much more "left alone" and much less "automatically" guided) than the drivers in Disney's "Futureland"—and that this sometimes confuses us. After all, the navigation systems that we so like to use today react very flexibly to our input and even to our errors.

Likewise and even more evidently, our high-flying imaginations of space traveling and of inhabiting "foreign" planets or perhaps even other galaxies have all but disappeared (and, quite remarkably, they have done so to the same degree that we have stopped to worry about demographic growth). Once again, more definitely perhaps than ever during the past few centuries, the Earth defines the limits of our concerns and projects—and this may well be the least frequently mentioned core condition of globalization (which somehow still cultivates a self-image and a rhetoric of aggressive expansion). Collectively and ideologically, we care more about the Earth than we used to do when we were still nurturing the dream of leaving it behind ourselves; at the same time and from an individual perspective, the power to cover the planet, quite literally, with our acts of communication has exponentially increased.

Finally, instead of creating battalions of "robots" to do work for us, we have developed, above all during the past three decades, a convergence of our mind with electronic devices that, rather than a master/slave relationship, looks like an extension and increase of our mental (and sometimes even of our physical) efficiency, based on a coupling or on a prosthetic integration of our bodies with those electronic machines. Nobody uses electronics without working for himself or herself, and at the same time we inevitably also work for others. At first glance, the world of computers produces the impression that we have gained enormous amounts of individual independence and agency—but such a blatantly positive view ignores the addictive nature of these couplings, and it may also belittle the growth of a collective exterior brain that is developing as the accumulated consequence of our computer usage, ending up with more blind power over us than any totalitarian State could ever have programmatically aimed at. For with each e-mail that we send and with each visit to a website that we make, we add to the complexity and to the intensity of the technical network within which we are communicating and this means, increasingly, in which we are simply existing.

[4]

It is often said that, at least from the perspective of Western culture, globalization has been coming for at least two centuries now. If we define globalization as growing independence of information from physical space, then a quantitative leap that became quality, both in the sense of going places in order to acquire specific knowledge and in that of circulating knowledge, happened with the development of railroad networks since the early 1800s. The surge and the new value of the concept "cosmopolitan" was a symptom of this first stage in a long-term development. Its second stage was marked by a series of new communication technologies, starting with the telephone, including the radio, and culminating in television, a medium that, after an astonishingly slow start, conquered the entire world within a long decade beginning in the late 1940s. Today, it is hard to imagine for people who are not very old that Brazilian fans could not watch on TV (*assistir*, as one interestingly says in Brazilian Portuguese) the game in which their team won its first soccer World Cup against Sweden and in Stockholm in 1958. The most incisive development, however, although it may well have been the least event-like stage, was the process of the electronic transformation and socialization of a large (and still rapidly growing) section of humankind: it enlarged our individual and collective capacity for receiving and circulating information to a hitherto unimaginable degree. A new threshold lying ahead of us, from which we are only separated by legal, not by technological

IF GLOBALIZATION HAS INCREASED FOR MOST OF US THE LIKELIHOOD OF TAKING A PICTURE, WITH OUR DIGITAL CAMERAS, OF THE TAJ MAHAL, OF THE SIDNEY OPERA HOUSE, OR OF THE BAROQUE CHURCHES OF OURO PRETO, IT HAS ALSO DIMINISHED THE INTENSITY WITH WHICH THE THINGS OF THE WORLD ARE PRESENT TO US, IN THE SENSE OF BEING TANGIBLE.

difficulties, is the "Google Project," which promises to make available every document existing on the planet for every computer screen.

To imagine the realization of this project—and it will definitely be completed sooner or later—helps us understand that existentially the most challenging consequence of the electronic age has indeed been the elimination of the dimension of space from multiple levels of our experience and behavior. If we understand that the process of electronic socialization, while of course not synonymous with globalization, is its most powerful source of energy, we can discover a fascinating paradox. Supported by electronics, globalization has both expanded and strengthened our control over the space of the planet (to which we have recently returned to limit ourselves) up to a perhaps insuperable degree—while, at the same time, it has almost completely excluded space from our existence.

And we are not only talking about the speed with which information can travel today or about the unheard of quantities in which it is available and circulates—as if space did not matter anymore. Personally, I cannot forget that balmy Friday evening in Rio de Janeiro, when I met with some friends in a beautiful restaurant at Botafogo Beach and under the Sugar Loaf where I saw, close to us, a table with four gorgeous young people, obviously two couples, who at some point all managed to talk to other people on their cellular phones. It does not really matter whether they were talking to other friends in Rio or to people who were somewhere else (perhaps far away in New Zealand); the point was that, despite the unbeatably beautiful environment in which they found themselves, the young people's attention was separated, in each of the four cases, from the place where their bodies were. Or, more dramatically: the position of their bodies had become completely irrelevant for the activities of their minds. From the perspective of this scene that is so typical of our everyday lives, it becomes clear that the origins of globalization go back much further than the early nineteenth century. If the capacity to separate our minds from our bodies has been a condition (and more recently also a consequence) of globalization, then globalization becomes coextensive with the process of modernization as it depends on and begins with the Cartesian formula of human self-reference—"I think, therefore I am"—or, more precisely for our own time, "I produce, circulate, and receive information, therefore I am." Both formulas presuppose the exclusion of the human body (and of space as the dimension of its articulation) from the understanding and definition of what it is to be human.

This means that, if globalization has increased for most of us the likelihood of taking a picture, with our digital cameras, of the Taj Mahal, of the Sidney Opera House, or of the baroque churches of Ouro Preto, it has also diminished the intensity with which the things of the world are present to us, in the sense of being tangible. While it would be difficult to argue that a relationship of "presence" and "tangibility" is a truly "better" relationship to the material world that surrounds us than a relationship based on experience and information, it is interesting to see that many tourists, today, do not really know how to react in the real presence of those monuments, which, in order to see live, they have often invested serious amounts of money. So they end up taking hundreds of digital photographs that are most likely inferior in their quality to those photographs that they had already seen at home on the respective websites—and this is only one of many reasons why they will probably never have a retrospective look at all the photos they shot. Once again, I will refrain from trying to argue that this—largely "digital"—relationship to the material world is existentially inferior of a relationship based on presence. By any means, however, it seems to omit—rather than to actively exclude—some seldom mentioned dimensions of individual life, which, in reaction to this omission, seem to make themselves perceived.

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Before we try to see which largely overlooked layers of our existence may become visible under the pressures of globalization, we should try to identify some further phenomena that affect our individual lives—for while they may all be somehow related to it, they are far from all being identical with the bracketing of space and presence. One often observed aspect is the emergence and steady growth of a specific space—a "network of channels" would be a good metaphor—that is immune to all local specifications and flavors. It is, for example, the space of large airports that displays the logos and the design of the same few international airlines, and the cafés and duty free shops with the brands that we find everywhere else (both in their original version and, especially in former "Third World" countries, on the aggressively-expanding market of "designer knock-offs"): Starbucks and Möev-

enpick, Montblanc, Chanel, Armani, Dolce Gabbana, and Prada (has anyone ever mentioned that Italian brands—and Italian food at large—have been much more dominant and successful in this particular market than the United States, whose unfortunate McDonald Golden Arches—not to speak of the unspeakable Ronald McDonald himself—are much more frequently spoken about and much more frequently blamed?). Now, what that excellent film *Lost in Translation* tried to illustrate is the ongoing expansion and perfection of this emblematic channel of globalization, up to the point of being inescapable. For it now leads you from the airport to your hotel in downtown Tokyo or downtown Moscow, and from there of course—preferably with an air-conditioned bus—to the main historical sites, monuments, and museums of those cities, before it takes them back to the airport.

Therefore, it has become difficult to find any situations that deserve to be called situations of "lived experience" (which is the English translation of the German concept *Erleben*), in the sense of being situations for which we do not have ready-made concepts, a well laid out approach, and, in the worst case, even tickets and a tourist guide. This development explains the no longer so new—and inevitably paradoxical—tendency within the tourism industry today to provide their clients with "adventure vacations" (or, in the German speaking countries, with *Erlebnis-Urlauben*). Meanwhile, those sectors of big cities and exotic countries that might provide adventures and *Erlebnisse* have become too dangerous and too secluded to go there. Brazilian *favelas*, for example, have probably never been such romantic places full of samba and passionate love as *Orfeo Negro*, a beautiful French film from the 1950s, depicted them—but today no curious tourist could survive there for a single night, for all of his or her potentially good intentions.

English has become the koiné, the common language of our globalized world (with Castilian Spanish being a remote second)—despite all the aggressive and politically correct efforts to avoid such a development. Without any doubt, this had much more to do with certain internal properties of the English language (properties that it largely shares with Castilian) than with the role of the United States as a former hegemonic power—and I am not emphasizing this point in order to "defend" the United States but because I want to illustrate how globalization is a process that resembles evolution rather than any planned political action or operation. What gave the status of a koiné to the English language is the fact that, due to a comparatively low complexity on the levels of morphology, syntax, and pronunciation, learners can quickly reach an elementary competence that enables them to participate in basic forms of communication. The well-known flipside of this advantage lies in the fact that, individually, many speakers never reach a level beyond "pidgin" practice—a fact that, for large parts of their everyday communicative practice, reduces the range of expression to an unacceptable minimum. In addition and different from those languages whose structures and conventions are held stable through institutions with an authoritative status, such as the French language and the *Académie Française* (the *Real Academia Espanola* fulfills a similar function but is less rigid), English appears to be extremely tolerant with pidgin users up to the point of being receptive for certain deviations from the linguistic norm that they produce. It is therefore possible to imagine that the comparative softness of the English language as a cultural institution converges with a historical environment—ours—that is eager (or at least ready) to embrace the informal style of "governance" in its operations and interactions, and that encourages us to live oscillating between different time zones. In this sense, our world is different indeed from the world of the seventeenth and eighteenth centuries when French was the koiné and the belief in the authoritative power and dignity of "rational" solutions was unlimited (implying that there always was one and only one correct solution per problem).

Today, by contrast, brand name producers are weary to legally pursue designer knock-offs, and grammarians judge pidgin usages to be "productive." Some critical minds will say that such accumulated sloppiness reaches its dramatic extreme, an extreme with irreversible consequences for our planet, in the acceptance of air traveling (and other forms of locomotion based on combustion) as a basic practice and precondition of globalization and thus as a condition for our increasing independence from physical space—despite their truly devastating ecological consequences. A possible response to such criticism could be that our growing awareness of such ecological "footprints" shows how we have at least begun to react to the excesses of globalization.

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Let me insist: the increasing independence of information from physical space and the impression

that human existence at large may reach a similar state seem to have activated a new awareness of some very basic needs of humankind. Here lies the potential of a negative anthropology opened by globalization. But I also want to mention that the current desire to recuperate the dimensions of body and space can well be explained through a different argument, an argument that does not refer to globalization. From a philosophical standpoint and from a standpoint of epistemological history, it makes sense to say that the Cartesian—i.e., bodiless—idea of being human used to be associated with the specific dimension of present in the historicist construction of time, that is with present being "merely transitional," as it had been taken for granted within Historicism. Adapting experience from the past to the conditions of present and future, the subject used to choose, in the short present, among the many opportunities that the future seemed to offer. This, to choose among multiple possibilities of the future, based on experience from the past, is what we used to call an "action."

Today, we increasingly feel that our present has broadened, as it is now surrounded by a future that we can no longer see, access, or choose and a past that we are not able to leave behind ourselves. If, however, the Cartesian subject was dependent on the (historicist) present as a present of mere transition, then the new, ever broadening present can no longer be the present of the Cartesian subject. This view seems to explain our renewed concern with the physical aspects of human existence and with space as the dimension in which they emerge, against the grain of the Cartesian tradition—and it would not necessarily contradict a view of the same effects of bodilessness as a consequence of globalization, i.e., the approach that we have been pursuing so far. For one could claim, among others things, that the new, post-historicist construction of time, too, is a reaction to phenomena and effects of globalization.

Without any doubt, the most visible—and indeed ubiquitous—symptom of the desire and need to recuperate the bodily dimension of human existence are the institutions of sport, as they have developed, in a both massive and complex way, since the beginning of the nineteenth century. Never before had they penetrated into all social groups end enclaves, never did they have the powerful economic articulation and, above all, the central existential importance that they have for us today. Sport in ancient Greece was the privilege of a small elite—whereas, between the fifth and the nineteenth century BC, its presence was astonishingly discontinuous. From the decades following 1800, by contrast, it became coupled for the first time, as a noble activity that would ultimately strengthen the mind, to the educational systems in all Western societies, while team sports with professional athletes began to attract larger crowds than ever before from the last quarter of the same century on. If a tension between ("noble") amateur sports and ("mercenary") professional sports had developed into a stable structure during the first half of the twentieth century, the discovery of athletic activity as a device of proactive health care since the 1950s has now produced a symbiosis between, on the one side, top athletes in all events who can earn large amounts of money based on media coverage and advertising (mainly for athletic apparel and clothes) and, on the other hand, a collective participatory body that probably counts in the billions today, a body of people who both practice sports and make watching sports a primary leisure activity. And with teams and athletes who emphasize their national, regional, and local affiliations, sports do not only provide an impression of recovering the physical side of human existence, it also binds our imagination and experienced back to specific places—and it often does so, paradoxically, through global broadcasting.

Beside sports and beside certain auto-aggressive practices like piercing, tattooing, and self-cutting that seem to be driven by a vague desire of "grounding" oneself in the material world, gender is a further dimension in which globalized culture has begun to reclaim layers of physical existence, thus compensating for previous losses. The process goes along with a progressive (although not always ideally successful) neutralization of gender in the professional sphere, based on basic values and rights of equality. For if women, during the past hundred years, have been allowed for the first to excel as academics, politicians, engineers, or soccer players, and if the social pressure for men to be high-achieving and dominant has diminished, these changes have been accompanied by a new eagerness to experience the "essence" and the essential consequences of gender as a physical difference. The assumption that women and men feel, experience, and perhaps even think in very different ways has become part of our everyday, as a frequent conversation topic, and as a premise of many interactions. And we are

now taking the next step by conceiving of gender as a non-binary distinction.

The one reaction to globalization and globalization effects that has long been understood as such is the political tendency towards regionalization. Nowhere is it easier to grasp and to study than in the European Union and, within the European Union, in Spain. This development appears all the more impressive and all the more astonishing against the backdrop of the undeniable political and economic success that the European Union has had, and against the rise of modern Spain to an international position of strength that nobody could have anticipated only forty years ago. Of course, each "region" within Spain that is emphasizing its cultural identity and claiming rights of political independence, and each European nation State which, like the United Kingdom, Denmark, or France in recent years, that has tried to slow down the process of European integration, had valid historical, social, and legal reasons. But the fact that regional customs, regional styles, regional gastronomy—indeed, anything regional—has become so very important, even in those countries inside and outside of Europe whose populations seem to be content with their current national constitution and identity, like Germany or France, the new desire for the regional gives evidence to an existential need. It is the need of belonging to a space that is not too large to be filled with personal experience or, at least, with personal imagination. Part of such a new desire for the specific is a new fascination with national languages and their dialects as devices of world-appropriation that have been shaped through their places and histories. By comparison, the circuits of global traffic where we so easily get "lost in translation," and even the concepts and emblems that stand for the European Union or other political federations, are too abstract to produce such feelings of belonging.

The interference of different time zones as an experience and, above all, the juxtaposition of different historical times in our broadening present have produced a similar need for what I would like to call "temporal scale." If it has become increasingly difficult for us to "leave behind" any past, partly because of our new powerful technologies of recording and memory preservation, partly because of the above mentioned transformation in our social construction of time, we have greater difficulties today than in the past to say what would be the architecture, the literary style, or the music "of our time." While there may be no easy remedy for this situation of historical entropy, many of us find relief in the production of historically coherent environments. There is, for example, a regional airline in Brazil whose cabins and whose uniforms try to copy, as closely as possible, the Pan Am style of the 1950s. The same is true for many baseball stadiums built in the United States during the past twenty years, as they try to conjure up the atmosphere of athletic events in the early twentieth century.

But all these phenomena of compensation seem to be quite marginal in relation to the final two tendencies that I want to describe. Together with the vanishing of our dreams about the conquest of space, the process of globalization has triggered a powerful and very visible movement of reclaiming the planet Earth as the habitat of humankind. For we have realized, in the first place, that there may be no other habitable space for us in the Universe and, in the second place, that our culture and our technologies may jeopardize those properties of the home planet on which our survival depends. This movement may be the one dimension where a desire to compensate for effects of globalization may convergence with globalization itself: ecological awareness as the will to minimize certain globalization effects can profit from the efficiency of global communication and its technologies in order to promote attitudes of world-wide solidarity.

The final tendency that I want to talk about is equally powerful but, at least until now, much less visible. I am referring to the central intuition of a book (*Du musst dein Leben äendern*) that the German philosopher Peter Sloterdijk published in 2009. Without speculating much about possible historical or social reasons that may have produced this phenomenon, Sloterdijk observes that, for the past hundred years and increasingly, individuals in Western cultures have been obsessed with "exercise" (the German word is *ueben*), that is with the individual acquisition of skills and with efforts of individual self-transformation, on an each time higher level and without any ultimate limits. At first glance already, we can discover an interesting parallel—or convergence—with one of the three elementary conditions of human life today that we identified at the beginning of this essay. Instead of delegating human labor to "robots," i.e., to machines with the status of servants or even slaves, as centuries of utopian imagination had propagated, we have entered a dynamic of transforming ourselves, individually and collectively,

TOGETHER WITH THE VANISHING OF OUR DREAMS ABOUT THE CONQUEST OF SPACE, THE PROCESS OF GLOBALIZATION HAS TRIGGERED A POWERFUL AND VERY VISIBLE MOVEMENT OF RECLAIMING THE PLANET EARTH AS THE HABITAT OF HUMANKIND.

in our prosthetic fusion with computers. "Self-reflexivity and self-transformation" seems to be the combined formula of our present, rather than dominance and delegation. This is where Sloterdijk's diagnosis meets our own reflections. In addition, I would like to complete Sloterdijk's description with the historical thesis that self-reflexive and self-transforming "exercise" may respond to and may compensate for a situation, i.e., the world of globalization, in which institutional contours are blurred and obligatory patterns of interaction are hard to identify. In confrontation with ourselves we establish an existential framework that our cultural environment refuses to provide. If, for example, the organizational structure of most Silicon Valley companies are horizontal, in the sense of non-hierarchical, and if the different employees of a firm hardly ever work together in a shared space, then their success can only depend on an outstanding degree of self-motivation and self-guided transformation. Self-reference replaces institutional structures. To phrase the same thought in a dystopian tonality: the brave new world of our globalized present condemns us to be our own Big Brothers. Or, in alternative, milder words: in the neoliberal world of globalization, we are free to constantly reinvent ourselves.

[7]

Before trying to make a judgment—or a more synthetic statement—about the anthropological view opened by those multiple reactions to the process of globalization, I would like to mention briefly two phenomena that I find emblematic—in complementary ways—for two basic structural aspects in which information is becoming detached from specific physical places. The first of them is a new type of world-wide celebrity and stardom that has no particular ground or reason—Paris Hilton is the name that unavoidably comes to mind (but also the names of David and Victoria Beckham whose respective achievements in soccer and in popular music have at no moment matched the massive presence of their faces in multiple media and omnipresent commercials). While it is of course not the function of these media protagonists to embody or to represent anything at all (rather, their lives are characterized by the blatant absence of a function or of any other assignment), they may be part of a restless intransitive movement typical of the condition in which we become detached from space. In this view, Paris Hilton's and the Beckhams' historical predecessors were those privileged "cosmopolitans" and those hard working "playboys" who accompanied the emergence of the railroad network and of the network of airlines in the nineteenth and in the twentieth centuries. The second phenomenon emblematic for the detachment of information from space is incomparably more incisive and more dangerous. I am referring to the so-called "derivative" monetary instruments that have been identified as the central reason for the dramatic financial crisis that hit the world in 2008. "Derivatives" are instruments supposed to produce revenue independently of any object or of any business "of reference" that they would stand for or be in touch with. It is the type of detachment that creates the risk of economic implosion in situations where a collective need arises to cash in derivatives.

Here, too, I will not engage in an apocalyptic critique of globalization as the "reason" for that very recent finance disaster of global dimensions, and if it were only in order to avoid any ungrounded optimism regarding the possibility of controlling such processes. Globalization and its consequences may well be part of a specific stage in the evolution of humankind where culture and technology have replaced biology as the source of energy that drives all change. But while we may not be able to change them, we have seen how the effects of globalization provoke certain reactions, reactions of inertia sometimes, and with them the impression that the dynamics of globalization are no longer in synchrony with very basic human needs and human limits. *We want to recuperate the human body as a core dimension of individual existence; we want to claim specific places, specific regions, and the planet Earth as spheres of "home" to which we belong; we enjoy being wrapped into (artificially produced but) coherent historical environments; we are longing for languages that open up and that are shaped by the specific spaces that we call ours; and we want to give our existence orientation and goals through self-reflexive activities of "exercising."*

This list of converging conditions and needs that, in the most literal sense of the word, give us a place and bind us to the Earth is remindful of the "fourfold" (*das Geviert*) as a central motif in the final stage of Martin Heidegger's philosophy. The four conditions that frame our individual existence according to Heidegger (the Earth, the sky, the godhead, the mortals—"mortals" both in the sense of our fellow humans and in that of our own mortality) look more symmetrical

and also more mythological than the "anthropology" that we have extracted from our own reflections on globalization and its effects. But both lists are very similar, not to say synonymous, inasmuch as they describe, in Heidegger's words, "dwelling" as "the manner in which mortals are on the earth" and as they include the intuition that "the basics character of dwelling is to spare, to preserve." Even closer to the conclusions we have arrived at is the work of the Italianist and philosopher Robert Harrison who, in three different books that make up one complex argument, has concentrated on forests, on burial places, and on gardens in order to elaborate what I would like to call a new "ecological existentialism."

The preface to Hannah Arendt's magnificent book on *The Human Condition*, from 1958 resonates with the powerful reactions that the launching of Sputnik, the first artificial satellite, had caused just one year before. Arendt took issue with the then often expressed view that Sputnik had been "the first step toward escape from men's imprisonment to the earth." She took issue because she believed the cosmological identity of human existence to depend on the fact that the very condition of "culture" and its layers of "labor," "work," and "action" were all grounded in life—and "life" meant for her that they were all sustained by our biological connection to the Earth. This participation of human existence in two different but inseparable dimensions that Arendt called "artificial" (culture) and "natural" (life) explains why human birth and death, "natality" and "mortality" (in her own terminology), must be different from the birth and death of all other living beings. Should we ever get definitively severed from the Earth, we will lose that identity and with it the ability to labor, to work, and to act.

Recent developments have confirmed the core of Arendt's anticipation and concern. With the one difference of course that it was not space traveling that jeopardized the existential condition of dwelling—but electronic communication, the most important basis and the most important consequence of globalization.

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RELIGION AND VALUES IN A GLOBALIZED ERA

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In the past 30 years, religion has returned to global politics. Disputes over religious issues, ranging from abortion, to same-sex marriage, to the wearing of headscarves in schools, have become major areas of contention across Western democracies. Religious parties and movements have made striking electoral breakthroughs in countries such as India, Egypt, Turkey, and Israel, and established theocratic government in countries such as Iran and Afghanistan. The apparent return of religion has led some commentators to view theological fissures as predictors of international, as well as domestic conflict, with nations aligning into "civilizational blocs" that mirror the world's major faiths[1] (Huntington 1996).

Why have religious identities and values achieved such renewed prominence in the early 21st Century? One theory is that the return of religion reflects "de-" or "counter-" secularization, as individuals have returned to religious ritual and discourse as a means of navigating the complexities of modern life (Berger 2005). The rise of Evangelical Christianity in Latin America, Korea, and the United States, the reopening of Orthodox and Catholic churches in the former Communist bloc, and the growth of Islamist movements in the Middle East are all taken as evidence of this trend. As Huntington writes, "the religious resurgence involved people returning to, reinvigorating, and giving new meaning to the traditional religions of their communities" (Huntington 1996: 96).

In this chapter we advance an alternative view, which is that religious and moral issues have become steadily more contentious as a result of the decline of religious authority and values in the developed world. Since the 1960s, adherence to traditional religious values has fallen sharply across Europe and North America, giving rise to a new set of norms based on individual freedom and self-expression, including acceptance of abortion and divorce, tolerance of homosexuality, and more progressive attitudes to women's rights. As these views have become increasingly mainstream, they have led to legislative changes such as same-sex marriage, abortion on demand, and state-provided childcare. Such changes have provoked frustrated responses by socially conservative groups, such as the pro-life movement in the United States, Ireland, and Spain, as well as immigrant communities with conservative values in countries like France, Belgium, and the Netherlands.

In the developing world, by contrast, religious parties and movements such as Hindutva in India, the Justice and Development Party in Turkey, and the Muslim Brotherhood in Egypt have achieved genuine mass support. Following Kepel (1994) and Casanova (1994), we explain the rise of religious parties and movements in the developing world as the result of a process of social mobilization, in which previously passive citizens are transformed into democratic actors through a political discourse rooted in popular notions of religious faith and significance. As new movements have sought to challenge the secular liberal and nationalist elites that guided these countries through their post-independence era, religious discourse has functioned as a means of engaging with new urban social groups. However, against the "counter-secularization" hypothesis, we find no evidence of any increase in religious identification, even in developing countries. The growth of religious movements is not a result of changing mass beliefs and values, but rather a consequence of the entry of the masses into political life in countries where power was previously monopolized by secular elites. As such, it may be followed by a similar decline in mass religious observance and values in future years, under similar circumstances of affluence to those prevailing in late twentieth-century Europe, Australasia, and Northern America.

THE APPARENT RETURN OF RELIGION HAS LED SOME COMMENTATORS TO VIEW THEOLOGICAL FISSURES AS PREDICTORS OF INTERNATIONAL, AS WELL AS DOMESTIC CONFLICT, WITH NATIONS ALIGNING INTO "CIVILIZATIONAL BLOCS."

THE DECLINE OF RELIGION AND THE RISE OF SECULAR VALUES IN THE WESTERN WORLD

Evidence concerning religious values, beliefs and behavior can be drawn from the World Values Surveys and European Values Study, a global investigation of socio-cultural and political change. This project has carried out representative national surveys of the basic values and beliefs of the publics in 92 nation states, containing in total over 6 billion people or 90% of the world's population and covering all six inhabited continents. It builds on the European Values Surveys, first carried out in 22 countries in 1981: a second wave of surveys, in 41 nations, was completed in 1990–91, a third wave of 55 nations in 1995–6, a fourth wave of 59 nations in 1999–2001, and a fifth wave of 57 nations in 2005–7. The World Values Surveys include some of the most affluent economies in the world, such as the US, Japan, and Switzerland, with per capita incomes as high as $45,000; middle-income industrializing countries such as South Korea, Brazil, and Turkey, with per capita incomes between $10,000 and $20,000, and

1 The growth of international terrorism, Hindu nationalism, and the reluctance of the European Union to admit Turkey, a predominantly Muslim country, are commonly viewed in support of this viewpoint.

COUNTRY	1981	1990	1995	2000	2005	CHANGE, 1981–2005
ARGENTINA	31	32	25	25	20	–11
AUSTRALIA	28	–	17	–	14	–13
CANADA	31	27	–	28	25	–6
FRANCE	11	10	–	8	7	–3
GREAT BRITAIN	13	14	–	15	16	3
ITALY	32	38	–	40	32	–1
JAPAN	4	3	3	4	3	–1
NETHERLANDS	25	20	–	14	12	–13
SOUTH KOREA	31	21	15	30	31	0
SPAIN	40	29	25	26	16	–24
SUECIA	6	4	4	4	3	–3
UNITED STATES	43	44	44	46	37	–6
WEST GERMANY	19	18	14	16	14	–5
MEAN CHANGE						–6

TABLE 1

Frequency of Attending Religious Services at Least "Once A Week".
Source: World Values Surveys and European Values Study, 1981–2007.

poorer agrarian societies, such as Rwanda, Bangladesh, and Vietnam, with per capita incomes of $400 or less. The most comprehensive coverage of the survey is in Western Europe and North America, where public opinion surveys have the longest tradition, but countries are included from all world regions, including many Sub-Saharan African nations. The survey also includes the first systematic data on public opinion in many Muslim states, including Arab countries such as Jordan, Egypt, and Morocco, as well as in Indonesia, Iran, Turkey, and Pakistan.

Since 1981, the World Values Survey has asked respondents how frequently they attend church, mosque, or temple services, ranging from once a year, to specific holidays, to once a month, to once a week, to more often than this. Table 1 shows the proportion attending religious services at least once a week across 13 industrial and post-industrial countries included in both the 1981 and the 2005–7 waves of the WVS, and the results demonstrate the steady decline of religious practice and belief across Western countries in the late twentieth century.

Strong falls in churchgoing are evident across Western Europe, particularly in Spain, the Netherlands, and Germany. Japan, Sweden, and France saw falls in religious attendance from already low levels, so that by 2005 figures for weekly participation had fallen to single digits, while moderate declines can be seen in the United States, Canada, and Germany. Only in South Korea and Great Britain were levels of attendance higher in 2005 than in 1981, though in both cases only by a small amount.

As organized religion has lost its authority over people's lives and behavior, there has been a corresponding shift in attitudes towards religious or moral issues, including attitudes towards abortion, homosexuality, divorce, and the role of women in society. Since 1981, the World Values Surveys have asked respondents to rate their opinion towards a range of moral acts and lifestyle choices, ranging from 1 (never justifiable) to 10 (always justifiable). In 1981, 30% of respondents in Western Europe and 43% of Americans responded that abortion was "never" justifiable; by 2005 these had fallen to 19% and 26%, respectively. In 1981, almost half (48%) of Western Europeans and two-thirds (64%) of Americans expressed a view that prostitution is "never justifiable"; by 2005 these were just a third (33%) and two-fifths (43%).

A more comprehensive overview of these value shifts can be gained from Table 2, which shows the full results for the percentage of respondents for whom abortion, homosexuality, divorce, and prostitution are "never" justifiable across the full 13 industrial and post-industrial societies for which data spans the full range from 1981 to the present day. The surveys show marked declines in Sweden, Spain, France, Germany, and Argentina, with steady falls also evident in other countries. In every country, attitudes to divorce became more accepting, and in every country but one (Japan) attitudes became more tolerant of prostitution. Large shifts also occurred in attitudes to homosexuality, such that by 2005 extreme homophobic sentiment was a minority view in almost every country including Argentina, South Korea, and the United States. Finally, unconditional opposition to abortion fell in every country except Argentina and Italy, such that in almost all countries a majority could conceive of circumstances where abortion would be permissible.

As moral attitudes and beliefs have become more progressive, there has also been a steady movement in the policy arena towards more legal reform in areas such as divorce, abortion, prostitution, and same-sex marriage. Among the first areas of amendment were marriage and divorce laws, which remained restrictive across southern Europe until the late twentieth century, but were liberalized in Italy in 1970, Portugal in 1975, Spain in 1981, and Ireland in 1997. A second area is abortion, which is strongly censured by the Catholic, Orthodox, and most Protestant churches, yet was legalized in Great Britain in 1967, the United States in 1973, France in 1975, and Italy in 1978. A third area

is prostitution, which since being banned in many countries during the nineteenth century, has been decriminalized and regulated in Australia since 1992, in Denmark since 1999, in the Netherlands since 2000,[2] in New Zealand since 2003, as well as Germany, Switzerland, Turkey, and the US state of Nevada. Capital punishment has been outlawed in phases across most Western countries, with a freeze on executions giving way to a comprehensive legal prohibition across the European Union.[3] And finally, same-sex marriages have been given full legal recognition across a number of Western countries, beginning with the Netherlands in 2003, followed by Spain and Canada in 2005, and Sweden in 2009.[4]

Western societies have therefore undergone an uneven process of societal liberalization since the 1970s that has encompassed sexual, reproductive, and lifestyle freedoms. While elites such as judges and parliamentarians have often been the initiators of legislative change, these reforms have largely been supported by mass beliefs and values. There is no better reflection of this than the fact that changes to the law have often been confirmed through popular referenda, as was the case with divorce law in Ireland, civil unions in Switzerland, or abortion in Portugal. Moreover, there have been remarkably few instances of policy reversal, and several cases where referenda intended to roll back a parliamentary law were defeated at the ballot box (for example Italy regarding divorce law in 1974, Switzerland concerning abortion in 1978 and 1985).

Concurrent with the widened acceptance of liberal attitudes regarding lifestyle choices, there has also been a consolidation of secular norms regarding politicians and public life. The separation of religion from politics is the defining attribute of the secular state, and in both the 2000 and the 2005 Values Surveys, representative samples of the public were asked regarding their extent of agreement with the statement that "religious leaders should not influence the government." In the countries of the European Union, on average 70% of respondents agreed with this view, including 76% of Swedes, 85% of Danes, and 82% of French. The widening acceptance of secular norms has led to corresponding institutional changes, in particular the reform of blasphemy legislation, and the disestablishment of the church. The majority of European countries have now removed their state religion, for example Spain where the Roman Catholic Church remained the official faith until 1978; Italy, where this was true until 1984; and Sweden, which though a largely secular society, only disestablished the Lutheran church in 2000. In the United Kingdom, where the Church of England remains the established church, blasphemy laws were officially abolished in 2008, following previous reform through the Criminal Justice Act of 1967 (which legalized profanity) and the 1998 Human Rights Act.[5] In the Netherlands the government is currently considering repealing its blasphemy laws, though these have not been applied since the 1960s; in most other European countries blasphemy laws remain on the books, but are similarly disregarded by the courts or directly contradicted by free speech legislation. A case brought against the Danish author of the Mohammed cartoons, for example, was rejected on grounds of freedom of expression.[6] Finally, in most European countries religious leaders have no consultative role in government, as has been the case in centuries past. In one last exception to this rule, the United Kingdom, there are 26 bishops who continue to sit in the House of Lords, though the House of Commons has voted in favor of abolishing all unelected members and faces resistance only from the Lords itself.

At the same time as religion has lost its privileged position within the state, and its corresponding legal protections, Western societies have incorporated immigrant groups for whom the public expression of religious identity, the ability to educate children religiously, and maintain practices such as arranged marriage, remain very important. The response has been an attempt to "fit" such newcomers into the mould of the secular system: for example, by

COUNTRY	DIVORCE		HOMOSEXUALITY		ABORTION		PROSTITUTION	
	1981	2005	1981	2005	1981	2005	1981	2005
ARGENTINA	30	17	69	30	49	55	68	43
AUSTRALIA	16	6	41	22	30	18	35	24
CANADA	19	9	51	21	38	26	50	40
FRANCE	13	9	47	15	21	15	45	42
GREAT BRITAIN	14	7	43	21	30	20	46	31
ITALY	21	19	63	51	30	39	69	58
JAPAN	21	5	52	24	31	15	65	67
NETHERLANDS	19	11	21	16	29	20	27	21
SOUTH KOREA	33	18	63	45	31	30	65	50
SPAIN	28	8	56	10	50	17	58	23
SWEDEN	10	1	39	4	16	3	55	41
UNITED STATES	22	6	65	33	43	26	64	44
WEST GERMANY	30	17	69	30	49	55	68	43

TABLE 2

Percentage of the Population Saying Selected Acts are "Never" Justifiable.
Source: World Values Survey y European Values Study, 1981–2007.

2
In the Netherlands, a loophole allowed prostitution activity throughout the twentieth century, but the trade was only fully legalized and regulated in 2000.

3
This occurred in Sweden in 1972, France in 1981, Italy in 1994, and Britain in 1998, when abolition of the death penalty was at the same time made a criterion for membership of the European Union, and thereby also enacted across all new accession states.

4
To date, legislation permitting same-sex partnership has also been completed in six US states.

5
An ironic application of these laws occurred in the 1980s, when Muslim groups had attempted to bring a case against Satanic Verses author Salman Rushdie: the case could not be pursued, as the laws only related to the Anglican Church and not to Islam.

6
However there are several European exceptions where blasphemy laws remain in vigor, notably in Greece and in Ireland.

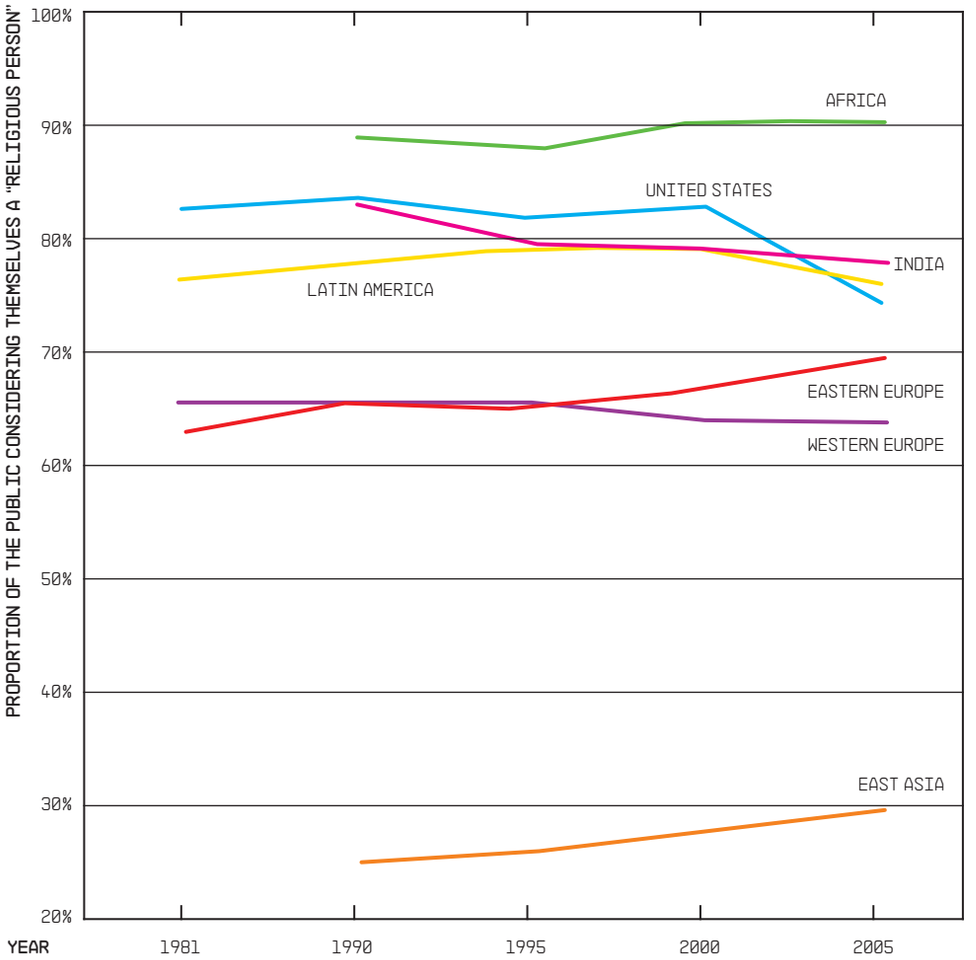

FIGURE 1

Proportion of the Public Considering Themselves a "Religious Person," by Year.

– "East Asia" includes China, Japan, South Korea, and Vietnam.
– "Western Europe" includes Austria, Belgium, Denmark, France, Iceland, Ireland, Italy, the Netherlands, Spain, Sweden, Great Britain, and West Germany.
– "Eastern Europe" includes Hungary, Poland, Romania, Russia, Slovenia, and East Germany.
– "Latin America" includes Argentina, Brazil, Chile, and Mexico.
– "Africa" includes Nigeria and South Africa.

banning wearing of the hijab, a form of Islamic dress, which was prohibited along with other displays of religious identity in French schools in 2004, as well as being restricted in eight German states and several Belgian municipalities; by banning forced marriage, as occurred in Norway in 2003 and Belgium in 2006; or by instituting "civic education" classes of the kind now required of new Dutch citizens. Such moves have typically provoked resistance and resentment among conservative migrants, who view them as an indignity and an encroachment on their cultural rights. However, where the demands of a secular liberal society to protect individual rights and freedoms conflict with cultural practices that infringe such norms and obligations, there is an irresolvable dilemma.

Just such an important value conflict is highlighted by the European Values Surveys of 2000, in which members of the public in six countries were asked whether they would be in favor of restricting publications that offend religious sensibilities, or whether they would uphold freedom of speech. This is an issue that has become highly sensitive in recent years following the assassination in the Netherlands on religious grounds of Theo van Gogh in 2004, the Danish cartoon crisis of 2005, and the passing in 2006 of an incitement to religious hatred law in the United Kingdom. The results shed light on an important aspect of the dynamics between religious traditionalists and secular liberals. In every country, a majority spoke out against such a ban, and in favor of freedom of speech, yet among the sub-sample who identified as "religious," the majority was in favor in four of the six countries. Notably, support for a ban was also the majority option among Muslim respondents. There is therefore a fundamental value difference between religious and non-religious respondents, reflecting the clash between the new value consensus of Western societies, and the traditional values and beliefs of minorities and religious conservatives.

SACRED AND SECULAR: THE ROLE OF RELIGIOUS MOBILIZATION

If a secular-liberal consensus appears to have taken hold in Western democracies, many would argue that such values are in retreat in the developing world. Since the 1970s religious parties have risen to prominence in Turkey, India, and many Arab countries, while theocratic regimes have been established in Iran and in Afghanistan. Several countries have introduced religious provisions to their constitutions, such as Pakistan, which established Islam as the state religion in 1973, and Bangladesh, whose parliament amended the constitution to make Islam the state religion in 1988. These amendments have had widespread legal ramifications, in particular where they have brought the introduction of Shari'a provisions outlawing blasphemy, punishing adultery by stoning, and establishing fixed penalties (such as hand amputation) for a range of petty crimes. In addition to legal changes, there has been a rising tide against Western culture across the Middle East and South Asia. Young women in Arab universities and cafes can be seen making increasing use of the hijab, while public commentators in the Arab press openly call for struggle against Western culture, media, and entertainment (Dale 2003; Najjar 2005).

Does this wave of religious politics reflect a newfound religious commitment among the publics of non-Western societies? Since 1981, the Values Surveys have asked respondents whether they consider themselves to be "religious," "non-religious," or "a convinced atheist," and

these data allow us to examine trends in religiosity in the developing world. While there are many different measures of religiosity, including frequency of prayer, religious attendance, or one's personal belief in God, if religion has become more salient in people's political and social lives, self-identification as religious certainly ought to have risen. Figure 1.0 shows the proportion of respondents across seven regions of the world who describe themselves as religious, drawing upon data from 12 countries in Western Europe, four countries in East Asia, six countries in Eastern Europe, four countries in Latin America, and two countries in Africa, plus the United States and India, which are included here individually.

While the proportion of the religious has gradually risen in East Asia and Eastern Europe, it has fallen or fluctuated randomly in India and Latin America. And while the proportion identifying as religious is very high across almost all regions of the world, a level of around two-thirds is consistent with the highly secular norms and legal institutions found in contemporary Europe.

Unfortunately insufficient time-series data exists to be able to include the Middle East in Figure 1, which is the region that much of the "resurgence of religion" argument concerns. Nonetheless, it is possible to pool the data collected from the Middle East during the 1999–2001 and 2005–7 waves of the Values Surveys in order to gain a sense of the degree of intergenerational value-change occurring within the region, and thereby to make inferences regarding changes over time. Social scientists often look at intergenerational differences as evidence of long-term patterns of change, as through the socialization process, each birth cohort may adopt beliefs and values that persist through the lifecycle. For example, those growing up in the West during the 1960s may be likely to adopt from a young age more liberal attitudes regarding drug-use, sexual morality, and military involvement overseas than their parents, as a result of having taken part in the student movements that culminated in the 1968 protests (Inglehart 1971, 1977). While from a mere cross-section it is not possible to disentangle generational from lifecycle effects that alter attitudes as individuals move from youth to middle-age and then retirement, there is strong evidence that most values are learnt early in life, in the family, school and community, so that the enduring values of different birth cohorts can be attributed mainly to their formative experiences in childhood and adolescence. For the purposes of intergenerational comparison, therefore, we break down the cross-sectional data into 10-year birth cohorts.

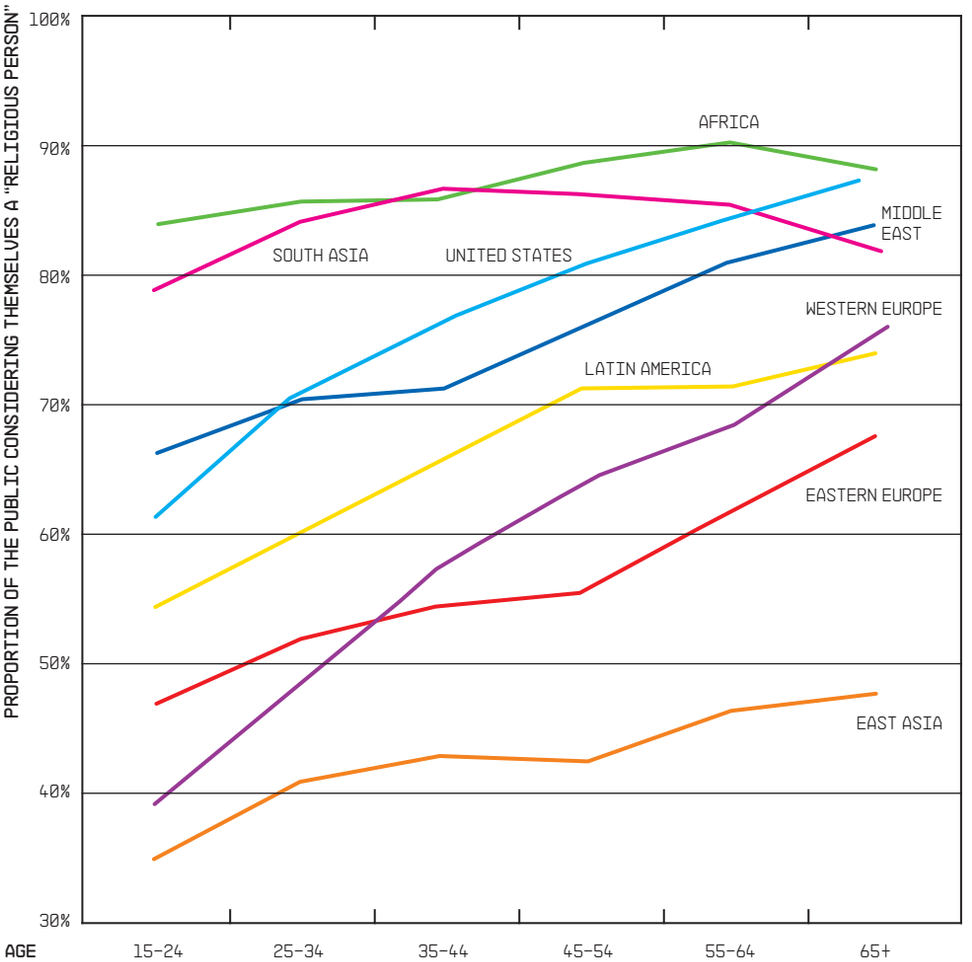

FIGURE 2

Proportion of the Public Considering Themselves a "Religious Person," by Age Cohort.

– "East Asia" includes China, Japan, South Korea, and Vietnam.
– "Western Europe" includes Austria, Belgium, Denmark, France, Iceland, Ireland, Italy, the Netherlands, Spain, Sweden, Great Britain, and West Germany.
– "Eastern Europe" includes Hungary, Poland, Romania, Russia, Slovenia, and East Germany.
– "Latin America" includes Argentina, Brazil, Chile, and Mexico.
– "Africa" includes Nigeria and South Africa.

When religious participation is analyzed by birth cohort and by region, as illustrated in Figure 2, the gradual disengagement of younger generations from religious identification is brought into focus. Interestingly, the results also suggest no rise in religious identity in the countries of the Middle East, where the young are steadily less likely to identify as religious than the elderly. In this regard, the intergenerational pattern appears remarkably similar to Europe or the United States, where a similar pattern of youthful non-observance can be seen. While this trend could be interpreted as a life-cycle effect, with individuals facing an inherent tendency to become more religious as they grow older, the pattern in Africa and India casts doubt on this association, as in these societies the young are barely less religious than the old. And in Western Europe and North America, we know from the time-series evidence that there is a gradual secularization process underway, and this is consistent with the generational trend seen here. Together, these facts hold out the possibility that

there may be an incipient process of secularization occurring in the Middle East, rather than the religious resurgence that is typically described.

If it is not a resurgence of religious identification that explains the rise of religious identity politics in India, Central Asia, and the Middle East, how do we account for the breakthrough of movements such as India's Hindutva, Turkey's Justice and Development Party, or the Iranian Committees of Islamic Revolution? We believe that an answer to this question must be found, not in mass beliefs and values, but rather in the weakening position of the secular political elites that led these countries to independence. WVS data shows that societies such as Turkey or India have always been fundamentally religious, and remain so. However, they were ruled in their early years by secular elites trained in the institutions of the former colonial powers, such as Jawaharlal Nehru of India or Zulfikar Ali Bhutto of Pakistan, or emerging from the ranks of the officer corps, such as Kemal Atatürk in Turkey, who brought with them the secular principles learnt in the colleges of Oxbridge or the training barracks. As most of the population remained poor, agrarian, and politically passive, during the first years of independent rule secular elites were able to impose Western models of secular governance, such as the secular constitutions that were initially implemented across the region, with little social opposition.[7]

In the late twentieth century, however, these societies underwent a fundamental shift in social structure as they urbanized, witnessed the spread of mass literacy and higher education, and saw a shift from agrarian to commercial and industrial employment. The formation of new urban commercial classes outside of the traditional support base for the secular elite—the Congress system "vote banks" of India, the military and bureaucracy in Turkey or Iran—thus opened up a field within which new parties and movements could mobilize support among groups frustrated by widespread corruption and their exclusion from government patronage networks. Supporters of Islamic revolution in Iran and the Turkish Refah (welfare) and AK parties came not from the peasantry but from the urban middle strata, including the student movement, the merchant class, and both trade union and industrialist groups. The same is true of the voters who helped the Indian BJP to electoral victory in 1996 and the Israeli Likud party to its electoral breakthrough in 1977. While Marxist, nationalist, and liberal movements all competed to unite opponents to the governing party or elite, in many of these countries—including Iran, Turkey, India, and Israel—the mobilizing ideology best able to form a coalition between the new urban middle class and the urban poor was that rooted in the religious beliefs and practices of the population, albeit infused with a twist of nationalism, in the cases of India and Israel.

Since the 1970s, therefore, the first generation of secular political elites that governed during the first decades of the post-war era in countries such as India, Pakistan, Israel, Turkey, and Iran have seen their position overturned by religious parties and movements. In India, the "Congress system" that united lower-caste groups and the urban sector began to fall apart in the 1960s as caste minorities broke away to form independent parties, and the private-sector urban middle class gradually swung behind the Hindu nationalist BJP party. In Pakistan, the secular Zulfikar Bhutto lost power to a coup d'état by the more conservative General Zia Ul-Haq, who proceeded to declare Islam as the country's state religion, to the pleasure of the country's clerical and feudal classes. In Israel, a secular consensus around the socialist policies of the Labor Party persisted from 1948 to 1977, but was shattered by the success of Likud in drawing middle-class Sephardic and "Russian" voters to a harder form of Zionist nationalism. In Turkey, conservative parties with a strong religious undercurrent repeatedly won democratic elections between 1950 and the present, only to be overturned by military coups; the Justice and Development Party has remained in power until now not due to the electorate but the emasculation of the military. Finally, in Iran, an absolutist monarchy supported by the Western powers rapidly collapsed once the iron fist of the Shah loosened its grip, giving way to a full-scale social revolution that swept away all vestiges of secular government.

Though these outcomes reflect a remarkable blossoming of religious politics, it is important to remember that secular norms and institutions never had widespread public support in these countries (Gellner 1993). The hegemony of secular elites and institutions was largely an after-effect of Western colonial influence, and as such were unlikely to last more than a single generation: insofar as we have survey data available, it shows that religious identities and values are widespread in developing countries, and have always been so. It is thus not surprising that as soon as mass, democratic politics had taken root it led immediately to what Huntington termed

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Of the secular constitutions initially written for Pakistan, Bangladesh, Turkey and India, only India and Turkey retain their secularity clauses. Pakistan adopted Islam as its state religion in 1973 and Bangladesh in 1988. Israel is an interesting case, as the Proclamation of Independence declared a "Jewish State" in 1948, yet did not clarify whether this was a reference to ethnicity or religion. An Israeli constitution was intended but never written, in part because of controversy surrounding this issue. The (legislative) laws of the Israeli state are used to enforce generally minor religious restrictions, such as Saturday closing (Sabbath) and rules against sale of pork products, though decisions concerning the latter are devolved to the municipal level.

"indigenization": a movement towards religious recidivism and cultural revivalism (Huntington 1996).

Thus, just as Western countries have typically moved towards secular policies and institutions through legislative votes and popular plebiscite, ironically in developing countries, desecularization has likewise occurred through the same means of democratic participation. Such is the "democracy paradox": as non-Western societies adopt liberal-democratic institutions, it is followed by the rise of illiberal movements and the implementation of illiberal policies. In Afghanistan, the newly elected government of Hamid Karzai approved a constitution in 2004, which had been drafted in consultation with the country's Loya Jirga, declaring Islam as the country's state religion, instituting the Hanafi code of Shari'a law, and rewarding apostasy with capital punishment. In Iraq, a referendum in 2005 also replaced Hussein's secular 1990 constitution with a document instituting Shari'a as the national law. In Sri Lanka, the introduction of democracy allowed Sinhalese nationalists to gain power in 1956, and Buddhism to be declared the country's official religion in the 1972 constitution. In Bangladesh, it was a parliamentary vote in 1988 that made Islam the state religion, and though opposition parties opposed the decision at the time, they subsequently changed their position so as not to alienate conservative Muslim voters. In Turkey, the popularly elected AK party has begun implementing desecularization policies, including the lifting of the university headscarf ban in 2007 and a proposed introduction of prayer sections in public schools, following in the footsteps of the Democratic Party of the 1950s and the Welfare Party of the 1990s (whose attempts at those times were vetoed by the military). In Iran, the establishment of an Islamic Republic in 1979 was the result of a social revolution that saw massive popular participation, and though its subsequent democratic politics are constrained by the religious hierarchy, even reformist politicians today do not question the role of Shi'a Islam as the country's official religion, the use of Shari'a law, or the need for moral censorship. In Western societies, liberty and democracy advance together. In the religiously conservative societies of the Middle East, South Asia, and Africa, this is not obviously so.

A good illustration of this point is to be found in data from the Values Surveys, which since 1981 have asked respondents whether they believe that though democracy "may have its problems" it is nonetheless "better than any other form of government." In countries across the world, including the Middle East, Africa, and South Asia, large majorities agree with this point of view. 88% of respondents in the Middle East felt that democracy is the best means of exercising power, similar to the proportions in Western Europe (93%) and the United States (90%). Publics in non-Western societies, therefore, by and large agree with the view that elections, referenda, and representative government should form the basis of political life and government. However, very divergent views exist regarding the functioning and outcomes of democratic rule, and in particular regarding the role of religion in public life. The World Values Surveys also asked respondents how "essential" they thought a range of institutional norms were as characteristics of democracy, ranging from respect for civil liberties, to the ability to hold referenda, to more eclectic provisions, such as religious mediation or military monitoring of the government. Respondents were given a list of attributes, and asked to rate these on a scale from 1 to 10, with 10 indicating that it is "an essential characteristic of democracy" and 1 that it is "not essential." In three of the five Islamic societies in which this question was asked, the majority of respondents leaned toward "having religious authorities interpret the laws" as "essential" for democracy, as indicated by a response in the range from 6 to 10.[8] By contrast, in Western Europe only 10.1% of respondents took this view, while in the United States, only 14% did so. Meanwhile, respondents were asked regarding the importance in a democracy of "women having the same rights as men," a question that touches upon an important point given the historical denial of women's suffrage in many countries, and continuing legal provisions that systematically treat men and women differently, such as when giving testimony in Shari'a courts. In Iraq, the one Arab democracy in the sample, respondents were divided between 57% who felt that equal rights were an element of democracy, and 43% who leaned against this view. In Western Europe, by contrast, 94.2% of respondents on average answered that equal rights were essential to their conception of democracy. Clearly, there are sharp divergences in how cultural traditions interpret the basic principles of representative government, and many non-Western societies in the Middle East, Africa, and South Asia have a conception of civic representation that differs fundamentally from the Western model.

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The three Islamic societies were Iraq, Indonesia, and Malaysia, where the figures were 56%, 54.9%, and 57.2%, while the other two cases were Burkina Faso and Mali, where the figures were 24% and 47.9%, respectively.

CONCLUSION

At the beginning of the twenty-first century, the world appears to be dividing into two camps. On the one hand are the secular societies of Europe, North America, and developed East Asia, where the state is separated from religious life, social attitudes have become more accepting of women's rights and alternative lifestyles, and legislative changes have relaxed restrictions against prostitution, abortion, and divorce. When migrants who do not share Western norms and values enter these societies, they are expected to accept rules regarding secular education, tolerance of sexual minorities, and women's rights, or face legal barriers and punishments. On the other hand are the societies of the Middle East, Africa, and South Asia. In these countries secular constitutions have often been rewritten, public opinion remains firmly devout, and religious laws have increasingly come into force. While religious identification has not necessarily strengthened in such countries during recent decades, the mobilization of the masses into political life has brought religious movements to parliament and government, overturning the secular institutions that Western-educated and Western-backed leaders introduced during the early post-independence period.

In the coming decades, will this gap between sacred and secular worlds widen further, or will there by contrast be a new process of convergence? In answering this question, it is useful to distinguish between two different kinds of secularity, namely, secularization of the state and secularization of the individual. The first of these, state secularity, is the differentiation of secular spheres, such as the bureaucracy and the market, from religion. By this definition, Turkey or India may be considered secular (by virtue of their constitutional arrangements), though neither has a secular culture. The second form, individual secularity, is the decline of religious practices and beliefs, such as prayer, attending religious services, or following religious strictures. This is the form of secularization that prevails, to varying degrees and extents, in parts of Western Europe, Asia, and the Americas, though is comparatively rare elsewhere.

In the West secularization has spread to both domains. Starting the eighteenth century in France and the United States, and extending to the late twentieth century with the official disestablishment of the church in Italy, Spain, or Sweden, religion and politics were officially separated and public institutions made free of religious ritual or affiliation. Over the course of the twentieth century, religious attendance declined across most Western societies, and during the late twentieth century moral restrictions were liberalized in areas such as divorce, prostitution, abortion, and same-sex marriage. While there are some remaining areas where further liberalization is possible, for example, the use of recreational drugs, the key legislative changes were introduced in the 1970s and "moral issues" remain contentious only in outlier countries, such as Poland or the United States, where adherence to traditional religious edicts remains important among some groups in society.

On the other hand, in non-Western societies secularization has stumbled at the first step. Secular constitutions were introduced during independence, demarcating the political realm from the spiritual, but this separation has proven unsustainable in the absence of a significant non-religious population, and the acceptance of secular liberal norms among the general populace. In some states such as Turkey and India the secular constitution remains in force, though in most other Middle Eastern and South Asian countries this is no longer so. A number of countries in the region continue to be run by secular Arab nationalist regimes; however, religious parties and movements such as the Muslim Brotherhood may eventually overturn the status quo in countries ranging from Egypt, to Jordan, to Syria or Tunisia. Meanwhile, in Turkey, it is conceivable that the military establishment proves unable to stem the pressure for political reform, and the country adopts a constitutional settlement that, if not similar to Iran, may at least resemble the more moderate religious laws in Israel. If a demarcation between the religious, political, and private spheres is to develop in this region of the world, it is unlikely to follow the Western pattern of the secular state being succeeded by the secular society, but will instead have to begin from the secularization of society and only then proceed to broader institutional reform.

What prospect is there for such a transformation to occur? We have seen that religious identification appears to be lower among younger generations in the Middle East, though this finding remains inconclusive at present. Despite the rollback of secular institutions, it is possible that these societies may eventually undergo a process of intergenerational value-change, similar to that observed in Western countries since the 1960s, with younger generations eventually rejecting

the conservative norms of the elders and embracing a new set of values based around individual rights and alternative lifestyles. In theory, the economic development of the Arab countries, led by the Gulf States, and the entrenchment of a democratic culture based around free expression and the exchange of ideas, ought to lead eventually to a transformation in social attitudes, as individuals de-emphasize traditional values in favor of values emphasizing personal development and self-realization. Yet the pace of social change is glacial, and any evidence that we have, such as the intergenerational value differences in the Middle East, remains inconclusive. Even assuming a process of cultural change is underway, these societies are beginning from starting points that are far removed from the social consensus that prevails in the Western world, and as a result conflicts over religious values are likely to remain an enduring feature of our world.

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A GLOBAL APPROACH TO ETHICS

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A NEW WORLD

For most of the eons of human existence, people living only short distances apart might as well, for all the difference they made to each other's lives, have been living in separate worlds. A river, a mountain range, a stretch of forest or desert, a sea—those were enough to cut people off from each other. Over the past few centuries the isolation has dwindled, slowly at first, then with increasing rapidity. Now people living on opposite sides of the world are linked in ways previously unimaginable. This is not only because of the obvious technological changes that enable us to fly to the far side of the world in less than 24 hours, nor the instant communication made possible by the phone, television, and the Internet. It is, most significantly, because almost everything we do, from clearing forests and raising cattle to driving a car, affects the climate of the entire planet and is bringing changes that cause, in parts of the world far from us, crops to fail, sea levels to rise, hurricanes to form with greater frequency, and tropical diseases to spread beyond their previous ranges.

Unfortunately our ethics has not changed in keeping with this shrinking of distance. I will focus on two important aspects of this new closeness, where we most urgently need to take a more global ethical approach: climate change, and our obligations to the world's poor. Then I will conclude with some reflections on the need to develop a new global political system.

CLIMATE CHANGE AS AN ETHICAL ISSUE

If the world continues to increase the emission of greenhouse gases at its present rate, the consequences will be disastrous. The brunt of the impact will most likely be borne by the world's poor, who have less ability to adapt to change. They will have nowhere to go if rising sea levels inundate their land. If the rains on which they rely to grow their crops should fail, they will have nothing to eat.

The United States, with less than 5% of the world's population, emits about 25% percent of the world's greenhouse gases. Australia and Canada have similarly disproportionate emission levels. The nations of the European Union, taken as a whole, have per capita emission levels that are only about half those of the United States, but still much higher than the per capita emissions of developing nations.

What does ethics have to say about this? When a corporation pollutes a river, we expect the corporation to pay to clean it up, and compensate those affected. If that is a fair principle—that the polluter should pay, that those who cause the problem are responsible for fixing it—then the developed nations should be paying the costs of global warming. They are not only the biggest polluters now, they have been for the past century or more. Most of the carbon dioxide emitted by the developed nations over that period is still up in the atmosphere. These countries are currently using far more than their fair share of the capacity of the atmosphere to absorb their waste gases. That statement holds true on any plausible criterion of fairness.

Suppose that instead of asking who is responsible for the problem of global warming, we forget about the past, and focus only on the present. (This is very generous to the developed nations, because it effectively wipes the slate clean, forgiving them for what they have done so far to cause the problem we all face. It allows them to make a fresh start from now on.) We might then compare the ethical problem of global warming to the familiar question of how we should divide a cake if, say, there are eight people and each one would enjoy eating a quarter of the cake. The most obviously fair way of dividing the cake would be to give everyone an equal share. By that rule, the US, Canada, and Australia take about five times as much cake as their fair share, and the European nations take more than twice their fair share. So on this principle too, it is the developed nations that need to cut their emissions most drastically.

We could also consider another possible criterion of fairness, one associated with the American philosopher John Rawls. Perhaps fairness requires that the better-off should sacrifice more to help the worst-off, and those who have the greatest capacity to help should do the most? If we accept that view, then because the North American and European nations, together with Japan and Australia, are among the richest nations in the world, they should be prepared to give up more in order to help those nations that are worse off.

When the United States, under President George W. Bush, and Australia, under Prime Minister John Howard, refused to sign the Kyoto Protocol, they were—as the only two industrialized nations not to sign—making other nations bear the burden of taking the first steps toward dealing with the problem of global warming. (After a change of government, Australia subsequently signed the Protocol. As for the United

WHEN THE UNITED STATES AND AUSTRALIA REFUSED TO SIGN THE KYOTO PROTOCOL, THEY WERE MAKING OTHER NATIONS BEAR THE BURDEN OF TAKING THE FIRST STEPS TOWARD DEALING WITH THE PROBLEM OF GLOBAL WARMING.

States, President Barack Obama has said that he accepts that the United States must be part of the solution to climate change, but at the time of writing the United States has still not signed the Protocol or set limits to its greenhouse gas emissions.[1]

The Kyoto Protocol was not, in itself, enough. It was always intended as a first step, and did not bind China, India, or any developing nations. Eventually, these nations must also accept limits to their greenhouse gas emissions. But the developed nations must lead by example, acknowledging that they have very high per capita levels of greenhouse gas emissions, and that this is harmful to the entire world. They must make it clear that they are serious about changing that situation. In contrast, although China is now, by some calculations, the largest emitter of greenhouse gases in the world, its large population means that it still has relatively modest per capita emissions. India's per capita emissions are much lower still, although its large and growing population, together with its increasing prosperity, means that it also has the potential to become a very major emitter in coming decades.

There are many ways for the affluent nations to reduce their greenhouse gas emissions. Most of them are moving away from coal-based electricity generation, because burning coal releases vast quantities of carbon dioxide that, at least at present, we have no economical way of capturing. For this reason, some suggest a switch to nuclear power. But that carries significant risks in itself, since we still do not know how to safely store nuclear waste. Since September 11, 2001, the heightened risk of nuclear material falling into the hands of terrorists, or of a terrorist attack on a nuclear facility, makes building nuclear power stations even more hazardous.

There is a much simpler way in which the developed nations could reduce their greenhouse gas emissions. Among those who have followed the debate about climate change, most now understand that rumination—which is involved in the digestive process of animals like cattle and sheep—produces methane, and that methane is a potent greenhouse gas. But few understand just how significant a role reducing the number of ruminant animals could play in helping us to avoid reaching the point of no return. This is largely because discussions about which human activities contribute most to climate change are usually framed in terms of the impact those activities will have over the next century. Taking that perspective, a ton of methane is generally regarded as 25 times more potent, in causing global warming, than a ton of carbon dioxide. That makes methane highly potent, but this level of potency is heavily outweighed by the very much smaller quantities of methane produced by ruminants, when compared with the quantities of carbon dioxide produced by coal-burning power stations. Hence methane emissions from ruminants are widely seen as being of much less concern than burning coal to generate electricity.

The reason why, over the next century, methane will be only 25 times as potent as carbon dioxide in causing global warming is that it breaks down much more quickly. Unless we find new ways of taking carbon dioxide out of the atmosphere—something not economically feasible at present—about a quarter of every ton of carbon dioxide we emit now will still be up there warming the planet in 500 years. But with methane, two-thirds of it will be gone in ten years, and by the end of 20 years, 90 percent of it will have broken down. Suppose, however, that instead of taking 100 years as our time frame, we asked which emissions will contribute to climate change over the next 20 years. Then the difference in breakdown becomes less significant, and a ton of methane is not 25, but 72 times more potent than a ton of carbon dioxide in warming our planet. That dramatically changes the equation in terms of which gases should be the target of our drive to reduce emissions.

Which time frame should we use, 100 years or 20? There are compelling reasons to choose the shorter period. Many scientists warn that we are in danger of passing the "point of no return" after which the planet will continue to warm no matter what we do. This is because warming can create feedback loops that reinforce the warming trend. Snow and ice reflect back the sun's warming rays. As the arctic ice cap melts, there will be less reflection, and the sun will warm the earth more than it does now. Similarly, as the permafrost melts in Siberia, it releases methane—which in turn will cause more warming. If we are approaching the point of no return, at which catastrophe becomes inevitable, there is little point in focusing on what impact the gases we are emitting now will have in 2100. Twenty years is the right time frame because if we don't do something drastic by then it may well be too late.

Using the factor of 72 to convert methane to carbon dioxide equivalent dramatically changes the balance between the contributions to global

1
The methane figures are taken from the Intergovernmental Panel on Climate Change, Fourth Assessment Report, 2007, Technical Summary, table TS.2 (see also Smith 2009).

warming made by ruminant animals and by coal-fired power stations. It means that for some countries, cattle and sheep are the most important source of global warming. Australia's livestock, for example, produce 3.1 megatonnes of methane. When we multiply that 3.1 megatonnes by 72, we get 223 megatonnes of carbon dioxide equivalent—significantly more than the 180 megatonnes of carbon dioxide produced by Australia's coal-fired power stations (AGO 2006). Many other countries have very significant methane emissions from livestock, including Brazil, India, and the United States.

The importance of eating less meat, if we are to slow climate change, has been widely understood at least since 2006, when the United Nations Food and Agriculture Organization produced its report, *Livestock's Long Shadow,* which said that livestock was responsible for more emissions than transport. In 2008 Rajendra Pachauri, the chair of the IPCC, made an explicit call to individuals, saying: "Please eat less meat—meat is a very carbon intensive commodity… this is something that the IPCC was afraid to say earlier, but now we have said it" (ABC News 2008).

I am not suggesting that traditional herding people who have no real alternatives to eating ruminant animals should abandon their way of living. But the numbers of animals they have is tiny compared to the vast hordes of cattle, and to a lesser degree sheep, raised in the United States, Canada, Australia, and New Zealand. Eliminating these animals could be a major step towards slowing climate change. Moreover it is something that is technically simple. Unlike phasing out coal-fired power stations, it does not require replacement by either a technology that already exists but is dangerous or a technology that still needs to be invented, like solar electricity generation efficient enough to replace coal. We can cease to eat ruminant animals right now, and it will not bring our way of life to a halt. In fact we'll be healthier for it. Of all the ways in which people in affluent nations could rapidly reduce their contribution to climate change, ceasing to raise ruminant animals—essentially, cattle and sheep—is the one we could most easily achieve within the next decade.

OUR OBLIGATIONS TO THE POOR

Let me now turn to the issue of global poverty. Consider this quotation, from Thomas Aquinas, more than 700 years ago:

> …whatever a man has in superabundance is owed, of natural right, to the poor for their sustenance. So Ambrosius says, and it is also to be found in the *Decretum Gratiani*: "The bread which you withhold belongs to the hungry: the clothing you shut away, to the naked: and the money you bury in the earth is the redemption and freedom of the penniless."

In the world today there are many people who "have in superabundance." By which I mean that, after satisfying all their needs—for food, shelter, warmth, clothing, health care, and education, for themselves and their children, and some provision for those needs to be met in the future as well—they have money left over for items that are not, by any stretch of the imagination, needs. If you have money to spare for good restaurants, concerts, vacation travel, books, CDs, DVDs, or clothing that you buy because you like it rather than because you need it, you are, in a word, rich. Aquinas could never have envisaged the kind of wealth many people have today—think only of central heating and air-conditioning, of exotic fresh fruits from both temperate and tropical lands delivered to your door, of being able to visit all the wonders of the world. Aquinas would have thought most middle-class citizens of industrialized nations today to be unimaginably rich, and the same goes for those able to live a comparable lifestyle in other countries.

We are very far from sharing our abundance with those in need. In the same world in which more than a billion people live at a level of affluence never previously known, 1.4 billion other people struggle to survive on the purchasing power equivalent of less than $US1.25 per day. (That is, they actually live on much less than $US1.25 a day. They live on what $US1.25 would buy in their countries. At official rates of foreign exchange, it might be as little as 50 US cents a day.) Most of the world's poorest people are undernourished, lack access to safe drinking water or even the most basic health services, and cannot send their children to school. According to UNICEF, the United Nations Childrens' Fund, nearly ten million children die every year—27,000 per day—from avoidable, poverty-related causes.[2]

In an article I wrote on this topic in 1972, at the time of a humanitarian emergency in what is now Bangladesh, I asked readers to imagine that they were walking by a shallow pond when they saw a small child who has fallen into the pond and appears to be in danger of drowning

2 The poverty line is set by the World Bank, which also calculates the number of people living under it. For the UNICEF figure on the deaths of children under five, see http://www.unicef.org/childsurvival.

OUR OBLIGATION TO THE POOR IS NOT ONE OF PROVIDING ASSISTANCE TO STRANGERS, BUT OF COMPENSATION FOR HARMS THAT WE HAVE CAUSED, AND ARE STILL CAUSING, TO THEM.

(Singer 1972). In this situation, even though we did nothing to cause the child to fall into the pond, almost everyone agrees that if we can save the child at minimal inconvenience or trouble to ourselves, we ought to do so. Anything else would be callous, indecent, and, in a word, wrong. The fact that in rescuing the child we may, for example, ruin a new pair of shoes, is not a good reason for allowing the child to drown. Similarly if for the cost of a pair of shoes, we can contribute to a health program in a developing country that stands a good chance of saving the life of a child, we ought to do so.

Perhaps, though, our obligation to help the poor is even stronger than this example implies, for we are less innocent than the passer-by who did nothing to cause the child to fall into the pond. Thomas Pogge of Yale University has argued that at least some of our affluence comes at the expense of the poor (Pogge 2004, 2008). He bases this claim, not simply on the usual critique of the barriers that Europe and the United States maintain against agricultural imports from developing countries, but also on less familiar aspects of our trade with developing countries. For example, he points out that international corporations are willing to make deals to buy natural resources from any government, no matter how it has come to power. This provides a huge financial incentive for groups to attempt to overthrow the existing government. For successful rebels are rewarded by being able to sell off the nation's oil, minerals, or timber. This gives them access to enormous wealth—truly incredible sums by the standards of ordinary people in developing countries. They can divert some of it into their personal accounts and use the rest for rewarding their supporters and strengthening their armed forces. The resources they are selling, however, belong to, and should be used for the benefit of, the people as a whole, not whatever thugs manage to seize control of the country.

In their dealings with corrupt dictators in developing countries, Pogge asserts, international corporations are morally no better than someone who knowingly buys stolen goods—with the difference that the international legal and political order recognizes the corporations, not as criminals in possession of stolen goods, but as the legal owners of the goods they have bought. This legal situation is, of course, beneficial for the industrial nations, because it enables us to obtain the raw materials we need to maintain our prosperity, but it is a disaster for resource-rich developing countries, turning the wealth that should benefit them into a curse that leads to a cycle of coups, civil wars, and corruption. Research confirms that the more a developing country's economy depends on natural resources the less likely it is to be a stable democracy (Lam and Wantchkeon 2003; Jensen and Wantchkeon 2004).

In this light, our obligation to the poor is not one of providing assistance to strangers, but of compensation for harms that we have caused, and are still causing, to them. We need to stop the actions that harm them, and compensate them for the harm we have done up to now.

It might be argued that we do not owe the poor compensation, because our affluence actually benefits them. Living luxuriously, it is said, provides employment, and so wealth trickles down to the poor, helping them more effectively than aid does. When the poor receive money, however, they spend it too, and that is more likely to assist others who are poor. The rich in industrialized nations buy virtually nothing that is made by the very poor. During the past twenty years of economic globalization, although expanding trade has helped lift many of the world's poor out of poverty, it has failed to benefit the poorest 10% of the world's population. Some of the extremely poor, most of whom live in sub-Saharan Africa, have nothing to sell that rich people want, while others lack the infrastructure to get their goods to market. If they can get their crops to a port, European and US subsidies often mean that they cannot sell them, despite—as for example in the case of West African cotton growers who compete with vastly larger and richer US cotton producers—having a lower production cost than the subsidized producers in the rich nations.

The remedy to these problems, it might reasonably be suggested, should come from the state. When aid comes through the government, everyone who earns above the tax-free threshold contributes something, with more collected from those with greater ability to pay. But the amount of foreign aid given by the developed countries of the world is, despite some recent increases, extremely small. The rich nations—that is, the donor nations of the OECD—give on average only 0.43% of their gross national income, or 43 cents in every $100 they earn.

In any case, the aid given by governments falls far short of the standard Aquinas has set. But we cannot only blame it on governments. What we ourselves do also falls far short of this standard. It falls short, too, of what we would do in the case of the drowning child in the pond.

What, then, should we be doing? The American investor Warren Buffett, one of the world's richest people—set an example when he pledged that he would give $30 billion to the Bill and Melinda Gates Foundation, and another $7 billion to other charitable foundations. Earlier Bill and Melinda Gates had donated nearly $30 billion to establish their foundation. This huge fortune is now at work primarily to reduce poverty, disease, and premature death in the developing world.

Philanthropy on this scale raises many ethical questions: Does it do any good? Should we praise people like Buffett and Gates for giving so much, or criticize them for not giving still more? Is it troubling that such momentous decisions are made by a few extremely wealthy individuals? And how do our judgments about them reflect on our own way of living?

Aid has always had its critics. Carefully planned and intelligently directed private philanthropy may be the best answer to the claim that aid doesn't work. Of course, as in any large-scale human enterprise, some aid can be ineffective. Aid organizations are increasingly accepting that they need more rigorous assessment of the efficacy of aid programs, and there are organizations that provide evaluations of aid programs.[3] But provided that aid isn't actually counter-productive, even relatively inefficient assistance is likely to do more to advance human wellbeing than luxury spending by the wealthy.

People sometimes suggest that giving aid to the poor is a bottomless pit—we can pour in more and more money, but it will never make much of a difference. In fact, we have never really tried to give the kind of amounts that could truly transform poor countries. It might take less than we think. One way of calculating how much it would cost is to take as our target, at least for the next six years, the Millennium Development Goals, set by the United Nations Millennium Summit in 2000. On that occasion the largest gathering of world leaders in history jointly pledged to meet, by 2015, a list of goals that include:

- To halve the proportion of the world's people in extreme poverty (defined as having less income than is required to meet their basic needs).
- To halve the proportion of people who suffer from hunger.
- To ensure that children everywhere are able to take a full course of primary schooling.
- To end gender disparity in education.
- To reduce by two-thirds the mortality rate among children under five.
- To reduce by three-quarters the rate of maternal mortality.
- To have halted and begun to reverse the spread of HIV/AIDS and to have begun to reduce the incidence of malaria and other major diseases.
- To halve the proportion of people without sustainable access to safe drinking water.

A United Nations task force, headed by Columbia University economist Jeffrey Sachs, estimated the annual cost of meeting these goals to be not more than $189 billion per year.[4] This is really quite a modest amount. It would not even require the affluent nations to double their existing aid—which is, as we have seen, on average less than 0.5% of gross national income. So increasing that to 1% would not make a dramatic difference to our lifestyle.

In *The Life You Can Save*, I tried to work out how much would be raised if the richest Americans gave away amounts that seemed easily affordable (Singer 2009, ch. 10). I started with the richest 0.01% of Americans, each of whom earn over $5 million, and imagined that they would give away a third of their income. Then I scaled this percentage down for those who were still rich, but not quite as rich, until I got to 5% for all those in the richest 10% of Americans, who all earn around $100,000 a year. Finally I added in an average donation of just 1% of income for the remaining 90% of US taxpayers—assuming that some would not be able to give anything, but others would be able to give more than 1%. When I added up the total this would yield, it came to $510 billion a year—all just from Americans, with none of them giving amounts that would cause any serious hardship.

Obviously, the rich in Europe, Japan, Australia, Canada and other nations should share with Americans the burden of relieving global poverty. The US is responsible for roughly one-third of the gross domestic product of all OECD nations, so let's take that as its fair share. On that basis, extending the scheme I have suggested worldwide would provide $1.5 trillion annually for development aid. That's eight times what the task force chaired by Sachs estimated would be required to meet the Millennium Development Goals.

I believe, with Thomas Aquinas, that, for anyone living in abundance, it is a serious moral failing to fail to do, at least, one's fair share of reducing global poverty. It would, in fact, be surprisingly easy for the world's rich to eliminate, or at least come much closer to eliminating, global

3
See, for example, www.GiveWell.net.

4
For the Millennium Development Goals, see www.un.org/millenniumgoals. For the UN task force cost estimates, see UN Millennium Development Project 2005, Report to the Secretary-General: Investing in Development: A Practical Plan to Achieve the Millennium Development Goals. Overview, http://www.unmillenniumproject.org/documents/overviewEngLowRes.pdf tables 7 and 8, p. 57.

poverty. It has actually become easier over the last thirty years, as the rich have got significantly richer. Of course, wars, both international and civil, will always cause some poverty, and climate change, the other great challenge we must face, could cause much more. But measured against our capacity, the Millennium Development Goals are far too modest. If we fail to achieve them—as on present indications we well might—we have no excuses. The target we should be setting ourselves is not halving the proportion of people living in extreme poverty, and without enough to eat, but ending large-scale extreme poverty throughout the world. That is a worthy goal, and it is not beyond our reach.

A NEW GLOBAL ETHIC

In this final section I shall turn to the underlying issue of whether we can develop the new, global ethic needed for living in this new world. Although perhaps we can agree, in some theoretical sense, that the value of the life of an innocent human being does not vary according to nationality, it might be said that the abstract ethical idea that all humans are entitled to equal consideration cannot govern the duties of a political leader. Just as parents are expected to provide for the interests of their own children, rather than for the interests of strangers, so too in accepting the office of head of government, one takes on a specific role that makes it one's duty to protect and further the interests of those living in the country one is governing.

It is true that there is today no world political community, and as long as that situation prevails, we must have nation-states, and the leaders of those nation-states must give preference to the interests of their citizens. But is the division of the world's people into sovereign nations a dominant and unalterable fact of life? Here our thinking has been affected by the horrors of Bosnia, Rwanda, and Kosovo. In Rwanda, a United Nations inquiry took the view that 2,500 military personnel, given the proper training and mandate, might have saved 800,000 lives (UN 1999). Kofi Annan was UN Secretary-General when the inquiry completed its report. As undersecretary-general for peacekeeping operations at the time, he must bear some responsibility for what the inquiry termed a "terrible and humiliating" paralysis. The experience changed his views. As Secretary-General, he urged that "the world cannot stand aside when gross and systematic violations of human rights are taking place." Yet such gross and systematic violations continue to take place in Darfur today. Annan has said that we need "legitimate and universal principles" on which we can base intervention (Annan 1999). That means a redefinition of state sovereignty, or more accurately, an abandonment of the absolute idea of state sovereignty that has prevailed in Europe since the Treaty of Westphalia in 1648.

We have lived with the idea of sovereign states for so long that they have come to be part of the background not only of diplomacy and public policy but also of ethics. Implicit in the term "globalization" rather than the older "internationalization" is the idea that we are moving beyond the era of growing ties between nations and are beginning to contemplate something beyond the existing conception of the nation-state. But this change needs to be reflected in all levels of our thought, and especially in our thinking about ethics.

One hundred and fifty years ago, Karl Marx gave a one-sentence summary of his theory of history: "The handmill gives you society with the feudal lord; the steam mill, society with the industrial capitalist" (Marx 1977). Today he could have added: "The jet plane, the telephone, and the Internet give you a global society with the transnational corporation and the World Trade Organization." Technology changes everything—that was Marx's claim, and if it was a dangerous half-truth, it was still an illuminating one. As technology has overcome distance, economic and social globalization has followed, for good and for bad. In European supermarkets, fresh vegetables flown in from Kenya are offered for sale alongside those grown locally. Instant digital communication spreads the nature of international trade from actual goods to skilled services. When I need help with my computer, my call is answered by someone in India.

The increasing degree to which there is a single world economy is reflected in the development of new forms of global governance, the most controversial of which has been the World Trade Organization, but the WTO is not itself the creator of the global economy. At the same time, the greater movement of people means that infectious diseases spread more rapidly around the world, and of course terrorism can also extend its reach globally, causing us minor annoyance every time we travel by air, but leading some nations to much greater intervention in the affairs of other countries. Indeed, from the broad acceptance of the US attack on Afghanistan after September 11, 2005, we can con-

clude that world opinion and international law now accept that every nation has an obligation to every other nation of the world to suppress activities within its borders that might lead to terrorist attacks carried out in other countries, and that it is reasonable to go to war with a nation that does not do so. If the Austro-Hungarian Kaiser Franz Joseph could see this, he might well feel that the world has come round to his view. For what the US did to the government of Afghanistan is difficult to justify without also justifying the ultimatum that Austria-Hungary made to Serbia after the assassination of Archduke Franz Ferdinand in Sarajevo in 1914—an ultimatum that, at the time, was regarded by Great Britain, Russia, and France as an attack on the sovereignty of the state of Serbia.

Marx argued that in the long run we never reject advances in the ease with which we satisfy our material needs. Hence history is driven by the growth of productive forces. He would have been contemptuous of the suggestion that globalization is something foisted on the world by a conspiracy of corporate executives meeting at the World Economic Forum, and he might have agreed with Thomas Friedman's remark that the most basic truth about globalization is, "No one is in charge" (Friedman 2000). For Marx that is a statement that epitomizes humanity in a state of alienation, living in a world in which, instead of ruling ourselves, we are ruled by our own creation, the global economy.

Marx also believed that a society's ethic is a reflection of the economic structure to which its technology has given rise. Thus a feudal economy in which serfs are tied to their lord's land gives you the ethic of feudal chivalry based on the loyalty of knights and vassals to their lord, and the obligations of the lord to protect them in time of war. A capitalist economy requires a mobile labor force able to meet the needs of the market, so it breaks the tie between lord and vassal, substituting an ethic in which the right to buy and sell labor is paramount.

Our newly interdependent global society, with its remarkable possibilities for linking people around the planet, gives us the material basis for a new ethic. Marx would have thought that such an ethic would serve the interests of the ruling class, that is, the rich nations and the transnational corporations they have spawned. But the rich nations do have an interest in the development of a more global ethical viewpoint. They need this because a poor, undeveloped world poses many risks to their security—from the spread of diseases, from terrorism, and from waves of tens of millions of refugees whose livelihoods could be destroyed by climate change.

I have argued that as more and more issues increasingly demand global solutions, the extent to which any state can independently determine its future diminishes. We therefore need to strengthen institutions for global decision-making and make them more responsible to the people they affect. That line of thought leads in the direction of a world community with its own directly elected legislature, perhaps slowly evolving along the lines of the European Union.

There is little political support for such ideas at present. Apart from the threat that the idea poses to the self-interest of the citizens of the rich nations, many would say it puts too much at risk, for gains that are too uncertain. It is widely believed that a world government would be, at best, an unchecked bureaucratic behemoth, and at worst, a global tyranny, unchecked and unchallengeable. Those thoughts have to be taken seriously. They present a challenge that should not be beyond the best minds in the fields of political science and public administration, once those people adjust to the new reality of the global community and turn their attention to issues of government beyond national boundaries.

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