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Globalization: The Product of a Knowledge-Based Economy

By LESTER C. THUROW

ABSTRACT: The shift to an era of man-made brain-power industries is creating the technologies that are creating a global economy. Leaving behind the role of regulator or the function of controlling their national economies, governments are becoming platform builders that invest in infrastructure, education, and research and development to allow their citizens to have the opportunity to earn world-class standards of living. Countries themselves are being put into play, and inequality is rising. The rest of the world sees an invasion of the American system, but in reality, it is a brand-new global system. Intellectual property rights become a central and contentious unresolved issue.

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GLOBALIZATION is just one of the impacts of the new technologies (microelectronics, computers, robotics, telecommunication, new materials, and biotechnology) that are reshaping the economies of the third millennium. Collectively, these technologies and their interactions are producing a knowledge-based economy that is systematically changing how all people conduct their economic and social lives. Often, globalization is seen as the cause of these changes, when it is in fact only one of many effects (Thurow 1999).

Bill Gates stands as the symbol of this new era. For all of human history until now, the richest person in the world has owned natural resources—land, gold, oil. But Bill Gates owns no land, no gold, and no oil. Owning no factories or equipment, he is not a capitalist in the old-fashioned sense. He has become the richest person in the world by controlling a knowledge process. As such, he marks a fundamental shift to a knowledge-based economy. This shift will come to be seen as the third industrial revolution—steam being the first, and electrification the second.

The third industrial revolution is spreading from the developed world to some, but not all, parts of the developing world. To participate in this new global economy, developing countries must be seen as attractive offshore production bases for multinational corporations. To be such bases, developing countries must provide relatively well-educated workforces, good infrastructure (electricity, telecommunications, transportation), political stability, and a willingness to play by market rules.

If these conditions are in place, multinational corporations will transfer via their offshore subsidiaries or to their offshore suppliers the specific production technologies and market linkages necessary to participate in the global economy. By themselves, developing countries, even if well educated, cannot produce at the quality levels demanded in high-value-added industries and cannot market what they produce even in low-value-added industries such as textiles or shoes. Put bluntly, multinational companies possess a variety of factors that developing countries must have if they are to participate in the global economy.

The geographical definition of any economy is given by the area across which business firms maximize profit—that is, across which they search to find the cheapest places to produce and the most profitable places to sell their goods and services. With today's communication and transportation technologies, business firms increasingly search the globe on both of these dimensions. In the process, a global economy is emerging that will in the end dissolve our existing national economies.

It is these search criteria and not any specific economic measure—profits earned abroad, exports relative to gross domestic product (GDP), and so on—that determine the existence of a global economy. No one economic statistic reflects the extent of globalization since globalization comes in many forms. When Proctor & Gamble produces and sells soap or shampoo inside China and keeps the profits within China to finance its

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expansion plans, it is part of globalization. A Toyota that exports cars and auto components to Europe and Japanese investors who buy securitized American home mortgages are part of globalization. A merger between Chrysler and Mercedes is part of globalization. A laptop computer built with "Intel Inside," a Microsoft operating system, a Japanese flat panel display, and Korean memory chips assembled in Taiwan to the specifications of a large variety of multinational sellers of computers is part of globalization. Keypunching American insurance forms in Jamaica, joint software design teams located in India and America, and teaching Third World foreign suppliers how to make components for First World products are all part of globalization. An American firm marketing Latin American bananas in Europe is part of globalization. So are the American movies, television programs, and music that dominate foreign programming. Internet commerce by its very technology is automatically global. While the forms of globalization differ, what is constant is the desire of business firms for profit maximization on a global basis.

THE NATION-STATE

The knowledge-based economy is fundamentally transforming the role of the nation-state. Instead of being a controller of economic events within its borders, the nation-state is increasingly having to become a platform builder to attract global economic activity to locate within its borders. In developing countries, platform building means creating the educated workforces, infrastructure, stability, and market frameworks necessary to play the economic game. In developed countries, governments must also finance the basic research and development that thrusts technology forward. But the nation-state cannot regulate the economic game or control its outcome as it has in the past in either developed or developing countries.

The decline in governmental powers is clearly seen in the 1997 Asian economic crisis. World capital markets, moving more than $1800 billion per day, dwarf and dominate all but the biggest governments. World capital markets can and do bring national economies down.

But global finance also undercuts the economic powers of even the biggest governments in the developed world. In September 1998, the chairman of the American Federal Reserve Board, Alan Greenspan, was forced to organize the rescue of a derivative hedge fund, Long Term Capital Management, that had borrowed more than $1000 billion dollars and whose imminent bankruptcy was threatening to bring down U.S. financial markets. He was criticized in the press for organizing a rescue rather than just closing the firm down. But what the press wanted him to do he could not do. Long Term Capital Management's physical headquarters was in the United States, but it was formally and legally a firm headquartered in the Grand Cayman Island. The chairman of the Federal Reserve Board had no legal regulatory powers to control the firm. All he could do

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was request that the American banks that were its equity investors (financial firms he did control) exercise their rights as owners and take control of the firm. Alan Greenspan, like central bankers in the developing world, was losing his powers to control.

Wishing to hold onto their present regulatory powers, governments, not surprisingly, talk about controlling the global flows of capital and regulating global financial institutions. But how is any one government, even one as big as that of the United States, to do so? Any government that tried to exert control would simply find its financial institutions legally and electronically moving offshore and outside of its jurisdiction of control.

A global government might regulate global financial institutions, but no one, least of all the United States, is about to give some global authority the power to directly regulate and control its financial institutions. But even if a global financial governance were to exist, there are reasons to doubt that it could control global capital flows to guarantee currency stability any more than national governments can now control the ups and downs of their domestic stock markets. When money can be moved across national boundaries electronically on personal computers, stopping global capital flows is technologically difficult and perhaps impossible—whatever its merits.

Because countries need corporations more than corporations need countries, the relative bargaining power of governments and multinational corporations is shifting in favor of corporations. High-profile multinational companies that bring technology, market linkages, and supplier networks with them no longer pay taxes to governments. Governments pay taxes to them. To get an Intel plant, the state of Israel paid Intel $600 million (in grants, the financing of plant infrastructure, tax rebates), and to get a Ford auto assembly plant, Brazil is promising to pay Ford $700 million. Countries can refuse to pay taxes to companies, but, if they do so, those companies simply locate elsewhere (Wilkinson 1999, 7).

Here again the reversal of traditional positions is not limited to developing countries. Huge sums were paid by the citizens of Alabama and South Carolina to get BMW and Mercedes Benz to locate auto assembly plants in their states. The United Kingdom, Norway, Germany, and the Netherlands all recently lowered taxes on shipping companies to keep them from legally reorganizing themselves in low-tax countries. The British bookmaker Ladbrokes is investigating ways to set up its betting offshore so that its customers do not have to pay British taxes. Electronic commerce is making it difficult to collect sales or value-added taxes on products and services (software, music, movies) that can be directly delivered electronically. In this new balance of power, governments (citizens) often pay taxes to multinational companies. Governments often cannot collect their traditional taxes.

Many other examples of the loss of governmental economic powers can be given. With modern transpor-

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tation systems, countries find it impossible to stop illegal immigration. Millions see better standards of living elsewhere on their village television sets and decide to move to get those higher standards of living. In the process, what it means to be a country fades. A country that cannot control its own borders and its own workforce is in some fundamental sense not a real country. Similarly, pornography is produced electronically somewhere in the world (women with bare arms are regarded as pornographic in the Persian Gulf) where it is not illegal, put up on the Internet, and national governments lose their power to enforce their own standards of decency.

The economic interdependence that flows from globalization further undercuts the role of national governments. In the Latin American or East Asian meltdowns, the International Monetary Fund effectively replaced local governments when it came to economic decision making. The Japanese and East Asian meltdowns (purely locally generated in the case of Japan and locally triggered but globally intensified in the case of East Asia) threatened the world economy. What was feared did not happen because of the strength of the American economy, an economy bigger than those of Japan and East Asia combined. In the process, the continued prosperity of all parts of the world (Japan and Europe included) become dependent upon running export surpluses with the United States. For the continued prosperity of these economies, what happens to the American economy is more important than the activities of national economic policymakers at home.

Countries themselves are being put into play. Three factors are responsible.

1. With globalization, the scope, reach, and powers of national governments shrink, and the governments become less important. Attachments to existing governments grow weaker. If national governments cannot protect their citizens economically, why should their citizens support them politically?
2. The end of the Cold War means that superpowers have little interest in preventing other countries from disintegrating unless they are right next door and the chaos threatens to spread. Local civil wars in faraway places (Pakistan versus India, Israel versus Syria) are not going to bring the superpowers into military conflict with each other.
3. Small successful city-states, such as Singapore, demonstrate that one does not have to compromise with other ethnic groups so that one can live in larger countries that have the economies of scale necessary to produce high standards of living. National economies of scale are not all that important in a global economy. One can opt out and still succeed economically.

The empirical results of these three factors are clear. Many existing national states will not exist 50 years from now.

Fifteen countries have already emerged where the old USSR used to be. Czechoslovakia is divided in two. Yugoslavia has become at least five

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and will probably become seven different countries. The English have given quasi-independence to Scotland. The Basques and Catalans want independence from Spain. The Bretons and Corsicans agitate for autonomy in France. The northern Italians talk about kicking the southern Italians out of Italy. Quebec will at some point probably vote for independence from the rest of Canada.

In the non-Communist Third World, Indonesia is unlikely ever again to be one country. It was thousands of independent islands when it was conquered by the Dutch, forcibly made into their East Indies colony, and then ruled by two military dictators after World War II. An economic meltdown led to a political meltdown. There is no there there to glue it back together again.

Borders are going to be moving everywhere in Africa. Ten thousand different ethnic groups are not going to live forever in a handful of countries defined by the accidental meetings of British and French armies in the nineteenth century (Fisher and Onishi 1999).

The British unified India, the central planning of socialism held it together after the British left, but what is to hold it together now? Why should the prosperous parts be held back by the backward parts? Economic principalities will probably emerge looking much like the political principalities conquered by the British a few centuries earlier.

At the same time, in the developed world, countries are slowly disappearing. European countries without their own currencies are not fully independent countries. Eleven have become one. The remaining four members of the European Economic Community (EEC) will join—sooner rather than later. Others in Eastern Europe are knocking on the door. With the EEC imposing limits on national fiscal deficits, the determination of fiscal policies is now also outside of national control. Future steps, such as tax harmonization, will make members even less like real countries.

RISING INEQUALITY

The pressures fracturing the nation-state are also fracturing beliefs in, pressures for, and attainment of economic equality between individuals, companies, and countries. The economic gaps that have over the course of the last half-century shrunk are now widening.

In the first and second industrial revolutions, workers were leaving agriculture (a low-wage inegalitarian sector where patterns of land ownership dominate economic outcomes) and entering manufacturing and mining (intrinsically higher-waged and more egalitarian due to higher skill requirements). State-supported labor unions led to even more egalitarian distribution of wages. The social welfare state then used its tax and expenditure systems to further increase post-tax, post-transfer income equality.

But the knowledge-based economy essentially reverses all of these sources of equality. In the third industrial revolution, workers are leaving manufacturing and mining to enter services—a sector with a very wide dispersion of wages and

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average wages below those in mining and manufacturing (Thurow 1989). Services have also proven to be a difficult sector in which to organize unions. At the same time, globalization is driving unions out of existence in manufacturing. Why join a union if global competition means that unions cannot protect jobs or wages? Less than 10 percent of the private U.S. workforce is now unionized. Only in the public sector, where global competition plays no role, are unions still large and effective (U.S. Bureau of the Census 1998, 444).

Because of this shift in employment patterns, wage dispersions have increased sharply in America since 1973. Despite the booming prosperity of the 1990s in the United States, the trend toward sharply rising inequality has continued here. In the last three years of the decade, real wages ceased falling in absolute terms, but wage gaps between the top and bottom deciles continued to rise sharply (Mishel, Bernstein, and Schmitt 1998, 9, 23, 45, 85, 157, 51).

The egalitarian policies of the social welfare state are also in retreat. On both the tax and expenditure sides of the American federal government budget, redistributive activities have been sharply cut back (Council of Economic Advisors 1999, 357). International organizations such as the Organization for Economic Cooperation and Development repeatedly chastise Europe for not "deregulating its labor markets" and letting wages fall. The high payroll taxes necessary to finance a generous social welfare state are not globally viable since business firms will not expand in Europe as long as its wages are out of line with those of the rest of the world. Firms will simply move to countries where they do not have to pay high payroll taxes. High social welfare benefits also mean that workers will not take the lower-wage service jobs that are their only alternative to unemployment. With European unemployment benefits higher than wages in America's expanding service sector, the result has to be high European unemployment rates. But Europeans do not want to dismantle their traditional social safety net and give up some of their hard-won benefits.

In GDP statistics, the economic returns to capital are up and the returns to labor are down (Bosworth 1995, 12, 14). This is not surprising, given that labor is more abundant relative to capital on a global basis than it is in the rich developed world. Similarly, among workers, the returns to skills are up and the wages of those without skills are down. This is not surprising, given that on a global basis the supply of unskilled workers far exceeds that of skilled workers and that new technologies are increasing the need for skilled workers.

Financial crises magnify these rising inequalities. Financial crises are not caused by globalization. They existed long before globalization occurred. But the austerity demanded by the International Monetary Fund to restore global macro-stability leaves countries with much greater levels of internal inequality. Years later, Mexico has still not restored the levels of equality that existed prior to its 1982 crisis. The same is going to be true in

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East Asia. Levels of inequality are much higher then they were pre-crisis and are not going to return to pre-crisis levels any time soon.

Inequalities are rising between business firms as well as individuals. In a global economy, business firms find themselves confronting two strategic options: become a dominant global player or become a highly specialized, nimble niche player. The midsized national firm is doomed to extinction. In the auto industry, for example, it is widely believed that when the current consolidation is over, there will only be six firms left standing, and four of them (Volkswagen, Toyota, Ford, and General Motors) are already known. To have a chance at remaining viable, Mercedes bought Chrysler and Renault bought Nissan. The Volvos, Saabs, Jaguars, Rolls Royces, and Rovers are all gone as independent auto companies. How can the Fiats, Hyundais, and Peugeots survive?

In financial services, firms become global players such as Goldman Sachs or highly specialized niche players such as Long Term Capital Management (only 16 partners with more than $1000 billion focused on a very narrow range of derivative investments). Among those who would be corporate survivors, slice and dice (merge to get larger and sell divisions where it is not possible to be a global player) is the name of the game.

Among countries, the convergence in per capita GDPs that was occurring in the 1960s and 1970s is being replaced by divergence. Those countries that do not play in the global knowledge economy fall behind (Africa); those countries that can play the game leap ahead (China). Within Asia or South America, the gaps between the most successful and the least successful countries are larger than they were in the past. In the 1990s, the wealthiest big country, America, widened the income gap between itself and the rest of the world. Even the income gap between America and its closest and most similar neighbor, Canada, is up by a third.

The inequalities flowing from globalization and a knowledge-based economy are not important economically. Capitalistic economies can easily adjust to more unequal distributions of purchasing power. Middle-class stores find themselves with smaller markets (Sears) or go out of business (Gimbels). Upscale stores (Bloomingdale's) and downscale stores (Wal-Mart) boom.

The problems are political. Democracy (one person, one vote) implicitly assumes some degree of economic equality. A majority of the voters have to feel that they are benefiting from the economic system. As a result, all democracies have a heavy redistributive social welfare emphasis in their spending patterns. Governments have to deliver something to the majority of voters. As market forces produce ever more unequal distributions of economic wealth and as democratic governments lose their power to alter the market's distribution of earnings and wealth, political deliverables become harder to find. Over the past 25 years, America has illustrated that inequalities, if they grow slowly, can become very much larger than they were in the past,

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without evident political kickback. Yet it is difficult to believe that economic inequality can just keep on growing without limits in democracies.

EXPORTING THE AMERICAN SYSTEM

In the rest of the world, globalization is often seen as being forced to adopt American practices. (Europeans often call it "cowboy capitalism"). But the traditional American system is not being exported to the rest of the world (Calabrese 1998). A new global knowledge-based economy is being built, much of it in America, but what is emerging is not a global copy of traditional American practices.

Like those in the rest of the world, Americans see the new costs of globalization that they have to bear more clearly than they see the costs that others have to bear. Everyone, Americans included, is painfully adjusting to a new knowledge-based global economy. The American steel industry is a good example. Selling prices are down 25 percent because Asian steel production cannot be sold in Asia in the aftermath of Asia's meltdown. In 1998, steel imports surged into the United States from Asia (Korea, up 56 percent; Australia, up 98 percent; Japan, up 219 percent; and China, up 245 percent), American production fell 25 percent, and one third of America's steelworkers were laid off. These American steelworkers are essentially being asked to pay for Asia's mistakes. Not surprisingly, they object to this interdependence (Dunne 1999, 4).

Large labor force downsizings among profitable firms are new to America. Moving jobs to offshore production bases is new to Americans. An economy essentially without unions is not the economy of mid-twentieth-century America. Among men, wage inequalities are larger than they ever have been. Real inflation-adjusted median family incomes are slightly below where they were in 1973 (Council of Economic Advisors 1999, 366). Economic uncertainty is very high, and a majority of Americans expect their children to have real incomes below what they have.

Traditionally, culture is older people telling younger people what they should believe and how they should act. What is frightening about the new electronic culture is that it is a "for-sale" culture that jumps right across the generations directly to the young. In contrast to older forms of culture, this culture does not have any specific values that it wants to inculcate. Those who produce this culture provide whatever sells—whatever the young will buy. It is a culture of economics (profits) rather than a culture of values (morals). In that sense, it is profoundly different—and disturbing to many.

The television network MTV is a good example of the new global culture. From country to country, the songs and the languages in which the songs are sung are different, but the style in which the songs are presented is the same. That MTV style first appeared in America—but not all that long ago. The style is the same everywhere because the style seems to sell everywhere.

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The electronic culture that frightens many in the rest of the world also frightens many Americans and has brought forth a religious-fundamentalist backlash in the United States that rivals that found anywhere else. In what other countries are there religious militia (Christian, in this case) who engage in shoot-outs with the police and their neighbors? One has to go to Algeria to find something more extreme. The fight going on within the Republican Party between the religious Right and the party's traditional business base vividly illustrates the power of those Americans who do not like the new electronic culture.

Economically, the interesting question is why Americans seem to create more than their fair share of this new for-sale culture. Games, movies, music, and television programs have become a major part of America's exports. Part of the answer may be found in an immigrant society that does not have a tight conception of what the American culture is. Others are welcome to add to that culture. As new immigrant groups have come to America, they have changed the American culture. Such changes have come to be expected. Foreign words become English words without anyone worrying about their origin. Asking what the potential clients (the young, in this case) want rather than trying to make them into a preconceived conception of what a young American ought to be is something a diverse country learns to do.

Because of this history, American companies are very good at bringing talented foreign performers into their operations and making them feel like first-class participants. Anyone good at creating cultural products that will sell is quickly invited to visit America, feels at home, and may decide to stay. These individuals quickly come to be seen by everyone inside and outside of the United States as an element of American culture despite their place of birth or the national heritage they bring with them.

With the new communication technologies, many of the new groups that are being invited to become Americans come electronically, not physically. In the process, they will change American culture just as those who came physically changed it. But the new amalgam will still probably be seen as American culture.

INTELLECTUAL PROPERTY RIGHTS

Not surprisingly in this new economy, the rules of engagement are uncertain and major unresolved problems will arise. The ownership of intellectual property rights—the ultimate source of wealth in a knowledge-based economy—is one of the most important and most contentious unresolved issues (Thurow 1997, 95).

The private ownership of productive assets and the ability to appropriate the output that flows from those assets lie at the heart of capitalism. Capitalism does not work unless who owns what is clear. But ownership rights are anything but clear in the area of intellectual property. Historically, efforts to establish and enforce ownership rights to

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intellectual property have revolved around patents, copyrights, trademarks, and trade secrets, but there are two problems. First, the current system was not built to deal with today's technologies. Second, there is no global system of enforceable intellectual property rights.

New technologies have created new potential forms of intellectual property rights: for example, can genetic pieces of a human being be patented, what ownership rights exist when humans build new genes that can replace defective natural human genes, what ownership rights exist when someone discovers what a gene does? New technologies have also made old rights unenforceable. When books and music can be downloaded from an electronic library, what does a copyright mean? If a software's look and feel cannot be patented, software can be legally copied as long as one does not use exactly the same programming. What does a software patent mean in this case? Put bluntly, a patent system created for a mechanical age simply does not fit an electronic age or a biological age.

What different countries want, need, and should have in a system of intellectual property rights is very different depending on their level of economic development. Developing countries need to copy in order to catch up, yet developed countries need to prevent copying to ensure adequate rates of return on investments in research and development. National systems that have been developed for advanced countries such as the United States are not going to evolve into de facto world standards. A global system will have to allow for a diversity of economic positions and beliefs, but how is that system to come into existence?

Meanwhile, everyone can feel aggrieved. From the perspective of the developed world, intellectual pirates are stealing property that belongs to others; from the perspective of the developing world, those seeking to enforce intellectual property rights are depriving them of the knowledge they need in order to develop. As they argue, they are doing nothing that today's wealthy countries were not doing when they were developing. The Americans blatantly copied the British textile mills in the nineteenth century. The Japanese blatantly copied the American auto and consumer electronics industries in the twentieth century.

CONCLUSION

Globalization has come in two waves. The illusion that national governments can choose to participate or not participate in globalization flows from the fact that choice was an important element in the first wave of globalization.

Seeing rampant economic nationalism as one of the causes of the Great Depression and World War II and facing a confrontation between capitalism and communism, both sides of the Cold War conflict set out in the 1950s to create more integrated transnational economies. The EEC in Western Europe and Comicon in Eastern Europe were both expressions of the same mind-set. Each of the two superpowers felt it had to more tightly tie its

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military partners together economically. Although America was not in Europe and is not a member of the EEC, it was the EEC's biggest supporter. The "United States of Europe" was a phrase commonly used on both sides of the Atlantic in the 1950s.

For the non-Communist world, the trading rounds of the General Agreement on Tariffs and Trade, starting with the Kennedy round in the 1960s, set out to achieve a capitalistic open trading regime globally. Governments dismantled tariffs and quotas deliberately in the 1950s, 1960s, and 1970s to create a more integrated capitalistic global economy. Companies reacted to these new economic opportunities created by governments by expanding across national borders. Then China, by choice in the late 1970s, and the Soviet Union, by default in the early 1990s, decided to abandon the idea of a competing Communist global economy and participate in a single capitalistic global market economy.

The second wave of globalization that started in the 1980s and accelerated in the 1990s is, however, very different. It was not created as a matter of public choice. It is a tsunami wave created by a seismic shift in technology. Responding to the new global profit-making opportunities created by technology, corporations started surfing the new technologies in this second wave. Governments lagged behind. Governments did not decide to start global sourcing and marketing. Governments did not encourage cross-border corporate mergers. Governments did not start electronic commerce. All can be traced to shifts in technology.

The second wave of globalization is not a process that governments can start or stop, or speed up or slow down; nor can they pick and choose where they want to participate. Underdeveloped countries can opt out—the can refuse to provide the educated workforces and infrastructure necessary to participate—but that means opting out on the process of economic development itself. There is no other process for getting wealthy.

Developed countries cannot even opt out. They are already past the point of no return. Their corporations have committed themselves to the global economy, they have restructured themselves to fit that global economy, and they could not return to serving solely national economies even if they wished to do so. In the developed world, too many citizen-voters depend upon the global economy for their livelihoods for their governments even to think about opting out.

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