

Committee V
Cross-Culturalization: The Role of
Transportation and Communication

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TECHNOLOGY AND THE GLOBALIZATION OF PRODUCTION AND CULTURE

by

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ABSTRACT

Tehnological changes are lowering the costs of economic transactions and, as a direct consequence, are creating an ever more integrated global economy. But the effect of economic globalization extend beyond strictly economic considerations to include both the political and cultural realms. The same forces that are expanding markets are not only intensifying competitive pressures on businesses, they are also putting governments increasingly in competition with one another with far reaching political, as well as economic, implications. The global interaction that is increasing economic and political competition is also accompanied by accelerating levels of contact between diverse cultural. The resulting cross-culturization is a complex phenomenon of blending and clashing that has the potential for both productive cooperation and destructive conflict. Global economy competition, global political competition, and the connection between the two are important considerations in any attempt to predict whether cross-culturization will be characterized more by cooperation than by conflict. Fortunately, there are strong reasons for believing that global competition is driving a shift from negative-sum political activity to positive-sum market activity, a shift which favors cross-cultural cooperation rather than cross-cultural conflict.

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Significant international changes are taking place as the direct result of the globalization of economic activity and the technological revolution that is playing such an important role in that globalization. The very nature of the wealth producing process is being changed by technology, and this change has far reaching economic, political and cultural ramifications. Increasingly it is knowledge rather than physical effort, innovative ideas rather than physical resources, and communication that spans territory rather than the territory itself that generates wealth. The technological changes that are linking people together in an ever more complex and expansive network of global markets are part of a productive process that are bringing people closer together both economically and culturally. The result will be a wealthier world with increased opportunities for productive specialization and cooperation, and with strong incentives for production to be restructured in ways to take full advantage of these productive opportunities. Increased economic globalization is also imposing constraints on political processes that will expand the scope for international cooperation and exchange, both economically and culturally.

Transactions Cost as a Limit on Market Cooperation

The efficiency of the market place is based on the ability of each production unit to specialize its productive activities in ways that facilitate the productive activities of others in a cooperative effort that is responsive to the preferences of consumers. The essential ingredients into this cooperation are the information and motivation communicated through the prices that emerge from market transactions. The primary obstacle to the realization of fully specialized, fluid, and efficient economic cooperation between producers and consumers is the cost of transactions. There are inevitable costs associated with operating across markets, and those costs reduce the range of activities for which it is efficient to rely entirely on market exchange to direct resources.

For example, in a world without the friction of transactions costs, employees would respond immediately to any change in consumer preferences. Indeed, there would be no employees of firms in the traditional sense.¹ Each worker would be an independent contractor who performed services for whomever placed the greatest value on those services, as reflected in the spot wage he was offered. But in the real world it is enormously costly to negotiate a new labor contract with each worker on a daily basis, or everytime there is some change in the nature of the task to be performed. The cost would more than offset any efficiency resulting from letting a worker go when his effort is temporarily worth more

¹ In fact, in a world without transactions costs there would be no firm in the traditional sense. In a seminal article in the theory of the firm, Coase argued that it is transactions costs that explain the existence of the firm. See R. Coase, "The Nature of the Firm," Economica, 4 (1937): 386-405.

elsewhere in the economy and then hiring him back immediately afterward. The advantage is in both the employer and worker agreeing to a long-term arrangement which reduces the ability of both parties to respond to temporary changes in market conditions.²

Similarly, in a world without transactions costs, a firm (assuming one existed in such a world) would find no advantage in being vertically integrated and producing products that are intermediate to its final output. It would always be more efficient to purchase such products on competitive markets from suppliers that are fully specialized in their production. However, given the transactions costs associated with contracting with an outside firm for the supply of intermediate products, it is often better to produce intermediate products in-house even though an outside firm could produce them at less cost. There is the obvious costs of identifying the best supplier of an intermediate product, negotiating mutually advantageous terms, arranging transportation, and coordinating delivery with in-house production schedules. But there is also the cost of being subjected to opportunistic behavior on the part of the outside supplier once maintaining production becomes dependent on that supplier. Such dependence makes the firm vulnerable to threats to cut supplies unless new, and less favorable, terms are renegotiated.

General Motors' relationship with Fisher Body provides an interesting example of the type of transactions costs being discussed

² For a thorough discussion of this issue, see O. Williamson, M. Wachter, and J. Harris, "Understanding the Employment Relation: The Analysis of Idiosyncratic Exchange," The Bell Journal Of Economics, 6 (1975): 250-78.

here. In 1919 General Motors entered into an agreement with Fisher Body to be its exclusive supplier of closed auto bodies. This agreement obviously made General Motors dependent on Fisher Body and vulnerable to opportunistic demands by Fisher Body for better terms than initially agreed upon. Although, there were contractual limitations on Fisher Body's ability to "hold up" General Motors, and Fisher Body made no blatant effort to exploit General Motors' vulnerability, problems did arise. Fisher Body attempted to charge more than the contract specified. But, when the per unit costs of auto body production declined significantly because of the unexpected large increase in the sale of automobiles (and production of auto bodies), General Motors felt that the price of those bodies should be decreased to reflect the cost decline and keep within the spirit, if not the letter, of the original agreement. Not surprisingly, Fisher Body felt differently about the desirability of a price decrease. Also General Motors wanted Fisher Body to relocate its production facilities to a location adjacent to the G.M.'s assembly plants in order to reduce transportation costs, but Fisher Body refused to do so because of the large expense involved. The final resolution to these transactions cost problems was a merger of the two companies in 1926.³

³ For a more detailed discussion of the General Motors contractual relationship with Fisher Body and the merger of the two companies, as well as a more general transaction cost explanation of vertical integrated firms, see B. Klein, R. Crawford, and A. Alchian, "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," The Journal of Law and Economics, 21 (October 1978); 297-326.

So transactions costs impose limits on the ability of people to engage in international cooperation through market exchange, and go a long way in explaining the existence and structure of firms. These transactions costs can never be eliminated. Therefore economic cooperation will never be complete and there will always be firms. But technological advances are reducing transactions costs, and, in the process, are changing the structure and operation of firms in ways that have global economic consequences. These changes also have far reaching political and cultural implications that are inextricably related to the economic changes that are taking place around the globe.

Technology and Lower Transactions Costs

To best consider the global implications of declining transactions costs we consider first how technology is decreasing those costs.

Technology is reducing transactions costs most directly by lowering the costs of transportation and communication. The modern day jet aircraft is the most obvious example of faster and safer transportation at reduced costs. To illustrate this improvement, consider the fact that in 1937 the price of an airline ticket between California and Japan was \$12,725 (in 1986 dollars). By 1986 the same trip could be made much faster and far safer for a price of \$930 (still in 1986 dollars).⁴

⁴ See Richard N. Cooper, "The United States as a Open Economy," in Richard N. Cooper, ed. How Open is the U.S. Economy? (Lexington Mass.: Lexington Books, 1986): PP. 3-24.

The costs of international communication has also fallen dramatically with these declining costs being reflected in an explosion in international communication. In 1986, for example, 478 million international calls were made from the U.S., in comparison with only 3.3 million in 1960.⁵ Rapid increases in telephone communication are expected to continue since line charges are expected to decrease by as much as 40 percent more by the mid 1990s.⁶ And this reduction promises to do more than stimulate increased telephone communication. Global communication with fax messages and electronic mail, impossible a few years ago, is now as cheap as a telephone call and almost as common.

Technological advances are increasing capital mobility (reducing the cost of transporting capital) by diminishing the size of capital. And with the increased capital mobility comes further reductions in the costs of transactions. The most dramatic downsizing of capital has resulted from advances in computer technology. When universities bought their first mainframe computers in the early 1960s, they filled suites of offices and possessed around 8 K of memory. Today as good desk top computer can easily have as much as 32 MBs (32,000 K) of memory and tiny calculators that come in the form of business cards have more memory than big university mainframes had less than 30 years ago. With the miniaturation of computers has come the down-sizing of other types of capital. In textile production, air-jet looms have

⁵ Statistical Abstract of the United States (1989), p.545.

⁶ "Business Goes Body Shopping," Newsweek, July 10, 1989: pp.46-7.

replaced fly-shuttle looms with the result that the same amount of fabric can be produced in one-third the space. In the past metal fabrication plants required large numbers of workers and long production lines in order to achieve the efficiency that is now realized with six machines and six people. Computer technology is allowing large assembly line runs of homogeneous products to be replaced with small runs of highly specialized products. For example, McGraw Hill uses a computerized printing process that allows it to profitably produce individualized text books for as few as ten students.⁷

Not only is capital becoming more mobile as technology has diminished the size of commercially viable production units, but the very nature of capital is changing in ways that increase capital mobility. Increasingly it is information, knowledge, and creativity that are the most important components of productive capital. "The displacement of materials with ideas is the essence of all real economic progress," as George Gilder has stated.⁸ One measure of the increasing importance of this "human capital" is the gap between the salaries of college and high school graduates that in recent years has grown significantly.⁹ And few things are as mobile as information,

⁷ These, and other, examples, of the down-sizing of capital are discussed in Chapter 3 of R. McKenzie and D. Lee, Quicksilver Capital: How the Rapid Movement of Wealth has Changed the World, (New York: The Free Press, 1991)

⁸ George Gilder, Microcosm: The Quantum Revolution in Economics and Technology, (New York: Simon & Schuster, 1989): p. 63.

⁹ See Kevin Murphy and Finis Welch, "Wage Premiums for College Graduates: Recent Growth and Possible Explanations," Educational Researcher, (May 1989): 17-26.

ideas and knowledge. They can be moved around the globe at the speed of electronic impulses with little more effort than it takes to make a key stroke on a computer keyboard.

By reducing transactions costs, improvements in global transportation and communication are expanding in the size of markets and increasing the competition faced by firms. Firms, and their workers, that dominated local markets in the past now find themselves in competition with firms and workers on the other side of the globe. So the opportunities that arise from lower transactions costs for firms to operate more efficiently come with competitive pressures on producers to take advantage of those opportunities.

The Political Implications of Global Competition

The increased competitive pressure on businesses as the result of expanding markets and the globalization of economic activity has been widely discussed. Less widely noted is that global markets are also putting competitive pressures on governments as well. With increased integration of economies world-wide, governments are being forced to consider the implications of their actions on the efficiency of their economies. When businesses are having to respond nimbly to the unrelenting pressures of global competition, governments find it more costly to pursue policies that burden business with mindless regulation and excessive taxation. Government policies that hamper the ability of firms to respond efficiently to global competition threaten not only the burdened firms, but also the government that imposes the burdens. Businesses that are not viable are unable to provide the productivity needed to

support government. And the businesses that are heavily burdened by one government may remain viable, but only by relocating to a less burdensome political jurisdiction.

Governments are increasingly having to recognize that taxation and regulation can force domestic businesses to move all, or part, of their productive activity to a more productive off-shore environment, reducing the local tax base in the process. Greater capital mobility means governments are increasingly in competition with each other for tax base that is becoming more mobile with every technological innovation. Success in this competition requires that governments do less to exploit, and more to enhance, the productivity of the private sector. Former editor of The Economist, Norman Macrae, captured the thrust of this competitive pressure on government when he stated, "In the future, we will vote more frequently with our feet. If politicians try to boss us, brainworkers will go away and telecommunicate from Tahiti. Countries that choose to have too high a level of government expenditure or too fussy regulations will be residually inhabited mainly by dummies."¹⁰

While the competitive pressures on governments are real, and becoming more intense, it is easy to be overly optimistic about the efficiency of the political response. We have not reached the point where governments will restrain themselves to only those activities that promote general economic efficiency. There is far too much contrary evidence to be credible with such an argument. Governments will continue to be responsive to political demands of

¹⁰ As quoted in McKenzie and Lee, op. cit. p. 1.

organized groups with concentrated interests while ignoring much of the costs of those demands since they are spread broadly over the unorganized public. But the declining costs of international transactions, as the result of lower cost capital mobility and greater global communication, is increasing the political (as well as the economic) costs of government policies that run counter to the realities of the market place. The result is a political economy in which the influence of market forces is gaining ground on that of organized interest groups.¹¹

A Network of Global Production

So the reduction in transactions costs is expanding the potential for international cooperation in the production of wealth, while at the same time imposing constraints on the perversities of the political process that will allow more of that potential to be realized.

As international economic cooperation increases one would expect to observe firms becoming more specialized and better able to rely on a larger number of other specialized firms for inputs which, in a less efficient, higher transactions costs world, would be produced in-house. And indeed, there is evidence that the competitive advantage is shifting to those firms that are more focused and specialized.¹² Consistent with the increased efficiency of more

¹¹ A primary purpose of McKenzie and Lee, op. cit. is to develop the argument that capital mobility is serving to restrain inefficient government policies and expand the influence of market forces.

¹² See Frank Lichtenberg, "Industrial De-Diversification and its Consequences for Productivity," Journal of Economic Behavior and Organization, forthcoming, December 1992.

specialized firms, recent survey evidence indicates that large firms are reducing the size of their production units, eliminating layers of middle management, decentralizing operations, and, in general, downsizing their operation in order to increase efficiency and competitiveness. One 1988 survey, for example, found that 35 percent of more than 1000 chief executive officers interviewed had downsized their companies over the preceding year, with 50 percent of these executives expecting the downsizing to continue.¹³ Subsequent surveys verified the continuation in the downsizing trend in 1989, with 39 percent of the respondents reported that they had downsized their companies.¹⁴

Not all firms are down-sizing of course, but even in cases where firms are expanding in size the strong tendency is still in favor of greater specialization with more reliance on other firms and less on vertical integration in the production chain that leads from intermediate output to final output. According to a recent article on the effect of advances in Information Technology (IT), "Recent advances in IT have obviously introduced a great deal of operational efficiency in the market economy by providing more efficient market mechanisms and thus lowering the associated market transaction costs. In particular, modern IT has facilitated the creation of value-

¹³ See B. Wattenberg, "CEOs Optimistic About the Future of Business," Greenville (S.C.) News, March 5, 1988, p. 4A.

¹⁴ A. P. Carr, "Labor Letter: Downsizing Continues Unabated, as Worries About the Economy Grow," The Wall Street Journal, August 15, 1989, p. A1.

added partnerships through which a set of independent companies work closely together in a value chain (emphasis added).¹⁵

And because of the reduction in transactions costs, the independent companies in any given value chain can be, and are, dispersed to the far corners of the globe. The production process has gone global. One manifestation of the globalization of production is seen in the fact that associating major companies with particular countries has become increasingly meaningless.¹⁶ Your Wilson tennis racket was assembled in Taiwan, the Del Monte ketchup in your refrigerator came from Portugal, and your Kleenex tissues were shipped in from Hong Kong.¹⁷ The American automobile buyer who wanted to improve the U.S. trade balance with her purchase would be well advised to choose a Honda rather than a Pontiac Le Mans since the former receives more of its value added in the U. S. than does the latter.¹⁸

It is easy to multiply examples of cars that are supposedly American or Japanese, but which in fact are the result of an internationally dispersed production network. That these examples are indeed reflective of a general trend in the automobile industry is seen from from evidence on the changing industrial location of the

¹⁵ See page 67 of V. Gurbaxani and S. Whang, "The Impact of Informational Systems on Organizations and Markets," Communications of the ACM, (January 1991) 34: pp. 59-73.

¹⁶ See L. Uchitelle, "U.S. Businesses Loosen Link to Mother Country," The New York Times, May 28, 1989, p. A1.

¹⁷ See K. Ohmae, The Borderless World, (Harper Business, 1990), p.139-40.

¹⁸ See R. Reich, The Work of Nations, (New York: Alfred A. Knopf, 1991), p. 134.

automobile industry. A research study by the Organization for Economic Co-Operation and Development (OECD) reports a tendency for automobile producers "to decentralise their production away from their home countries. Between 1970 and 1980 the share of domestic production among the largest mass producers fell from around 80 percent to under 75 percent."¹⁹ Of the "American" producers, Ford has been the most aggressive in expanding its network of global production, with U.S. production accounting for less than half of Ford's total production at the time of the OECD report.²⁰ But, "throughout the automobile industry there is a new general tendency to increase the share of international production..."²¹

Global interdependence in the production process makes attempts to promote American interests by "Buying American" little more than a joke. For an increasing number of products it is impossible to buy American since, given the intricate network of global production, fewer products are being made anywhere, with more products being made everywhere. The reason the "Buy American" campaign is not a complete joke is that, to the extent that it can be implemented, it reduces the productivity of the American (and indeed the world) economy by diverting resources away from those activities in which American has a comparative advantage.

¹⁹ See Long Term Outlook for the World Automobile Industry, (Paris: Organization for Economic Co-Operation and Development, 1983), p. 72.

²⁰ See OECD, *ibid*, p. 74.

²¹ See OECD, *ibid*, p. 74. Of interest is the fact that the global dispersion of automobile production is expected to continue, among other reasons, because of the potential for "the minimum efficient scale of production [to] decrease sharply in the future." *Ibid*. p.76.

For example, American beef is obviously "made" in America, so it seems obvious that if we could get the Japanese to buy more American beef it would increase American exports. But the cattle raised and consumed in Japan are fed grain that comes almost entirely from America. So increasing American beef exports to Japan would reduce American wheat exports to Japan. And since the U.S. comparative advantage is greater in wheat than in cattle raising, if Japan opened its market to foreign beef the result would likely be that most of the Japanese beef imports would come from Argentina and Australia, with America losing wheat exports without gaining beef exports.²²

The Diffusion and Clashes of Cultures

The global economic cooperation that comes with an increasingly integrated world market has implications that extend beyond strictly economic considerations. Economic activity is an important form of cultural expression, and it is impossible for people to cooperate economically without at the same time interacting culturally. As production and products go global, so do many of the cultural trappings that go with them. Japanese management style is spreading around the world; English is becoming the universal language; young upwardly mobile professionals in New York, Budapest and Buenos Aires are all known as Yuppies and have more in common with each other than they do with most of their geographic neighbors; and the choices for lunch in any major city in

²² See Ohmae, op. cit. p.140.

the world include sushi, croissants, burritos, and hamburgers. The "youth culture" has become a world-wide phenomenon with it becoming difficult to distinguish between a Korean and German teenager from the clothes they wear, the music they listen to, the movies they watch, the slogans and advertisements on their tee shirts, or the food they eat. American movies and television programming are available almost anywhere on the globe that is inhabited by people. American movies have captured 50 percent or more of the market in several European countries, with Japan being the largest market outside the U.S. for American films.²³ American television programming has become as ubiquitous around the world as McDonald's. For example, people in eighty-four countries watched *Sesame Street* in 1989, *Dallas* is seen in Ninety-eight countries, and the two American programs *Matlock* and *Spencer for Hire* competed with each other as the most popular TV show in South Africa in 1989.²⁴

There can be no doubt that the intermingling of cultures, or the cross-culturization, that is the inevitable result of global economic activity is having a homogenizing influence on cultures. And, to some degree, there is a re-enforcing cycle at work here, with increasing cultural similarities facilitating global economic

²³ As reported in John Naisbitt and Patricia Aburdene, Megatrends 2000 (New York: N.Y. William Morrow and Company, 1990) on page 133. Given the enormous global market share of American films, it is almost amusing to listen to protectionists complain about the dominance of the Japanese in the production of VCRs. The value of the American movies that are shown on a typical VCR far exceeds the price of the VCR itself.

²⁴ See Naisbitt and Aburdene, op cit. p. 136.

cooperation and greater economic cooperation causing more cultural similarities. Yet, cultural differences will remain no matter how extensive the cross-culturization that results from economic, or any other, activity. And, indeed, there have been, and there are sure to be more, backlashes against the pressures that are pushing in the direction of cultural uniformity; backlashes that in large measure attest to the strength of cross-culturization forces.

Some of the backlash is strictly perverse, and, except for the fact that it is doomed to failure, would be extremely harmful. For example, the highlighting of ethnic and cultural differences with bogus history and strident intolerance by those pushing "multi-culturalism" on so many college campuses in America is little more than a futile reaction to the real multi-culturalism that the global market economy is bringing about and that is serving to blend and diminish ethnic and cultural differences.

Of course, some cultural and ethnic identity is not only inevitable, but healthy. Just as inevitable, though less healthy, is the fact that global economic forces, by diminishing the social and economic space between different cultures, are generating cultural clashes. But while international markets generate cultural clashes on the one hand, they are also working to moderate those clashes on the other. The spread of market forces and competition promises to increase economic growth in every corner of the globe. By allowing members of the diverse world population to experience economic progress, dynamic global markets are helping to moderate the cultural strife and intolerance that finds such fertile ground in stagnant economies.

But the global market economy is serving to accommodate cultural difference not only by increasing the wealth available to all, but also by shifting the balance between the two fundamental different ways in which wealth is acquired. The global market place is steadily replacing negative-sum political activity with positive-sum productive activity. As international economic competition impose tighter constraints on the taxing, regulating and spending proclivities of governments, it will become more difficult for organized interest groups to acquire wealth at the expense of others through political transfers. At the same time, the global economy is expanding opportunities to acquire wealth in productive cooperation with others through market exchange. Markets are by far the most powerful means of harmonizing the differences among people, regardless of the source of those differences. Indeed, a genuine interest in harmonious multi-culturalism demands an appreciation of the ability of the market place to accommodate diversity. Indeed, markets thrive on the differences between people by converting those differences into opportunities for generally beneficial specialization and exchange. As opposed to special interest political activity, people benefit from profit-seeking market activity by seeking out efficient ways to advance the well-being of those who are different from them.

The global market place is bringing a multitude of diverse cultures closer together, and, by doing so, it is simultaneously blending and highlighting cultural differences. But in both cases the interactions that taking place in the global economy are forces for accommodating and harmonizing cultural diversity. In those areas

where cooperation is best served through the reduction in cultural differences, those differences are being reduced. In those areas where cultural differences are more fundamental and resistant to change, global markets are increasing the opportunities for those from different cultures to cooperate with one another without compromising their differences.

Conclusion

The world is experiencing fundamental and far reaching economic and cultural changes as a consequence of accelerating technological progress. The rate and range of technological change makes it impossible to grasp fully its social implications. But it is also impossible not to recognize that technological change is significantly lowering the cost of interaction between people who have in the past been isolated from one another by geographical and cultural distance. In the jargon of economics, technology is reducing transactions costs.

The economic implications of lower transactions costs are the most obvious. By lowering the costs of transportation and communication, technology is increasing the number of truly global markets and, by doing so, is increasing the productive potential of the world economy. Furthermore, by intensifying the competition being faced by producers, global markets are constantly ratcheting up the pressure on producers to realize the expanding productive potential. A less obvious, but no less important, implication of the global markets is that they are also increasing the competitive pressure on governments. With the resources that make up the tax

bases upon which governments depend becoming increasing mobile across global markets, governments are less able to ignore the effect of their policies on the competitiveness of domestic producers. Just as firms have to compete against each other for customers by providing better products at lower prices, governments are having to compete against each other for tax bases by providing better policies (those that facilitate productivity) at lower costs. This global competitive pressure on governments is just as important as the corresponding competitive pressure on firms in realizing the increasing productive potential of the global economy.

As the economy goes global, so do many cultural attributes. Economic interaction necessarily involves cultural interaction. The cross-culturization that inevitably follows is a complex phenomenon of blending and clashing that has the potential for both cooperation and conflict. Fortunately, the market activity that is increasing the contacts among diverse cultures is guided by incentives that maximize the opportunity for cross-cultural harmony and minimize the disruptions of those clashes that are unavoidable.