

BOOK REVIEW: AMERICAN COMPETITIVENESS

Dertouzos, Michael L., Lester, Richard K., Solow, Robert M. and the MIT Commission on Industrial Productivity. *Made in America: Regaining the Productive Edge* the MIT Press, Cambridge, MA and London, England, 1989. Pp. x, 344. ISBN 0-262-04100-6.

Council on Competitiveness, *Gaining New Ground: Technology Priorities for America's Future*, Council on Competitiveness, Washington, 1991. Pp. ii, 77. \$20.00 paper. TX 3-054-304.

The premise of both of these reports is that the United States is in trouble technologically. The recent report from the Council on Competitiveness identifies five groups of technologies critical to the competitiveness of a broad spectrum of American industry. It then evaluates the U.S. position in these technologies as subdivided into 23 sub-groups and 94 specific fields. A key conclusion is: "The U.S. position in many critical technologies is slipping and, in some cases, has been lost altogether. Future trends are not encouraging." (p. 2). This leads to the broad recommendation that "the U.S. Government and private sector should work together to develop coherent policies to ensure U.S. leadership in the development, use and commercialization of technology." (p. 3).

The earlier report, from the MIT Commission on Industrial Productivity, *Made in America*, is also basically a "bottom-up" analysis, using interdisciplinary teams of faculty members from the Massachusetts Institute of Technology (MIT) to study 8 major industries. "The verdict is that American industry indeed shows worrisome signs of weakness. In many important sectors of the economy, U.S. firms are losing ground to their competitors abroad." (p. 8). To supplement the micro-analysis, in chapter 2 the authors point to the slow-down in U.S. productivity growth since 1973, its lower growth than in other industrialized countries, and the large trade deficits of the past decade.

The Commission identifies six major weaknesses in American industry, and devotes a chapter to discussion of each: outdated strategies and parochial managements, short-time horizons, technological weaknesses in development and production, neglect of human resources, failures of cooperation both within and among companies, and unsatisfactory government-industry interfaces.

To correct these shortcomings and restore American technological preeminence, the report recommends specific strategies to industry, labor, government, and universities (MIT in particular). The strategies for each reflect what the authors call five imperatives: (1) focus on the new fundamentals of manufacturing embracing product customization and production flexibility, innovation, effective use of technology, and new measures of productive performance beyond productivity; (2) cultivate a new economic citizenship in the work force with

involvement, breadth, continuous learning, and rewards reflecting company performance; (3) organize for both individualism and cooperation, with better intra- and inter-firm relations with customers, suppliers, and industry groups, and with labor; (4) learn to live in the world economy, understanding foreign languages, cultures and practices, to facilitate purchasing and marketing; and (5) provide for the future, through policies that encourage saving and investments in education, technical literacy, research and development, and infrastructure as well as plant and equipment, and emphasize long-term business strategies.

Both books are quite informative, particularly with respect to the studies of the various industries and/or technologies. My chief criticisms have to do with what I consider to be an overstatement of the competitive problem facing this nation, relative to reasonable objectives, and with some of the proposed solutions, particularly those that smack of "industrial policy" (although the authors are careful not to use that term).

The MIT volume engages in hyperbole when it refers to "the decline of the U.S. economy." (p. 46). Even during the productivity slowdown from 1973 to 1981, real gross business product grew by more than 2 percent a year, on average, and real product per labor hour in the business economy by 0.7 percent a year. The report minimizes the subsequent pick-up by referring to "a slight improvement" (p. 27) after 1979. Actually, the average annual rate of growth averaged 3.8 percent for real business gross product 1981-88, and 1.7 percent for labor productivity—which is three-quarters of the way back up to the secular growth rate in productivity of 2.2 percent over the past century.¹ After 1988, productivity declined, reflecting the restrictive policies in 1989 that led to the economic recession beginning in July 1990.

The pick-up was even more pronounced in manufacturing labor productivity, which had slowed down from a 2.9 percent annual rate of increase 1948-73 to 1.1 percent 1973-81. Then the rate of gain rocketed to 4.6 percent 1981-88 according to BLS figures.

With regard to the lag of post-World War II, U.S. productivity growth behind that of other industrialized countries and some advanced developing countries, most analysts ascribe it to "catch-up." U.S. policy encouraged growth and development of other non-Communist countries through liberalizing trade, making direct investments abroad, licensing patents, educating foreign students, and so forth. Thus, many countries with sufficient absorptive capacity have been able to leap-frog technologically, and equal or, in some cases, exceed U.S. levels of productivity in an increasing number of industries. Since continued technological progress is more difficult and costly when a country is at the frontiers, productivity growth had been slowing in many countries in the 1980s, even as U.S. growth was picking up.²

Assuming the studies are correct that the United States is losing its lead in a significant number of technologies (15 out of 94 according to the Council

¹Computed from a release of the Bureau of Labor Statistics, "Multifactor Productivity Measures, 1988 and 1989," USDL 91-129, March 26, 1991.

²See John W. Kendrick, "International Comparisons of Productivity Trends and Levels," *Atlantic Economic Journal*, Vol. XVIII, No. 3, pp. 42-54, September 1990.

report), this was to be expected. Actually, it affords American companies an opportunity to borrow selected technologies from abroad. Both studies are quite right to advocate an increasingly international orientation of those firms which can profit from reverse technological transfers.

It is not reasonable to expect the United States to be the leader in all technologies and industries. We never have been, although we were close to it in the latter 1940s when most of our potential competitors had been weakened by the War. As the convergence in productivity levels among the industrialized nations continues, our leadership will be contested in even more industries. However, competition from abroad, as well as domestically, spurs American firms to increase efficiency to keep costs and prices in line.

The MIT report notes that some industries and firms which had slipped, such as Ford and Xerox, have been able to revitalize themselves. Even in the relatively weaker U.S. industries, there are firms that have been able to survive by doing the right things. The law of comparative advantage teaches that in each country there will always be some industries and firms that are doing well in international markets, and some that are lagging. Net import balances in particular industries should not ordinarily be cause for alarm, except possibly out of national security concerns. In this post-cold war era, when our closest competitors are not military enemies, protectionism on national security grounds should rarely be invoked.

The overall U.S. merchandise trade deficit began mounting in the 1980s due chiefly to the marked appreciation of the dollar in foreign exchange markets. Since American goods were becoming dearer abroad, there was pressure on our producers to cut costs to mitigate the price increases. This is cited as one reason for the outstanding productivity record of U.S. manufacturers in the 1980s, and some improvement in other sectors. The foreign exchange value of the dollar began falling in 1985, but, due to the "J-curve effect," the trade deficit peaked at \$152 billion in 1987. Since then it has dropped to \$69 billion at an annual rate in the first third of 1991. It appears that technological developments had very little to do with either the increase or the subsequent decline in the balance of trade and payments.

Even if U.S. technology is in a better state than the critics think, it is still prudent to pursue policies that will continue to promote technological and economic progress. I agree fully with the recommendations in both reports that macro-economic policy measures be taken to increase private saving, reduce budget deficits, and reduce the cost of capital. This would encourage investments, tangible and intangible, human and nonhuman, which are the fountainhead of productivity growth.

With respect to research and development (R&D), the MIT report would have the Congress make the incremental R&D tax credit permanent. Both studies urge that the Federal government substantially increase its funding of R&D and investments in more modern research facilities and equipment. While they favor continuation of the government's traditional support for basic research, the MIT authors would put "greater emphasis on policies to encourage the downstream phases of product and process engineering and to clear any obstacles to innovation." (p. 154). The Council urges the President "to increase dramatically the

share of Federal R&D expenditures that support critical generic technologies and present a five-year implementation plan in his FY 1993 budget.” (p. 45). It is further recommended that universities should increase their focus on the manufacture, use and commercialization of technology.

These recommendations are controversial. It is generally accepted that government support of basic research, done mainly in universities and nonprofit institutions, is justified because of the external long-run benefits, only a small portion of which would generally accrue to any one firm. However, the closer to commercialization that applied R&D comes, the stronger the case for private financing.

The Council’s further recommendation is even more controversial: “He (the President) should direct the Office of Science and Technology to set priorities in critical generic technologies, to translate these into specific action plans and to implement these programs.” (p. 4). Is the OST, or other governmental science and technology agencies, in a better position to chart the directions of technological developments than are private firms working to strengthen their positions in competitive markets? Both reports favor a considerably stronger role for government working with industry and universities on downstream development than would most conservative economists. The Council faults U.S. firms for failing to commercialize certain technologies, or taking too long to do so. It credits a stronger government leadership role in other advanced countries for their higher rates of productivity growth, which can, however, be attributed to other factors noted above.

The Council also advocates that firms share costs and results of “precompetitive” research, and that U.S. industry associations, R&D consortia, and research institutions promote technology collaboration and diffusion of information to promote U.S. competitiveness. An obvious danger here is the possible dulling of competition among domestic firms without an offsetting sharpening of international competitiveness. The tradeoffs would have to be assessed on a case-by-case basis.

Advice by the MIT commission to labor union leaders is unexceptional: to “become champions of cooperative industrial relations practices . . . to promote the long-run interests of their members and the firms that employ them.” (p. 151). Reciprocally, company managements must pursue labor relations policies and pay systems that provide incentives for workers to identify with the objectives of the firm. Most of the other recommendations to “industry” also seem sound, such as focusing on long-term productive performance instead of short-term financial results, emphasizing product variety and manufacturing flexibility, and developing closer relations with customers and suppliers. Some of the advice seems gratuitous in a market economy, such as “Adopt as an explicit objective of the production process the delivery of high-quality products to market in a timely fashion at competitive prices.” (p. 148).

One wonders how much influence reports such as those reviewed here can have, besides providing ammunition for the Federal technology agencies in requesting larger appropriations. The critical reader will question to what extent a significantly larger role for governments in promoting technological advance is warranted. The most compelling force has been and remains competitive market

pressures on enterprises to reduce costs and improve product offerings through innovation and investment. Governmental policies to maintain a favorable environment for a dynamic private enterprise system should receive top billing.

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