CHAPTER 4

Flexibility and Change in the Economy

ONE OF THE MOST IMPORTANT strengths of the U.S. economy is its flexibility. Flexibility enhances the ability of a market economy to respond to change and, thereby, enhances the rewards to innovation. Strong demand for an innovative new product both rewards the innovator and is the signal that draws additional resources into production to meet the demand. An innovation that lowers cost drives down price, signaling greater availability to potential consumers and causing them to increase consumption. In this way, the U.S. economy enhances the private and social benefits of desirable changes, such as technological improvements, and thereby encourages such changes. *This dynamism has generated the high standard of living that the United States and other free-market economies enjoy and is one of the major reasons that people all over the globe are now moving to reform their economies to increase their reliance on free markets.*

Flexibility also reduces the cost of adverse changes, such as a sharp, unexpected increase in the world price of oil. As discussed in the previous chapter, such shocks may increase unemployment temporarily, but a flexible economy adjusts to new circumstances effectively and can return rapidly to full employment.

THE PROCESS OF DYNAMIC CHANGE

A clear picture of the dynamic nature of the U.S. economy can be produced by a simple visual inspection of a modern home, which may contain a microwave oven, a home computer, a videocassette recorder (VCR), many pharmaceuticals, nonstick cookware, and numerous other products that did not exist a few decades or even a few years ago. The introduction and diffusion of all of these products required innovation, followed by the dedication of capital, labor, and other resources to new uses.

This reallocation of resources occurs without government planning. The government took no action to guarantee that between 1985 and 1990 thousands of video rental stores would open so that the owners of VCRs would have movies to rent. Individual entrepreneurs made the decision to risk their capital and their labor to undertake these new ventures. A comparison of the rate of intro-

duction of new products and the growth of new industries in market economies and in nonmarket economies shows that *the government is not nearly as good as the market at organizing the reallocation of resources that must accompany innovation.* The ease with which resources can be shifted to the production of new goods and services raises the returns to innovation and thus encourages it.

The improvement in our lives provided by new products generally is *not* captured in statistics on real income growth. The increase from one year to the next in the number of cars, computers, video games, VCRs, or other products can be measured. But the qualitative leap in consumer welfare that occurs when a completely new product is introduced is extremely difficult to capture. Thus, conventional measures of economic progress, such as real income growth, will always tend to understate the benefits of the innovation and change that are the hallmarks of a free market economy.

Such qualitative changes are very difficult to predict, and government interference in market forces can suppress them without anyone even being aware of the loss. Thus a benefit to the economy of the significant deregulatory initiatives of the last 15 years is the greater potential for innovation that enhanced flexibility provides. Indeed, the U.S. economy is arguably more flexible than other market economies, which tend to be encumbered by greater government involvement in direct production of goods and services and by restrictions on labor market practices. *The long-run growth rate of the U.S. economy is dependent on continued efforts both to eliminate government policies that inhibit flexibility and to resist pressures to reimpose unnecessary regulation on the economy.*

SOURCES OF ECONOMIC CHANGE

The forces driving change come from several sources. On the supply side, *changes in technology create entirely new products and eliminate the demand for others.* For example, the invention of the transistor and the development of the microprocessor made possible desktop computers, VCRs, facsimile machines, compact disk players, and a host of other products that never existed before, while virtually destroying the vacuum tube industry. Innovation also increases productivity and thus lowers the cost of existing goods and services.

Population growth, immigration, and other demographic forces are also sources of supply-side change. Throughout its history the United States has absorbed wave after wave of immigrants, integrating them into the economy and thereby increasing production. Recently, the economy has demonstrated its flexibility by accommodating a tremendous increase in the number of women working outside the home. Between 1970 and 1990, the labor force participa-

tion of women increased from 43 percent to almost 58 percent, and this huge influx of new workers was not accompanied by a fall in the relative earnings of women workers. In fact, during the latter part of this period the earnings gap between female and male workers narrowed.

On the demand side, *changes in the demographic composition of the economy and changes in people's tastes and preferences alter the demands for particular goods and services.* The increasing fraction of the population that is elderly has greatly increased the demand for health care, for example, and the general movement toward suburban living and longer commutes has increased the demand for petroleum.

The international economy is another source of change in both supply and demand conditions. The end of World War II, and the reduced industrial capacity that the war left in other countries, created an enormous opportunity for exports and overseas investment for U.S. firms. More recently, the growth in international travel has created an opportunity for domestic airframe manufacturers; the leading domestic manufacturers now export more than half of their civilian aircraft production.

THE CHANGING STRUCTURE OF THE U.S. ECONOMY

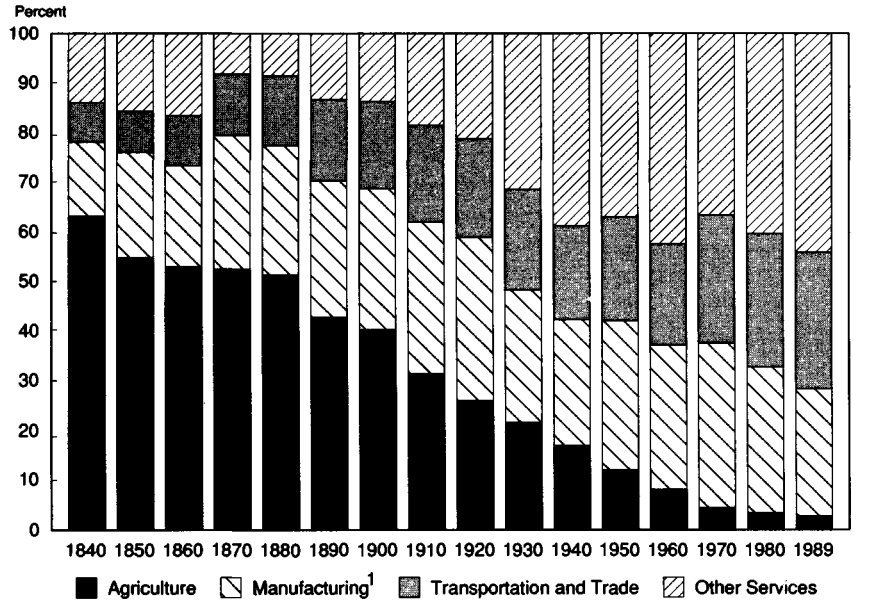
The broad dimensions of historical change in the U.S. economy are illustrated by Chart 4-1, which shows dramatic reallocations of resources within the U.S. economy over the last 150 years. The growth of manufacturing and service industries and the relative decline of agriculture have required an impressive reallocation of capital, labor, and other resources. Yet government did not have to decide that workers should be moved from farms or factories into banks or hospitals. These movements were brought about by market forces, driven in turn by changing demands, demographics, and the introduction of new technology.

Growing Manufacturing Productivity and the Service Sector

Recent decades have seen a continuing shift in employment from goods-producing to service-producing industries. The goods-producing sector accounted for 41 percent of nonfarm employment in 1946, 28 percent in 1980, and 23 percent in 1990. A similar shift of employment toward the service sector has taken place in other advanced economies. In 1966, for example, the goods-producing sector accounted for 37 percent of employment in the 24 nations of the Organization for Economic Cooperation and Development, which includes most of the industrialized market economies of the world. By 1988 this figure had fallen to 30 percent.

Over the 1980s the service-producing sector of the economy had a net increase of 20 million jobs, which exceeded the 19 million net job increase in the overall economy. The two industries adding the

Chart 4-1 **Labor Force Shares by Industry**
U.S. workers have moved out of agriculture, first into manufacturing and then into services.



[1] Includes manufacturing, mining, and construction.
Sources: Department of Commerce and Department of Labor.

most jobs were business services, including advertising and computer and data-processing services, and health services (discussed below). More than 5 million net new jobs, or 27 percent of the net employment gain in the 1980s, were in business or health services.

This growth in service-sector employment has absorbed labor resources freed by rising manufacturing productivity, just as the growth in manufacturing employment absorbed resources released by rising productivity in agriculture in earlier decades. Manufacturing productivity increased at an average annual rate of 4.5 percent from 1982 to 1990. This allowed manufacturing to maintain a roughly constant share of real gross national product (GNP), even though only about half of the 3 million manufacturing jobs lost between 1980 and 1982 were regained by 1990.

Within these broad sectoral movements, many other changes occurred. During the last 10 years increased demand for convenience was a major force for change. The growth in retail grocery stores during the decade reflected this trend, as the concept of a "super" store with one-stop shopping for groceries, drugs, flowers, hardware, and other products took hold. Eating and drinking establishments enjoyed rapid growth, partially because the increase of two-

worker families raised the value of people's time. On the supply side, advances in computer technology led to rapid expansion of such industries as computer and data-processing services, which alone added 499,000 jobs during the last 10 years.

Changing lifestyles and family structure have also led to a rapid increase in industries providing care to the old and the young. Industries providing residential, nursing, and personal care, largely for the elderly, and child day-care facilities added 825,000 net new jobs from 1982 to 1990.

Flexibility and Change in Labor Markets

The constant reallocation of resources from shrinking industries to growing industries means that jobs are constantly being created and lost in the economy. This process of reallocation occurs without necessarily preventing the achievement of full employment. Indeed, the simultaneous creation and destruction of jobs continues whether the overall economy is in an expansionary period or a recession. During the two contractions between January 1980 and November 1982, for example, total employment fell by 2.1 million jobs. However, this net decrease consisted of a loss of 2.8 million manufacturing jobs, partially offset by increased employment outside of manufacturing. Even within manufacturing, jobs were both created and lost. It is estimated that in an average quarter during this period, 6 percent of all manufacturing jobs disappeared, while 5 percent were created.

Simultaneous employment gains and losses can be seen at the level of individual establishments. A recent study of data from Wisconsin for the period 1977–82 found that each year 45 percent of all establishments experienced net employment gains, with an average net gain of 30 percent; 47 percent experienced net job losses, with an average net loss of 21 percent; and the remaining 8 percent maintained stable net employment levels.

The dynamic nature of the labor market is also evident in unemployment statistics. In November 1988, for example, the jobless rate was 5.3 percent, and 6.5 million workers were unemployed. The following month both of these statistics were essentially unchanged. On the surface this lack of change might seem to indicate a static labor market. Yet, out of the 6.5 million unemployed in November, 3.0 million had left unemployment by December. About half of them had found jobs; the other half had withdrawn from the labor force. In the same month, roughly 1.5 million previously employed workers became unemployed and 1.5 million people entered or reentered the labor force and began looking for work.

This continual reallocation of workers requires that labor markets be flexible and that workers be mobile. Studies estimate that the average worker holds more than 10 jobs in a lifetime. Survey data show that every year 10 percent of all workers change occupa-

tions. This number does not include the number of people who change jobs but remain in the same occupation. Only 1 out of 10 workers who change occupations does so because of layoffs. Most change occupations to earn higher pay or improve their working conditions.

Geographic mobility is an important aspect of labor market flexibility. The movement of workers out of agriculture and into manufacturing and services was accompanied by a major migration from rural to urban areas. Over the last two decades, the percentage of the population residing in the Northeast and Midwest has declined from 51.9 percent to 44.1 percent, reflecting a movement to the relatively fast-growing South and West.

The decline in the Northeast population share slowed during the 1980s, as strong growth in financial services, real estate, and other industries produced gains in per capita income in both New England and the mid-Atlantic States. Overall, about 6 percent of the population moves to a different county each year, and about 3 percent moves to a different State. This mobility of people within and between regions is an important reflection of and contributor to the economy's flexibility.

PRESERVING THE FLEXIBILITY OF THE ECONOMY

The dynamic nature of the U.S. economy and the value of flexibility have important implications for economic policy. *The incentives for firms to undertake innovation and investment are greatly affected by the overall macroeconomic environment, by the structure of taxation, and by legal rules governing the protection of intellectual property and product liability.*

To maintain a flexible and innovative economy, macroeconomic policy should seek to foster growth and predictability through credible and systematic monetary and fiscal policy. The tax structure should not erect barriers to saving, investment, or innovation. Product liability rules should protect consumers from product-related harm in ways that do not unduly discourage the introduction of new products. (These issues are discussed in more detail in Chapter 4 of the 1990 *Economic Report.*)

The Benefits of Economic Deregulation

Reduction in market flexibility is an important and often overlooked effect of regulation. When the Federal Government regulated airline routes and fares, one effect was that fares were generally too high. But another effect, which was not visible until the regulations were removed, was that regulation prevented airlines from developing efficient route networks. After deregulation the airlines evolved "hub-and-spoke" systems to channel passengers into airports where they could be connected more efficiently to their ultimate destinations. As a result, airlines operate more efficiently,

and most travelers today have a greater range of flight choices at lower real prices. Similarly, telecommunications regulation had, and continues to have, adverse effects on innovation by restricting which firms may enter particular segments of the industry.

It is not coincidental or surprising that the adverse effects of regulation are often not perceived until after the regulation is removed. By its very nature, stifled change is difficult to detect. If unexploited technology is observed "sitting on the shelf," then one can investigate whether regulation is preventing its adoption. But it is impossible to know to what extent regulation, by preventing change, stifles the *incentive* even to develop new ways of doing things. It is therefore also impossible to know the extent of the lost opportunities.

There are inherent institutional reasons why government regulation tends to inhibit change. Regulation is a legal institution, and legal processes rely heavily on precedent. This reliance creates a bias in favor of the old and against the new. In addition, regulators face an extremely difficult problem: They are trying to make rules that constrain firms to act differently than they otherwise would. Regulators must do this knowing that the firms will always have better information about their costs, customers, and technology. Accomplishing the regulators' goals in a static world in which technology and institutions do not change would be hard enough, but it is harder still in a world of constant change in which the regulators will always lag behind the firms in understanding what is going on. For this reason, regulators have an incentive to prevent regulated markets from changing too rapidly.

These institutional biases against change inherent in government regulation do not mean that regulation is never desirable. Unregulated markets that generate serious pollution problems, have serious failures in the availability of information, or are inevitably served only by monopoly firms do not perform well. Regulation based on careful balancing of benefits and costs can sometimes improve performance in these markets. *Such regulation will, however, almost always impose some reduced flexibility.* In balancing the costs and benefits of government regulation, these costs of reduced flexibility should not be forgotten, even though they are subtle and difficult to quantify.

Government interference can also adversely affect the flexibility of labor markets. As discussed below, some States have responded to concerns about our educational system by increasing certification requirements for teachers. Unnecessary certification requirements create an artificial barrier that prevents qualified teachers from moving from one State to another or moving into teaching from other professions. In the long run, this barrier will increase the cost and decrease the effectiveness of education.

Adapting to Changes in Technology and Institutions

Failure to adapt longstanding government policies to a changing economy can be extremely costly. Regulation of railroads began in the 1890s, when they had a monopoly on the transportation of many goods. In the late 1970s, long after railroads had lost much of their business to trucks, regulation still treated them as monopolies, and partial regulation continues today. The decline of railroads when trucking developed was perhaps inevitable, but it was surely hastened by a regulatory regime that greatly limited the railroads' ability to compete. Similarly, regulation and other government policies in the banking and financial services sector have for decades failed to adapt to changing technology and market conditions, and reform is badly needed (Chapter 5).

Just as government regulation inhibits change in the affected markets, regulation is itself resistant to change. Once any regulatory regime is established, a constituency that benefits from it is created. No matter how out of date or counterproductive the regulatory regime becomes, that constituency is likely to resist efforts to change or end it. Therefore, it is to be expected that regulatory institutions will not adapt themselves well to changing circumstances, a tendency that should be considered when evaluating the long-run net benefits of deregulation.

Lowering International Barriers to Trade and Investment

In addition to being a driving force for change, free international trade can facilitate domestic adjustment to change. U.S. agricultural exports absorbed some of the increased output made possible by growth in agricultural productivity and thus cushioned the fall of agricultural employment. Further reductions in barriers to international agricultural trade would yield even greater benefits from high U.S. agricultural productivity.

The United States currently has a low rate of domestic saving by historical and international standards. The free flow of foreign capital into the United States has maintained domestic nonresidential investment (and ultimately productivity growth) at a level above that which domestic saving would support.

Thus international trade and investment flows provide an additional channel of flexibility to the economy. Administration efforts to reduce international barriers will further improve this flexibility (Chapter 7).

Cushioning the Effects of Change

Despite its benefits, economic change can impose short-term costs. Workers with obsolete skills and firms facing declining demand or using outmoded technologies face declining incomes. It is good social and economic policy to cushion such blows and to facilitate the retraining or retooling necessary to move such re-

sources into other uses. But the government should not try to prevent change itself in order to mitigate its consequences. Such efforts are ultimately futile; they only serve to squander a portion of the beneficial effects of change and, cumulatively, to reduce the economy's flexibility.

This mistake is apparent in the farm policies of the United States, and, to an even greater extent, in those of Europe and Japan. Rapidly rising agricultural productivity, combined with relatively slow growth in the demand for food and other agricultural products, required that resources move out of the agricultural sector. The market signal for this needed reallocation is that farm incomes do not rise as fast as incomes in other sectors. Many aspects of farm policy have, however, attempted to squelch this signal by maintaining some farm prices and farm incomes at artificially high levels. Though farm policy has not ultimately succeeded in preventing a dramatic movement of labor out of agriculture, it has significantly reduced the benefits of agricultural productivity growth. If government policies that interfere with efficient allocation of agricultural resources were eliminated both in the United States and abroad, all nations would benefit from a more efficient worldwide agricultural sector.

Sometimes the economy must respond to changes that are *inherently* adverse. But if the initial shock is unavoidable, the government only makes things worse by preventing the economy from adapting to it. A good example of this policy mistake is the energy policy of the 1970s. When the Organization of Petroleum Exporting Countries raised the world price of oil in 1973, and when the Iranian revolution and Iran-Iraq war raised it again in 1979, the result was unquestionably damaging to the U.S. economy (Chapter 3). The urge to try to soften this blow by regulating the price of oil is understandable, but the result was the creation of artificial shortages and a delay in the adoption of energy-conserving technologies.

Integration with the world economy also generates the need for adjustments in labor markets. Increasing imports can lead to reduced employment in domestic industries, generating demands for government protection from the forces of change. Such protection can come in many forms, but the two most widespread are subsidies and trade barriers. The U.S. textile, machine tool, auto, and other industries have received trade protection at various times. Many European nations give enormous subsidies to their steel and shipbuilding sectors. *Subsidies and trade protection for declining industries are often a source of trade disputes among nations, but the strongest argument against protectionist policies is that they prevent the efficient movement of resources among sectors, both within and across nations.* The last decade has seen increasing awareness in many advanced economies that such policies are counterproduc-

tive. In Sweden, for example, subsidies to declining industries equaled 43 percent of manufacturing profits in 1977–78, but such subsidies have since been cut dramatically.

The economy as a whole benefits greatly if workers from industries subject to effective foreign competition are allowed to move to other sectors, but these moves are often painful for the workers involved. The decline of particular industries also creates problems for particular localities or regions that are heavily dependent on them.

Existing policies appropriately seek to mitigate these human costs and to facilitate retraining and reemployment, not to prevent labor market adjustments. The unemployment insurance system provides up to 26 weeks of income protection, and in some cases unemployed workers are eligible for extended benefits. A wide array of State and community-based programs for workers are provided through the Job Training Partnership Act. Such programs provide educational instruction, job training, counseling, and other support services.

These programs can be designed to enhance flexibility. For example, the transferability of unemployment benefits across States allows displaced workers to move to another State where opportunities may be better, without immediately losing benefits. Some States have experimented with combinations of job search assistance, job training, and the provision of a lump sum benefit either at the time of reemployment or to finance the startup of enterprises.

Ultimately, the most important thing that the government can do for workers in declining industries is to provide an environment conducive to the creation of new jobs elsewhere in the economy. Thus, these workers, too, are dependent upon government policy that fosters growth and maintains market flexibility.

SUMMARY

- The ability of the U.S. economy to change and evolve is one of its greatest strengths.
- Flexibility encourages innovation and increases its benefits, and raises living standards.
- Government policies can maximize the flexibility of the economy by forgoing unnecessary regulation, avoiding attempts to stymie the inevitable rise and fall of particular economic sectors, and removing barriers to innovation.

EDUCATION REFORM FOR AN ADAPTABLE WORK FORCE

A key determinant of the flexibility of the economy is the quality of its work force. Education raises skill levels that increase job performance and productivity. Well-educated workers have the basic skills necessary to adapt to the changing demands of a dynamic economy and are able to compete with their peers in other nations.

Unfortunately, primary and secondary education in this country does an inadequate job of producing such workers. Parental involvement and student dedication—especially to homework—is essential to the success of any school system. But greater parental and student effort alone cannot ensure success. Comprehensive reform of American elementary and secondary education is necessary.

The educational system should encourage innovation and promote excellence among teachers and students. It should strive to earn the same high reputation as the U.S. postsecondary educational system, in which there is significant diversity and choice. It should provide the foundation that enables workers to adapt and respond to changing workplace technologies and economic conditions. And it should provide all high school graduates with the backgrounds necessary for advanced study or entering the work force.

Many school districts have outstanding educational systems and achieve these goals. And in every school district in the Nation there are talented and dedicated teachers and administrators as well as concerned parents who work hard to improve the educational system. Success requires a commitment to excellence from school administrators, teachers, and parents as well as from students themselves. However, despite some successes, too many State and local educational systems are notably inflexible and resistant to meaningful and effective change. *Because they need not compete for students and are not held accountable for the quality of the education they provide, many State and local education agencies in this country have become entrenched bureaucracies.* As a result, U.S. students often receive unacceptably poor educations. Parents often find they have little power to ensure that their children receive a sound education, and many choose to send their children to private schools.

The primary fiscal responsibility for public education lies with State and local governments, which determine the institutional framework for the operation of the educational system. Local school boards and State education agencies determine who may teach, what schools students attend, how long students are in class, and even the general instructional methods that are adopted. The

Federal Government has traditionally provided only a small fraction of total support for education at the elementary and secondary levels; in 1988 it provided only 6.3 percent of the funds spent on education for kindergarten through grade 12.

As well-intentioned as school boards and education agencies may be, a system that is not required to compete for its students and is not judged by their performance is hard pressed to avoid the mediocrity and resist the insularity that comes with being the only "free" game in town. As a result, although the United States spends more money per pupil than almost any other country in the world (in 1989 U.S. per pupil expenditures were $5,172), the return on this substantial investment is unacceptably low.

THE CURRENT STATE OF EDUCATION

Evidence of the inadequacy of education in the United States can be found in the workplace and in the schools themselves.

Evidence from the Workplace

Today's high school graduate is often ill-prepared for the world of work. The 1990 National Assessment of Educational Progress, which reported the results of a nationwide test of students conducted between 1986 and 1988, found that only 6 percent of 17-year old students demonstrate the capacity to solve multistep problems and use basic algebra; only 8 percent have the ability to draw conclusions and infer relationships using scientific knowledge; and only 5 percent can synthesize and learn from specialized reading materials.

Firms are finding it increasingly necessary to develop remedial training programs in reading and mathematical skills; they spend an estimated $20 billion annually on such programs. Even institutions of higher learning are adapting their course offerings to reflect the poor preparation of many freshmen; the fraction of colleges offering remedial instruction has increased from 79 percent to more than 90 percent since 1980.

A second-rate educational system cannot support a first-rate, world-class economy. Workers unable to read and grasp complex concepts in mathematics and science cannot hope to adapt to changing technologies in the workplace. Poor training in mathematics and science at the elementary and secondary levels also contributes to declining trends in college enrollment in these areas. This pattern threatens the creative foundation needed to discover and introduce advances in technology.

Previous Reform Efforts

In 1983 a commission appointed by the Secretary of Education issued the report *A Nation at Risk*, which painted a bleak portrait of the quality of education in elementary and secondary schools in

the United States. The report struck a responsive chord. Reacting to its recommendations and challenges, State and local educational systems embarked on plans to introduce fundamental changes.

It is nearly a decade later, and not much of consequence has changed. To be sure, many bills were introduced in State legislatures in response to the report, and many were passed. Forty-five States increased graduation requirements for core courses in subject areas such as mathematics, sciences, humanities, and social sciences. Many States also made teacher certification requirements much stricter and, in an effort to attract higher quality teachers, increased salary levels significantly. Teachers' salaries in public elementary and secondary schools increased by 18 percent in real terms between 1980 and 1990. Expenditures per pupil have also increased 28 percent in real terms since 1982.

Despite the efforts in the 1980s, there has been no noticeable change in the performance of the Nation's schools. Though students are taking more mathematics, science, and reading courses, test results show that no performance improvements have been made in these subject areas since the appearance of *A Nation at Risk*. The percentage of students graduating from high school remains unacceptably low, falling from 73 to 72 percent since the report's release.

International Comparisons

U.S. high school students consistently perform far below their foreign counterparts, especially in their knowledge of mathematics and science. In an assessment of learning in six major developed countries in 1988, U.S. students ranked last in mathematics and second to last in science. Even the best U.S. students do not compare favorably with foreign students. The International Assessment of Educational Progress found that a very select group of college-bound American students scored far below a less select group of Canadian students on a standardized test, and no better than an even broader group of Hungarian students.

Other indicators are also very telling. U.S. students spend an average of only 3½ hours a week on homework. That compares poorly with the 24 hours a week on average that high school seniors spend watching television. Studies show that European students spend far less time watching television and more time studying.

Finally, American students spend much less time in school than their foreign counterparts. Even though the American system of education is highly decentralized, the 180-day school calendar is nearly national in scope. School calendars ranged from 226 to 240 days in pre-unification West Germany. In Japan, schools are open 243 days on average. Some argue against lengthening the school year on the ground that it is the quality, not the quantity, of in-

struction that is at issue. Certainly, merely lengthening the school year is not the panacea for the ailing U.S. school system, but it is an issue deserving study and consideration by the States. Evidence suggests that *in countries with longer school years, more material is covered and at a much less hurried pace than in American classrooms*. Thus even in U.S. school systems that attain high standards of excellence, the quantity of educational material provided to students is not competitive by world standards.

TOWARD AN EFFECTIVE EDUCATIONAL SYSTEM

The Administration is fully committed to promoting excellence in the U.S. educational system and has undertaken significant initiatives to this end. In September 1989, the President convened a summit of cabinet officials and U.S. Governors to discuss the state of American education. Only the third such summit in American history, it was the first ever on education. As a result of this historic meeting, the President and the Governors agreed upon six clearly defined goals for the American educational system to reach by the year 2000:

- All children in America will start school ready to learn;
- The percentage of students graduating from high school will increase to at least 90 percent;
- Students will leave grades 4, 8, and 12 having demonstrated competency in challenging subject matter, including English, mathematics, science, history, and geography; and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy;
- U.S. students will be first in the world in science and mathematics achievement;
- Every adult American will be literate and possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship; and
- Every school in America will be free of drugs and violence and offer a disciplined environment conducive to learning.

The President outlined these goals in his 1990 State of the Union Address. In July 1990, the President issued *The National Education Goals: A Report to the Nation's Governors*, and the President and the Governors established a National Education Goals Panel that also includes participation of the congressional leadership. The panel will recommend a measurement and assessment system that will provide the Nation with information on the progress being made in reaching these goals.

To help ensure that all American children start school ready to learn, the Administration has significantly expanded the Head

Start program. And to ensure that the national education goals are achieved, the Administration will propose a new Educational Excellence Act. Initiatives in this important proposal would stimulate fundamental reform through promoting educational choice and alternative certification for teachers and principals, promote local control and innovation by providing increased flexibility in funding in exchange for greater accountability, reward schools that demonstrate improved achievement among students, and provide incentives for innovative approaches to mathematics and science education.

Programs of Choice

The U.S. public educational system must be opened to the invigorating and challenging forces of market competition by enabling teachers, parents, and students to choose their schools. Over time, the schools that survive will be the most innovative and effective institutions, those capable of responding to the changing educational needs of society.

Schools that must compete for students will work harder to deliver quality education. A school choice program can become the catalyst for greater diversity and help eliminate mediocrity in the educational system. An important step in this direction is the magnet school concept in which schools specialize in particular subject areas or interests—such as science, mathematics, or the performing arts—and students and their parents choose which school to attend.

The Administration has advocated adoption of choice programs in as many jurisdictions as possible across the country. There is no one "preferred" approach to educational choice. A statewide choice plan exists in Minnesota, while a choice demonstration plan including both public and private schools has been launched in Milwaukee, Wisconsin. In 1990 seven States adopted plans allowing various forms of choice. Before 1990 five other States had enacted interdistrict choice plans. The Administration's new Center for Choice in Education has been established to provide information and assistance to anyone interested in learning about or implementing educational choice.

A key to the success of a choice-based program is granting individual public schools the freedom to innovate. Schools must be freed from the grip of bureaucracies distant from the classroom. One popular version of this self-run school approach is to leave the governance of each school to a team composed of the principal, teachers, and parents. Such an arrangement creates a personal stake in the success of the school, rather than reliance on a central bureaucracy. It also provides parents and teachers an effective voice in determining how a school should change to attract students in an open-choice educational system.

Accountability

Unless teachers, school administrators, and elected or appointed officials are held accountable for the quality of the education they provide, the success of open-choice programs and self-run schools will be limited. Merely adopting new approaches does not ensure success. Schools and teachers must be held accountable for what their students learn.

To this end, *State and local education agencies must work together to develop and publish objective measures of the output of the educational system.* Meaningful performance measures are necessary for the success of school choice programs, allowing parents and students to leave choice programs that are failing. Such performance measures include basic competency tests for graduation from high school; annual tests to determine student progress; changes in high school drop-out rates; and high school transcripts that provide meaningful information on course content and student skills to parents, employers, and colleges.

At the Federal level, the Department of Education is charged by law to "collect, collate, and from time to time, report full and complete statistics on the condition of education in the United States." The National Center for Educational Statistics (NCES) has developed a series of national measures of the output of the educational system. The NCES publishes an annual digest of education statistics and periodically publishes the National Assessment of Educational Progress. The NCES publishes an annual selection of indicators on the condition of education in the United States. The 1990 report confirms the dismal state of public education in this country. Each of these reports provides an ongoing basis for parents to test the success of education reform; they are important tools for increasing accountability.

Alternative Teacher Certification Programs

Each State sets up standards that determine who can teach in public elementary or secondary school systems. Differences in certification requirements across States produce substantial limitations on teachers' job market options. Although many States have formal reciprocity agreements, teachers still encounter significant barriers when they try to cross a State line. Until recently, for example, to win a permanent teaching position in a Rhode Island school system, a person qualified to teach in Massachusetts was required to have a master's degree and 6 years of teaching experience, three of them in Rhode Island. This particular limitation is being eased somewhat, since the six New England States along with New York have agreed to accept the teaching credentials of applicants from other States in the region, providing they complete extra education requirements within 2 years.

Eliminating unnecessary barriers to entry into the teaching profession *within* each State is at least as important as eliminating the barriers between States. Most States currently require that an individual either graduate from a 4-year college as an education major or take a certain number of education courses before being allowed to teach. Talented individuals who decide to switch careers and become teachers find they have to complete either a traditional teacher preparation program or, under fairly recent reforms in some States, complete a graduate degree program in education.

While these requirements discourage many talented professionals seeking a career change from entering the teaching profession, they do not ensure that the school system is getting high-quality teachers. In fact, the poor academic performance of teachers in the subject areas they teach led many States to impose minimum grade requirements for education majors.

The solution to the problem of attracting talented teachers, however, is not to regulate the industry further but to open it up to the competitive process and to reduce certification requirements in ways that do not threaten but instead encourage excellence in teaching. Currently, 28 States have implemented some form of alternative teacher certification program. Mainly small pilot programs, these are based on the general principle that an individual with a bachelor's degree in a specific field of study can be a successful teacher, given some minimum level of training in education (Box 4–1). The minimum varies across States, but all programs reflect the belief that the minimum needed to guarantee quality is far less than that currently required by traditional certification routes.

It is important to recognize that removing unnecessary barriers to teaching does not threaten the stature of the profession. First, one already well-defined qualification for entry into the teaching profession, the acquisition of a 4-year college degree, will not change. Second, what helps promote respect for the teaching profession is effective teaching, not unnecessary certification requirements. The experience in Texas and in numerous other programs suggests that lowering the barriers to entering the teaching profession can improve the quality of primary and secondary education.

SUMMARY

- Public schools in the United States are failing to prepare students for either the world of work or higher education. This failure threatens the ability of the United States to maintain its leadership in the world economy.
- Competition and accountability are essential if schools are to innovate and improve the quality of education.

- Alternative certification programs can enhance the quality of education by removing unnecessary barriers to entry into the teaching profession.

Box 4–1.—Texas Alternative Certification Program

Starting with one school district in 1985, the Texas State school system has taken a national lead in introducing alternative teacher certification programs. The program is currently operating in nearly 20 percent of the State's school systems, and the number of teachers certified by the alternative route has grown from 276 in the first year to 1,241 in 1990. In a typical program, a candidate with a bachelor's degree takes 1 to 3 education courses, learning basic classroom management, along with disciplinary and evaluation skills. The candidate is then assigned to his or her own classroom for the year, receiving a first-year teacher's salary and a year of experience on the career ladder. Throughout the internship year, the candidate works closely with a mentor, often meeting on a daily basis for support and problem-solving. In addition, interns take other education courses throughout the year.

The alternative programs have been very successful in attracting highly qualified, diverse interns. In 1990, 30 percent of the interns were men and 52 percent were minorities, compared with traditional education programs, where 23 percent of the enrollees are men and 12 percent are minorities. Interns are older than the traditional education major: 90 percent are over 24, and 50 percent are over 30 years of age.

Evaluations of the program thus far suggest it is working very well. On State certification exams, interns do as well as or better than teachers who follow the traditional route. Studies show that teachers qualified by the alternative route are comparable in quality to teachers qualified through the traditional route.

AGRICULTURE: TECHNOLOGICAL SUCCESS AND THE NEED FOR MORE FLEXIBLE POLICIES

The agricultural sector illustrates dramatically both the tremendous dynamism of the U.S. economy and the costs of government policy that tries to inhibit change. Technological progress and the increased integration of world markets have transformed the U.S. farm sector, leading to growing production of wheat, corn, meats, and other products using a fraction of the labor force previously devoted to agriculture. At the same time, a complex structure of Fed-

eral farm policies has evolved that often inhibits the efficient use of agricultural resources. These programs impose significant costs on taxpayers, consumers, and the economy as a whole, thereby lessening the potential benefits of agricultural progress.

TECHNOLOGICAL CHANGE AND PRODUCTIVITY GROWTH

Technological innovation has been a driving force behind dramatic changes in both agricultural production and agriculture's role in the economy. *Many important technological changes in agriculture occurred in response to market signals.* The initial great surges in farm mechanization, for example, came in response to the farm labor shortages associated with the Civil War. The widespread adoption of mechanization allowed fewer workers to cultivate more land and facilitated agriculture's westward expansion. The advent of tractors around the close of World War I not only increased each worker's productivity, but also freed land from the production of food for draft animals.

The demands on farm output associated with World War II, coupled with increasingly limited opportunities to bring more land into production, provided the impetus for a new wave of technological innovations that increased the productivity of each unit of land and livestock. Following World War II, farmers increased crop yields greatly through the adoption of chemical fertilizers and pesticides, irrigation, and improved seed varieties such as hybrid corn. Corn yields per acre, for example, more than tripled from 1945 to 1990. Improved livestock breeds, artificial insemination, and greater feeding efficiency enhanced the productivity of the livestock sector as well. The average dairy cow produced almost three times as much milk in 1989 as in 1945.

In response to changing technology, the use of agricultural labor in 1989 was about one-fifth of what it had been a half century before, while the use of chemical inputs increased 16 times. Agricultural productivity per unit of all production inputs increased about two and one-half times between the 1930s and 1980s. Government has had a long and important role in supporting and disseminating agricultural research, but *innovations also come to the farm sector because private entrepreneurs are able to profit from them.*

What are the major implications of these dramatic changes in productivity? First, employment in farming fell rapidly as fewer and fewer farm workers were required to meet the food demands of the nonfarm sector. While this decrease means that farming has become much less representative of the American lifestyle—less than 3 percent of the American labor force is employed on the farm today, compared with 21 percent in 1930—it also means that *labor was freed from agriculture to contribute to the growth of other*

sectors. Industries that emerged to support a more modern agriculture, such as financial institutions, farm equipment and fertilizer manufacturing and distribution, and food processing, were important new sources of employment.

Second, agricultural supply expanded faster than agricultural demand. Accordingly, real farm prices have trended downward in the United States since the Civil War. *The decline in agricultural prices contributed to the fact that American consumers now spend only about 16 percent of their disposable income on food—near the lowest in the world—and are among the best-nourished people in the world.*

CONSUMER DEMAND AND INTERNATIONAL TRADE

In addition to technology, other factors have been important sources of agricultural change. Changing consumer tastes and preferences have affected the relative profitability of alternative crops and products and reshaped the composition of agricultural production. The health-motivated interest in low-fat foods, for example, has contributed to the rapid growth in the production of poultry meat since 1980, while the output of other livestock products has been roughly constant.

Product Changes Within Agriculture

Consumer demand sometimes shifts in response to exposure to new agricultural products through international trade. Kiwi fruit, for example, entered the U.S. market relatively recently from New Zealand. Rapid consumer acceptance created the incentives for the development of a domestic industry, and U.S. kiwi production grew from an estimated 5,000 tons in 1980 to 40,000 tons in 1989.

Another demand-side factor with potentially large effects on the agricultural sector is the growing consumer concern with food safety and the environmental effects of chemical-intensive farm production techniques. Some trends in frontier research in biotechnology could help farmers respond to these consumer concerns. Bioengineered crop varieties that are resistant to diseases and pests are now emerging as proven technologies. Their adoption could ultimately reduce the intensity with which chemical inputs are used and again change the nature of agricultural production and the surrounding infrastructure.

Interaction with World Markets

One of the great benefits of productivity growth in U.S. agriculture has been the expansion of the supply of food and other agricultural products to countries all over the globe. Expanded trade, along with the direct transfer of agricultural technology to producers in other countries, has improved diets and living standards around the world. And, as U.S. agriculture has become more important to

the world, trade has become more important to the economic performance of U.S. agriculture.

Agricultural exports increased sharply in the 1970s; during that decade the value of exports increased from about 12 percent to more than 25 percent of farm cash receipts. In the 1980s, total exports as a percent of production fell somewhat, but remained very high for key commodities. Depending on the year, anywhere from 40 percent to 80 percent of U.S. wheat production, for example, and 30 percent to 50 percent of soybeans were consumed in other countries.

The importance of exports to U.S. farm income—combined with adverse world market conditions and rising international tensions over agricultural trade barriers in the mid-1980s—encouraged the United States to put agriculture at the top of its list of priorities for the Uruguay Round of General Agreement on Tariffs and Trade negotiations (Chapter 7). *A successful conclusion to these trade talks, aimed at lowering barriers to agricultural trade worldwide, would help open foreign markets further to U.S. farm products.* In return, U.S. barriers to imports would come down as well, bringing the benefits of increased competition in agricultural products to the U.S. marketplace.

TOWARD A MARKET-ORIENTED FARM POLICY

The long-term decline in U.S. farm prices has been one of the great benefits of increasing productivity in agriculture. Farmers, though, fearing that lower prices would mean lower incomes, have sought and secured a significant degree of government assistance in keeping the prices they receive from falling. *Government agricultural policy, which partly insulates farmers from market forces, operates at the expense of consumers and taxpayers.* The sharp escalation of farm program costs in the mid-1980s, together with some of the adverse effects of inflexible farm programs, highlighted the need for policy reforms.

The Costs of Failing to Accommodate Market Forces

Government farm programs consist principally of two types of subsidies: direct payments, financed by taxpayers; and programs that hold farm prices above free-market levels, paid for by consumers at the grocery store. At their peak in 1986, Federal subsidies of both types to U.S. producers of wheat, rice, feed grains, sugar, milk, and beef were valued at almost $27 billion—that is an average of $12,000 for *each* U.S. farm, although many farms receive no subsidies.

One recent study estimated that economy-wide income would have been roughly $9 billion higher in 1987 in the absence of these subsidies. In other words, the benefits to consumers and taxpayers of al-

lowing the market to allocate agricultural resources would have outweighed the loss of farm subsidies to producers by $9 billion.

It is also instructive to examine some of the problems caused by specific policy measures designed to counteract market signals. A key component of U.S. agricultural policy is the provision of price floors for major commodities. Prices of wheat, feed grains, soybeans, rice, and cotton are held above the floor by allowing farmers, or sometimes other farm product suppliers, to pledge their crops as collateral to the government in exchange for a loan. Pledged crops are valued at the legislated support price. By putting their crop "under loan" when the market price is below the support price, suppliers remove some portion of the current crop from the market, which helps pull the market price back up toward the support price. Should the market price rise above the support price, crops under loan may be redeemed from the government and offered to the market. If not redeemed by loan repayment, the government acquires the crop collateral and the crop is said to have been "forfeited."

The prices of sugar, milk, and several other commodities are also maintained above legislated price floors. A combination of government purchases of dairy products—including cheese, butter, and nonfat dry milk—and restrictions on the quantities of these products that can be imported is used to support milk prices to dairy farmers, for instance. (The sugar support system is discussed in Chapter 7.) Under each of these programs, farmers are guaranteed at least the support price—regardless of supply and demand conditions.

A system of Federal regulations called "marketing orders" sets minimum prices for about 80 percent of fluid milk sales; 45 other marketing orders place restrictions on the quality or the quantity sold of various fruits, vegetables, nuts, and specialty crops. Milk orders reduce competition, and studies have shown that they raise retail milk prices. Orders that merely enforce minimum grade, size, and maturity standards can also interfere with competition, and can affect consumer choices and prices by removing some product from the market. The kiwi fruit order, for example, which began in 1984, after U.S. kiwi production had begun to expand, puts size and grade requirements on kiwis grown in California. The 1990 farm legislation extends the same requirements to kiwi imports. These requirements may well inhibit competition in a market that did not even exist until imports created it.

Over time, policymakers have learned that when support prices for export crops are set too high, U.S. commodities accumulate in government warehouses, while other countries benefit from the absence of U.S. competition. Foreign farmers expand production and their share of the export market at the expense of the United

States. The high wheat support prices set in the 1981 farm legislation have often been cited as one reason for the sharp drop in U.S. wheat exports and the large buildup in government-held stocks during the early to mid-1980s. Support prices for wheat and other exported commodities were lowered in 1985 legislation, but policymakers have not had this same incentive to lower the price floors for commodities subject to competition from imports, such as dairy products and sugar.

"Deficiency" payments are another major component of farm programs. They are paid to qualifying wheat, feed grains, rice, and cotton producers and are based on a "target" price, which is set higher than the support price for these crops. Each qualifying farmer receives a check from the government in an amount equal to the difference between the legislated target price and the market price or support price, whichever is higher, multiplied by qualifying production.

These deficiency payments are made in proportion to a farmer's crop acreage. As a result, *the distribution of deficiency payments is dramatically skewed toward large, often wealthy farmers.* In 1988, for example, more than 40 percent of direct payments, which include deficiency payments and a smaller amount of some other payment types, went to fewer than 4 percent of all farms. These farms averaged almost $62,000 in payments, almost $100,000 in net cash farm incomes, and more than $800,000 in net farm worth. Furthermore, *the incentive to overproduce provided by a target price set well above the market price requires offsetting measures to control program costs, such as requiring farmers to take land out of production.* Farmers thus have been required over the years to cede some of their production decisions to the government.

1990 Farm Legislation

In recent decades, farm legislation has been written often, but each law has retained the general structure of the original 1930s legislation. The 1985 legislation introduced important market-oriented reforms, such as more flexible approaches to determining support prices for exported commodities. Support prices for most program commodities began to be based on a 5-year moving average of market prices, rather than being set independently of price trends. U.S. farm exports performed considerably better after this change.

The most significant change of the 1990 farm legislation, the Food, Agriculture, Conservation, and Trade Act of 1990, in conjunction with the Budget Reconciliation Act, is the "triple-base" provision, which extends increased planting flexibility to farm program participants while reducing the acreage qualifying for deficiency payments. This planting flexibility provision (explained in Box 4–2) makes market prices more important to production decisions. It

will thus help reverse the longstanding tendency of farmers to overproduce crops whose target prices are set above market prices. Two particularly important outcomes are likely. First, the production of existing and potentially profitable alternative crops that do not qualify for deficiency payments, such as soybeans and other oilseeds, can now expand. Second, environmentally sound crop-rotation practices might be encouraged in some agricultural regions where substitute crops are available or are likely to be introduced.

Box 4–2.—How the "Triple-Base" Provision Works

Every year the government assigns farmers an "acreage base" and a "payment yield" for each program crop, such as corn, historically planted on the farm. Under the 1985 farm bill, a farmer could receive deficiency payments for producing corn only if some portion of the corn acreage base was put into a conserving use and not planted to corn. Deficiency payments were not made on this idled, or conserved, acreage, and the farmer could incur penalties for planting certain crops, such as soybeans, on it.

The 1990 farm legislation added to the deficiency payment acres and conservation acres *a third category that does not qualify for deficiency payments, but that may be planted to any crop except fruits and vegetables.* The bill set this third category—the flexible acres—at 15 percent of the base acreage.

By disallowing deficiency payments on this 15 percent, the flexibility provision reduces government outlays. Farmers can, however, offset some of the lost subsidy by planting crops with the greatest market returns on the triple-base acreage. Therefore, the provision makes market signals more important to farm production decisions.

The flexibility provisions of the 1990 legislation also create considerable taxpayer savings, as farm subsidies are eliminated on 15 percent of the farm program acreage base. This change is projected to save about $7 billion over 5 years and is an important component of the overall deficit reduction package. However, while reducing deficiency payments and increasing the importance of market prices in farm production decisions, the 1990 farm legislation retains high and rigid price supports for dairy products and sugar and continues extensive government management of some markets, such as peanuts. While the Administration applauds the move toward increased flexibility that the 1990 farm legislation represents, continued efforts to reduce distortions created by farm policy are desirable.

SUMMARY

- A series of technological revolutions has dramatically increased the productivity of agriculture, freeing labor from agriculture, lowering the cost of farm products, and enhancing the prosperity of the economy.
- Productivity growth also facilitated a tremendous increase in agricultural exports, linking the future of U.S. agriculture to the openness and growth of world agricultural markets.
- U.S. agricultural policy, as evidenced by 1990 farm legislation, is gradually being changed so that agriculture is more able to respond to market signals, but further reforms are necessary to reduce the distortions created by farm policy and the burden of farm support on consumers and taxpayers.

HEALTH CARE: DYNAMIC TECHNOLOGY AND CHANGING DEMOGRAPHICS

Health care has been one of the fastest growing and most innovative sectors of the U.S. economy during the last three decades. Although many factors have contributed to the rapid pace of change, the fundamental driving forces have been technological advances and shifts in the demographic makeup of the population. These forces, along with the lack of market incentives for cost-conscious behavior, have resulted in escalating costs and much concern about lack of access to health care for many Americans—particularly the 33 million people who lack health insurance coverage. While government programs finance care for many of the poor and elderly, increasing government involvement in the health care financing system has aggravated the problems of cost and access.

RECENT TRENDS

The most dramatic illustration of the growing importance of the health sector is its rising share of GNP. In 1960, health care accounted for 5.3 percent of GNP; its share rose to 11.6 percent in 1989. To put those numbers in perspective, total health care spending in 1989 was twice as large as Federal spending on defense, and more than six times larger than the value of U.S. farm output.

The growing share of health care in the U.S. GNP can be traced to developments on both the supply and demand sides of the health care market. On the supply side, technological advances have made possible a vast array of medical treatments unheard of even a decade ago. Developments in diagnostic equipment and pharmaceuticals, for example, have promoted earlier and more successful treatment of many diseases. Much of this technology, however, is costly. Therefore, while technological advance has undoubtedly im-

proved the quality of treatment received, it has simultaneously made that treatment more expensive.

On the demand side, economic growth favors health care expenditures. As incomes rise, people tend to attach more importance to trying to live longer and healthier lives. Most advanced economies have experienced increases in the share of resources devoted to health over time.

In addition to technological advances and economic growth, health costs have increased because of the aging of the population. Older individuals incur more health expenditures, on average, than the young or middle-aged. The percentage of Americans aged 65 and older rose from 9.2 percent in 1960 to a projected 12.6 percent in 1990, representing an increase of 14.9 million older Americans. During this period, life expectancy rose by more than 5 years and infant mortality rates declined by 63 percent. *These statistics indicate that increases in the amount of resources devoted to health are not necessarily bad, since to a large extent they represent an investment in health, the changing preferences of a wealthier society, and the extra cost of a longer lived population.*

Table 4-1 shows that the aging of the population will continue to exert a large influence on the health care system for several decades. Even without above-average increases in medical prices, the rise in the elderly population means that the United States will pay much more for health care in the coming decades unless dramatic developments occur that reduce costs.

TABLE 4-1.— *Aging of the U.S. Population, 1960-2040*

July	Population (millions of persons)		Age 65 and over as percent of total population
	Total	Age 65 and over	
1960	180.7	16.7	9.2
1980	227.8	25.7	11.3
2000[1]	268.3	34.9	13.0
2020[1]	294.4	52.1	17.7
2040[1]	301.8	68.1	22.6

[1] Middle series projection, January 1989.

Note.—Includes Armed Forces overseas.

Source: Department of Commerce, Bureau of the Census.

PERCEIVED PROBLEMS OF THE EXISTING SYSTEM

Despite the beneficial effects of much spending on health care, there is a general perception that the U.S. health care system should perform better than it does. Costs are seen to be out of control, and millions of households do not have health insurance and are perceived to have inadequate access to care.

Rising Government Health Care Costs

Health care costs paid by Federal, State, and local governments have exploded. The combined total spent by all levels of government on health care rose from $28.1 billion in 1960 (in 1989 dollars) to $253.3 billion in 1989 and is expected to continue to rise. These escalating costs place great stress on the ability of governments to fund current and future liabilities in health care.

Medicare, the principal program for providing medical care to the elderly and disabled, illustrates the changes in government spending on health. Medicare expenditures were $17.6 billion (in 1989 dollars) in 1967, the first full year of the program, and 19.5 million people were enrolled. By 1989 the Federal Government was spending $100 billion on medicare, and 33.6 million elderly and disabled Americans were enrolled. *The enormous increase in outlays for medicare can be traced to the increase in the number of people covered by the program, general increases in medical care expenses, and the increased share of program costs borne by the Federal Government.* For example, the Federal Government originally shared equally with enrollees the cost of covered physician services, but in recent years beneficiaries have paid only 25 percent of the cost. Even when all benefits and patient payments are included, the Federal Government pays out $3 for every $1 spent by medicare patients.

Medicaid, the program that funds health care for some of the poor, illustrates the effect of changing demographics on both the type of care received and increasing government costs. Started in 1965, medicaid was initially designed as a joint Federal/State program to provide health care for women and children receiving welfare payments and the disabled. Medicaid eligibility has expanded in recent years, but even today it is not designed to provide medical care for all poor Americans. Total medicaid expenditures in 1967 were only $7.6 billion (in 1989 dollars). In 1989, the Federal Government financed 57 percent of a total medicaid bill of $59.3 billion.

The most significant trend in recent years has been the increase in medicaid spending on nursing-home care for the elderly. Spending on long-term care for the elderly accounted for about 25 percent of all medicaid spending in 1989. As the number of elderly citizens continues to rise, the costs of long-term care will also increase.

Health Care Price Inflation

Rapid increases in the real price of health care have contributed to the overall rise in health care spending. From 1980 to 1989 the price index for medical care rose by 99 percent, twice as fast as the average for all goods and services, though difficulties in measuring

the inflation rate in technologically dynamic sectors suggest that the real difference in inflation rates was probably somewhat less. Those rapid price increases, combined with growth in the volume of services demanded, raised total health care expenses.

The health care sector has responded to cost escalation in several innovative ways. One of the most significant changes is the growth in health maintenance organizations (HMOs) and preferred provider organizations (PPOs). HMOs charge a fixed annual fee for medical services, rather than a separate fee for each service provided. In a PPO, a group of providers negotiates prices and patient volume with a large health care purchaser, such as an insurance company or employer. Through their greater potential for supplying cost-effective care, HMOs and PPOs provide competitive alternatives to traditional fee-for-service insurance policies. The rapid growth of HMOs and PPOs illustrates both the important role of competition and the ability of the health care sector to respond innovatively to the challenge of cost escalation.

The Medically Uninsured

One of the most critical deficiencies of the U.S. health care delivery system is the large number of people who lack health insurance. Although estimates vary, *recent calculations place the number of uninsured Americans at around 33 million.* Because the very poor are usually covered by government programs such as medicaid, many of the uninsured are employed workers or children and spouses of workers. They may lack insurance coverage because their employers cannot afford to offer it, they cannot afford to purchase it on their own, and they do not qualify for government-subsidized programs.

Many of the uninsured are not poor; 39 percent of uninsured Americans have incomes more than twice the official poverty level. Many young, healthy workers prefer not to purchase insurance when given a choice, since the cost of a policy outweighs its perceived benefits. To a great extent, the lack of access to health care or affordable insurance is due to the increase in health care costs during the last few decades.

Two policies enacted in 1990 will help to protect families particularly at risk from lack of insurance. Low and moderate income families will receive a tax credit covering part of the cost of purchasing medical insurance covering the whole family rather than just obtaining single coverage for the worker. In addition, medicaid coverage was extended to all pregnant women and children up to age 6 in families with incomes below 133 percent of the poverty line. The Administration's new infant mortality initiative and its proposed expansion of the Special Supplemental Food Program for Women, Infants, and Children, along with a variety of initiatives

emphasizing preventive care, will further enhance the health of low-income families.

WHY HEALTH CARE MARKETS PERFORM POORLY

Why is the health care sector able to perform so well in meeting certain demands yet unable to control costs or provide adequate services to all who need them? The institutional structure of the U.S. health care delivery system and the poor incentives for cost control it provides are at least partially to blame.

Health Insurance and "Third-Party Payments"

The most important institutional feature of the existing system is the prevalence of Federal or private insurance policies. People purchase insurance because they want to be protected from the costs of accidents, fire, or, in the case of health insurance, disease and sickness. But one consequence of insurance coverage is that those who are protected from harm by an insurance policy have less reason to take actions to reduce the probability that any harm will occur.

When harm does occur, consumers covered by insurance face diminished incentives to minimize the cost of care, since someone else pays the bills. The effect of insurance generally to diminish the incentive to minimize cost is called moral hazard (Box 4-3). In the context of health care, insurance provides an incentive to increase the quantity of services consumed, since the patient does not pay the full cost of additional services.

Federal and private insurance distorts consumer incentives to a large and increasing extent. In 1970, patients paid 41 percent of the costs of their care out-of-pocket. By 1989, that percentage had fallen to 24 percent. Increasingly, health care expenses are paid by third-party payers, primarily the government and insurance companies. Although ultimately the cost of care must be paid by recipients (in the case of private insurers) or taxpayers (in the case of Federal insurance), consumers of medical treatment who have insurance do not generally need to be concerned *at the margin* about either the cost of the services they receive or even whether those services are necessary or cost-effective. Consequently, unlike most markets for goods and services, *medical care does not have built-in incentives to equate costs and benefits at the margin.*

Health insurance differs from fire or auto insurance in the extent to which its structure creates incentive problems. Until recently, health insurance has tended to cover more and more of the care received by patients. For example, many policies have small deductibles, so that patients do not have to pay for even routine care, such as a physical exam or treatment for a sore throat. This type of "first-dollar coverage," as it is called, is analogous to homeowners' insurance that would pay not only for the damage caused

Box 4–3.—Incentives in the Market for Health Insurance

One of the most important issues that arise in examining the mounting cost of health care in the United States is the extent to which the widespread use of insurance distorts incentives to make cost-effective choices. In health care and other markets, insurance coverage reduces the incentive to balance costs and benefits at the margin because the consumer does not pay the full cost of the treatment. This phenomenon, called *moral hazard*, is common to all insurance markets. Using health care as an example, consider the situation confronting an insured consumer who visits a physician. If the insurance policy pays 80 percent of the cost of treatment, the price *to the consumer* of care costing $100 is only $20. Therefore, the consumer would purchase the treatment even though he may value it at less than $100. Alternatively, if the consumer could prevent the need for treatment by spending $40, he may not do so because his cost would exceed his savings of $20, even though the true savings is $100.

Thus, insurance coverage creates a gap between the price paid by the consumer and the cost of providing care, so that the choice made is inefficient. The health sector has responded to the moral hazard problem in several ways. The most direct response is to place restrictions on the care that is reimbursed by increasing the deductible. Larger deductibles force the consumer to pay the full price of treatment for relatively low-cost care, at least until the deductible is reached. That is an effective way to encourage the consumer to make cost-conscious choices and thus reduce the overall cost of health care for the average consumer.

A second approach to reducing moral hazard is to encourage the physician to make efficient choices. That is one goal of health maintenance organizations and other *capitated systems* in which care providers are paid a fixed amount per policy, regardless of the amount of care provided. The physician, therefore, has no incentive to provide excessive care. In fact, providers in capitated systems may face incentives to save money by providing less than the needed amount of care. In HMOs, however, care decisions are most often made by salaried physicians who do not have a direct economic stake in the amount of care provided. Professional standards and concern for the reputations of individual capitated systems further enhance the physician's incentives to balance the costs and benefits of treatments.

by a house fire, but also for a burnt pan caused by leaving the stove on too long. The analogy in auto insurance would be a policy that paid not only for damages resulting from moving accidents, but also for paint chipped when a car is scraped in a parking lot by another car's opening door. The cost of such policies would be much higher than typical home or auto policies.

Government Regulation

Government regulations, especially those that require insurers to provide specific benefits, have a large effect on the cost of health insurance. Health insurance policies are regulated by the States, and every State requires that insurance companies doing business in their State include certain benefits. *That means that it is illegal for an insurance company to offer a bare-bones, low-cost insurance policy to consumers who only want to insure against catastrophic accidents or illnesses.* The States instead require that virtually all consumers purchase coverage for a package of treatments that varies from State to State. The required benefits can include maternity care, alcoholism and drug abuse treatment, mental health care, chiropractors, and assorted other treatments, regardless of the consumer's willingness to pay for such coverage.

These requirements raise the cost of health insurance and make it too expensive for many individuals and firms. As a result, many individuals who would willingly purchase low-cost insurance against catastrophic illness are not allowed to do so. A recent study estimated that as many as one-fourth of the uninsured, or more than 9 million people, lack health insurance because of the high cost of policies due to State regulations.

Another effect of government involvement in financing health costs occurs through the means-testing of the medicaid program. To target benefits at the poor, income limitations are set to restrict eligibility. If earnings exceed the maximum allowed, all benefits are taken away. (Medicaid availability is also affected by participation in other means-tested programs, particularly aid to families with dependent children.) For low-income families, this loss of medicaid eligibility can create a large penalty for employment, since medical benefits potentially worth thousands of dollars, as well as peace of mind, can be lost if replacement health insurance is unavailable.

Employer-Based Insurance and Tax-Free Health Benefits

One fundamental characteristic of the U.S. private health insurance system is that it is predominantly employer-based; that is, most Americans with health insurance obtain it through their employer. Providing insurance through employment is a natural mechanism for achieving the risk-sharing benefits of insurance.

Economies in administrative, sales, and purchase costs also enhance the desirability of employer-based group insurance.

By covering everyone in a large group, insurers avoid the problem of "adverse selection," which occurs because those most likely to need expensive care, such as the chronically ill, are also the most likely to seek insurance. However, these advantages pertain primarily to large employers. Small firms are less likely to offer insurance if they have employees particularly likely to need care, and the economies in administrative expenses are much reduced for small groups. Firms with fewer than 50 workers incur administrative costs of about 25 to 40 percent of total claims, versus only 5.5 percent for firms with 10,000 or more employees.

Typically, health insurance is not only organized in the workplace, it is largely paid for by employers, although much of the cost may be shifted back to workers in the form of wages lower than they would otherwise earn. On average, employers pay about 90 percent of the premium for single workers and 75 percent of the cost of family coverage. This practice makes sense for firms and workers because the cost of employer-provided health insurance is tax-deductible for firms, and workers do not pay income or payroll tax on these benefits.

The tax treatment of employer-provided insurance means that taxpayers subsidize the provision of health insurance to workers. As a result, incentives are not only distorted by the existence of insurance, but individuals are also induced to carry more insurance than they would if they faced its true cost. *Thus employees tend to demand both more health insurance and more health care than they would if they had to pay the full price.* The increased demand for health care drives up the average price, if there is no offsetting rise in the supply of care made available.

The financing and regulation of the health care sector thus combine to reduce significantly the flexibility of health care markets. *Fundamentally, consumers do not have adequate incentives to avoid services that are too expensive, and providers who are not cost-efficient are not disciplined by the market.* Without these incentives, markets cannot function well. Health care reform, designed to control the rate of cost increase and improve health care access, must confront the problem of creating appropriate incentives for health care consumers and providers.

SUMMARY

- The health care sector grew rapidly during the last three decades due to advances in technology, the aging of the U.S. population, and increased government financing of health care expenses.

- Many of the inefficiencies in health care are attributable to the dilution of market incentives and the reduction in market flexibility created by third-party payments and government-mandated benefits.
- Health care policy reform will not be successful unless it improves the incentives for health care consumers and providers to balance costs and benefits.

TELECOMMUNICATIONS: TECHNOLOGICAL AND REGULATORY INNOVATION

The telecommunications industry, like the health care industry, has been undergoing particularly rapid change. As few as a dozen years ago, it consisted almost entirely of regulated service providers and dominant equipment providers with substantial market power; today, much of the regulation has been removed and competition is vigorous in many of its component markets. Deregulation is a natural experiment that demonstrates the benefits of increased flexibility and the hidden costs of regulation. Because the crucial local telephone exchange segment of the industry will remain regulated for the foreseeable future, careful thinking is required to design its regulation to minimize those hidden costs.

LESSONS FROM DEREGULATION

Deregulation of telecommunications began with Federal Communications Commission (FCC) and judicial decisions of the 1950s, 1960s, and 1970s. It continued with the breakup of American Telephone and Telegraph (AT&T) in the early 1980s, the passage of The Cable Communications Policy Act of 1984 (the 1984 Cable Act), and further deregulatory decisions in the 1980s. These policy changes helped transform the telecommunications industry from a structure dominated by regulated monopolies into one in which several deregulated competitive sectors coexist with a remaining regulated monopoly component. Both the difficulty of bringing about this transition and the benefits that it has generated provide lessons about government regulation and market flexibility.

Adapting to Changing Circumstances

The early history of the telecommunications sector was characterized by extensive competition. In the period following the expiration of Alexander Graham Bell's original patents in 1893 and 1894, many new firms entered the telephone business, eroding the monopoly held by AT&T, which had evolved from Bell's original company. By 1907, 49 percent of installed telephones were controlled by non-Bell companies, and most Bell operating subsidiaries faced some direct competition.

AT&T then adopted an explicit strategy of reducing competition through mergers and acquisitions and willingly accepting regulation, both to exclude competitors legally and also to blunt public criticism of monopoly. By 1932 Bell's market share had returned to 79 percent, and direct competition had been virtually eliminated. With the passage of The Communications Act of 1934, the regulated monopoly structure of the telephone system was completed. In 1970 AT&T controlled 95 percent of local and long-distance telephone revenues, and its Western Electric manufacturing subsidiary provided almost all of Bell's equipment needs.

Changing technology eventually made this monopoly regime unsustainable. As early as the 1950s, other companies sought permission to sell types of telephone equipment that AT&T did not produce. The development of economical microwave transmission technology made competition for long-distance telephone service feasible, and the FCC permitted a competitor to enter this market in a limited way in 1969. The completely regulated monopoly structure of the telecommunications industry might have made sense in 1930, but by the 1970s it clearly was incompatible with the new state of technology. Competition, not regulated monopoly, emerged as the appropriate policy for the equipment and long-distance components of the telephone industry.

The history of the cable television segment of the industry offers the same lesson. In the 1960s, cable TV provided television to remote areas that could not receive standard broadcast signals. Cable TV operators clearly had a monopoly over an important segment of the entertainment market in these areas, and the widespread practice by State and local governments of regulating cable TV rates developed in this era. Later, cable evolved in many areas into an alternative to "over-the-air" TV, and it also faced increasing competition in the broader entertainment market from direct satellite broadcasts and widely available videocassette rentals. Regulation of cable TV rates persisted, however, until the 1984 Cable Act deregulated them except in areas with limited broadcast competition. Again, policy had to change to recognize the change in the underlying industry conditions.

Thus, in telephone equipment, cable TV, and long-distance telephone service, a regulatory regime appropriate to a technology at one stage gave way, slowly and reluctantly, to new policy appropriate to new technological realities. Of course, the evolution of telecommunications regulation is not over. Today, local telephone service remains largely a regulated monopoly, because it does not make economic sense for more than one company in an area to build a complete system of copper wires, fiber optic cables, and switches connecting all customers. That too could change if, for example, radio technology developed that was competitive with the wired

system for nonmobile communications. More likely, technological developments that cannot yet be anticipated will change the nature of the industry in ways that will make the current regulatory structure obsolete.

Unanticipated Benefits of Deregulation

Deregulation and the ensuing competition in the markets for telecommunications equipment and long-distance service facilitated development of products and services that did not exist before. The development of the facsimile (fax) machine in different versions offered by many different companies could not have occurred if telephone equipment had remained regulated. In addition to the fax, an enormous variety of portable telephones, answering machines, and computers with built-in communication abilities have all emerged in the deregulated equipment market.

New services have also been introduced, based both on new technologies and new arrangements that were either not permitted or not conceived of under regulation. Today, cellular technology has taken mobile telephones from the realm of spy-movies and given them to 4.4 million subscribers. Long-distance competition has reduced the cost and expanded the range of "800" and "900" number services available to businesses, thereby increasing the flexibility with which they reach their customers and suppliers. Combined with deregulation of the surface freight industry, the fax machine, electronic data interchange, and other new communications technologies are changing the way firms organize the distribution networks that connect their factories, stores, and customers. Some of these changes were anticipated when deregulation was contemplated, but most were not.

MAINTAINING A DYNAMIC INDUSTRY

The policy framework that will ultimately replace the old framework of near-total regulation is still emerging. Ahead are a number of policy choices that offer opportunities to increase the benefits of deregulation. The principle of designing government policy to foster flexibility is crucial in order to ensure that the United States has the most effective telecommunications infrastructure possible.

Maximizing the Scope for Competition

In several markets in the telecommunications sector, current policy *inhibits* competition. Cable TV operators are subject to competition from other media, but in most cases State or local governments grant a franchise to a single cable operator in a given area, preventing operators from competing with each other for customers. Local telephone companies are also prohibited by law from acting as cable operators. These restrictions reduce the power of

competition to discipline cable prices and services and give cable operators inadequate incentives to adopt the latest technology.

The FCC and many States also continue to regulate AT&T's long-distance rates, despite the presence of competition in these markets. This vestige of an earlier era now serves primarily to inhibit competition.

Another area in which government policy could further recognize the potential for competition is in the management of the electromagnetic spectrum. The spectrum consists of the range of frequencies in which radio-based technologies such as broadcast television and radio, cellular telephone, and microwave transmissions operate. The range of frequencies with desirable technical properties is limited and therefore is a scarce resource that must be allocated efficiently.

The FCC allocates particular "bands" of frequency to specific uses and then assigns the right to operate in these bands to specific private parties. Assignment and allocation of spectrum bands require administrative hearings that can be very cumbersome and time-consuming. As a result, competition among technologies and among different firms seeking to operate a given technology is greatly reduced.

Without the force of competition, spectrum bands are not necessarily used in ways that generate the greatest social value. The invention of new technologies is stifled because of the inability to get access to the spectrum, and there is an inadequate incentive to refine existing technologies to conserve the amount of spectrum used. If instead of assigning spectrum rights administratively, the Federal Government auctioned them to the highest bidder and permitted their sale and reassignment, the flexibility of the telecommunications sector would be greatly increased. *In particular, when portions of the spectrum previously reserved for government use are made available to the private sector, they should be auctioned off without restrictions on resale.* The resulting competition would likely lower prices and increase the diversity of available service offerings for over-the-air communications and broadcast media generally.

The government also limits competition by restricting the entry of the regulated local telephone companies into unregulated businesses. Under the terms of the consent decree governing the breakup of AT&T, local operating companies are not allowed to manufacture telephone equipment, offer various information services, or provide most long-distance service.

It might appear that keeping these particular firms out of these businesses would not have serious costs so long as other firms are free to enter. The government, however, has no way to determine who the most qualified or most advanced potential competitor

might be. Further, there are reasons to believe that the local telephone companies might have much to offer these other markets. Experience developed in the construction or operation of the hardware and software for the telephone system itself could be very valuable in developing information services for sale to customers. *These and other potential "economies of scope" between the local exchange and other markets are limited or lost when the telephone companies are barred from related businesses.* The lesson from easing previous restrictions is that increased competition produces additional benefits that cannot be foreseen today.

These restrictions reflect a concern that local telephone companies would have unfair advantages in competing against others in markets that are somehow connected to the local exchange. For example, the local telephone companies might try to hide some of the costs of their competitive activities within the regulated local exchange sector, thereby transferring the costs to the local ratepayers. They might also exploit their knowledge of the technical details of the local network, or even design the configuration of the network in ways that favor their product offerings in the related competitive businesses.

These are real concerns that must be addressed. If the local telephone companies are permitted to compete, regulators will need to scrutinize their activities to prevent ratepayers from subsidizing the competitive businesses and to ensure that the regulated firms do not unfairly exploit their monopoly position. Monitoring of regulated firms competing in unregulated markets will be imperfect, and it will not be a costless process. But regulators have developed better monitoring tools than they previously had, and the alternative is the extreme option of banning firms from participating in related businesses without even attempting to make competition work.

The principle that the government should not decide what activities within an industry particular firms may perform also applies to the development, ownership, and syndication of programming for broadcast and cable television. Government restrictions on ownership, carriage, or syndication of programming inhibit competition, reduce efficiency, and are generally an ineffective means of addressing any problems of market power that may exist in these markets.

Regulatory Approaches that Encourage Innovation

Traditionally, monopolies are regulated by what is called cost-of-service regulation. Regulators determine the total costs incurred by the monopolist in providing the regulated services and then set prices designed to recover those costs, including a competitive rate of return on the capital invested in the regulated company. This method is intended to ensure that the company will not lose

money, but also that it will not be able to charge prices in excess of its costs.

The fundamental problem with this approach is that a firm subject to cost-of-service regulation has limited incentives to reduce its costs or improve its services. A reduction in costs will eventually be translated into a reduction in allowed revenues, leaving the firm no better off. If improved products lead to a rise in profits, prices will eventually be reduced by regulation to bring revenues and costs back into line. Again, the benefit to the firm has been reduced. A firm presented with these incentives will not seek change and innovation as aggressively as one that is able to retain the profit from doing so.

Recently, economists and regulators have become interested in developing forms of regulation that would prevent abuses of monopoly power while preserving incentives for innovation. These approaches are often referred to loosely as "*incentive regulation.*" All forms of incentive regulation are designed to preserve the overall or long-run relationship between prices and costs but to sever or limit that relationship in the short run or for specific investments. In other words, if a firm reduces its costs or improves its products, it would be permitted to keep some of the profit that the innovation generates.

The key to maintaining the incentive to innovate is to tie the regulated firm's price level to some overall or general indicator of costs, rather than to actual costs incurred. For example, prices could be allowed to rise each year by the rate of inflation, minus a fixed percentage reflecting expected productivity improvements. Alternatively, the firm's prices could be tied to a general index of costs in the industry. In these ways, regulators could achieve a better balance between the desire to prevent monopoly profits from being earned and the goal of maintaining incentives for efficiency and innovation.

SUMMARY

- Telecommunications is a dynamic sector in which regulation must continually evolve to reflect changing conditions.
- Deregulation has permitted innovation that could not have occurred under the previous regulatory regime.
- To promote the continued dynamism of the industry, public policy should seek to maximize the scope of competition and avoid preventing particular firms from competing in particular sectors.
- Incentive regulation is an attractive policy innovation that has the potential to reduce the adverse effects of continued regulation on technological innovation.

DEFENSE INDUSTRIES: ADJUSTING TO THE END OF THE COLD WAR

With the end of the cold war, U.S. defense expenditures are scheduled to be reduced by substantial amounts in the next decade. Although the current situation in the Persian Gulf creates some uncertainty about the immediate future, the scheduled reductions would continue the recent trend that saw defense spending fall in real terms starting in 1987. One obvious impact of these spending decreases will be a substantial reduction in the size of the defense sector, creating a challenge and opportunity for markets to adapt.

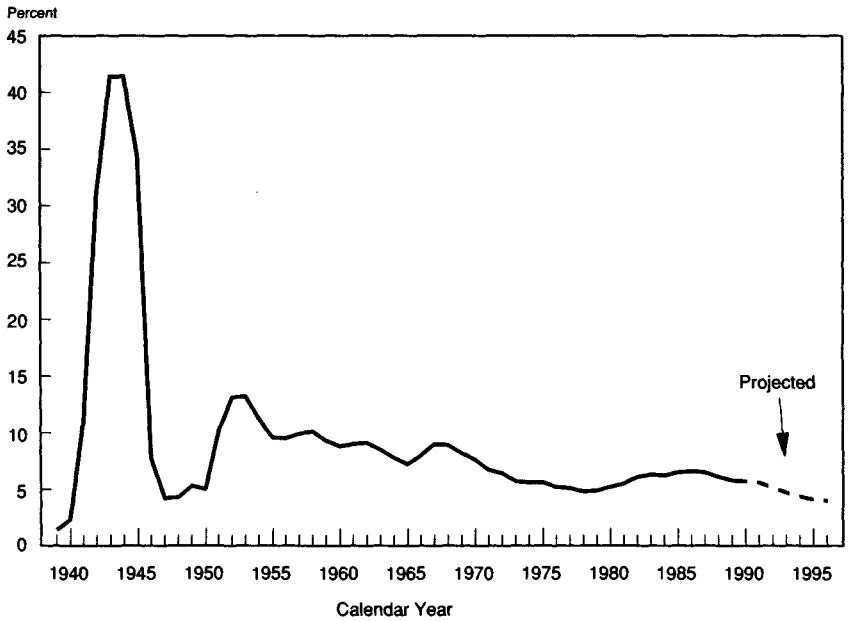
HISTORICAL EXPERIENCE

The historical experience with fluctuations in defense expenditures shows that the U.S. economy has little difficulty responding to shifts in defense spending. As shown in Chart 4–2, government expenditures on defense have varied considerably since the late 1930s. Industry responded quickly when defense needs increased, most notably during wartime but also in more recent years. Defense purchases of durable goods, for example, increased more than 50 percent from 1980 to 1984. Declines in spending also provided opportunities for demonstrating the economy's flexibility. Even during the period of greatest reduction, when defense spending fell from 41 percent of GNP in 1944 to 4 percent in 1947, the economy adjusted quickly. Although total output fell in 1946 and 1947 because of the dramatic decline in government spending, consumption and private fixed investment rose as the United States made the transition to a peacetime economy.

A similar temporary decrease in real GNP occurred at the end of the Korean war. As defense spending dropped from 13.2 percent of GNP in 1953 to 11.2 percent in 1954, the economy fell into a recession that lasted 10 months. In 1955, output grew 5.6 percent even though defense spending continued falling to 9.6 percent of GNP. As shown in Chart 4–2, defense spending as a percentage of GNP was lower during the Vietnam war than during previous conflicts. Given this smaller role, it is not surprising that the declines in defense spending as the war ended in the early 1970s had virtually no impact on growth.

This historical experience suggests that future defense cuts will not adversely affect the economy as a whole, since *the relative importance of defense in the U.S. economy has been declining since the early 1950s*, and even the increases of the early 1980s made only a small, temporary bump in the downward trend. The relatively small role played by the defense sector in the U.S. economy helps to ensure that the transition to lower spending levels will be man-

Chart 4-2 **Defense Purchases as a Percent of GNP, 1939-1996**
Projected declines in defense purchases are small by historical standards.



Sources: Department of Commerce and Council of Economic Advisers.

ageable and that resources will be able to move to alternative uses with little impediment.

Under current budget plans, defense spending in 1996 will be lower by 1.7 percentage points of GNP than in 1990. Since the economy successfully adapted to more rapid reductions following World War II and the Korean war, there is little reason to think that the present changes will be troublesome. The precise magnitudes of the spending cuts are uncertain, and some of the decreases could be delayed, or even reversed, by changes in the world situation or an extended deployment in the Persian Gulf.

THE PROBLEM AND POTENTIAL OF DEFENSE CONVERSION

The key problem with the transition of the defense sector to lower spending levels is that the impact is not broad-based but tends to affect drastically firms in only a few industries. The resources of these firms, both the physical capital and the skilled labor, are somewhat specialized for military production and so are reduced in value when defense cuts occur. The communities in which these firms are located will also be adversely affected as em-

ployment is reduced. Although these disruptions may require some difficult adjustments, defense cuts are an opportunity to allow market forces to redirect resources toward other productive uses. *Government policy should seek to ensure that the transition occurs as smoothly as possible.* In that way, the harm to communities will be minimized, and unemployment effects will be reduced.

One possible additional concern with cuts in defense spending is their potential effect on the defense industrial base and U.S. technological superiority. In managing the proposed spending cuts, the ability of the United States to continue to produce the equipment needed to fight future conflicts should be maintained. Furthermore, the advantage the United States has in defense technology should be protected through continued investment in research, although some of the priorities may be shifted. The defense technology base can also be protected by relaxing procurement regulations, particularly those that restrict the transfer of defense technology to civilian uses.

Facilitating the Redeployment of Resources

The Federal Government has programs in place that address the problems facing workers and communities affected by defense reductions. It is important to recall that even in times of expanding budgets, some firms and workers lose contracts, as purchases shift to different products or services. Therefore, the problems caused by expected defense cutbacks can be viewed as a somewhat larger version of the typical shifts in demand that occur in a dynamic economic environment. *The true "peace dividend" is not the amount of money saved in the Federal defense budget, but rather the real resources that are made available as defense spending declines.* The economy will benefit from the end of the cold war only if these resources are allowed to shift to new, high-value uses. The reduction in overall government spending will also reduce interest rates and stimulate investment throughout the economy.

Sectoral shifts take place continuously in the U.S. economy, so it is useful to ask whether anything about the defense industry merits special treatment. Because defense spending is exclusively a government endeavor, some have argued that the government has a special obligation to protect those who are affected by declines in Federal defense spending. This argument suggests that government contracts are an entitlement and that any reduction in spending should be offset by compensation. Similar arguments have been made to support policies targeted toward assisting workers adversely affected by other changes in Federal policy.

It would be unwise to accord special treatment to workers or firms directly affected by changes in Federal spending. In addition to the practical difficulties of determining fairly who is actually affected, such an approach effectively divides the work force into two

groups, one that receives both Federal support and funding and special privileges when that support is reduced, and all other workers. To the extent that such a policy gave defense workers special benefits, it would be extremely unfair to workers in other sectors. This approach would also make it difficult and costly for the Federal Government to change spending patterns in response to changes in society's needs and priorities. The existing rigidity in government spending patterns already makes it difficult to eliminate programs and policies that have outlived their usefulness.

For several reasons, defense firms sometimes cannot easily transfer their engineering and production capacity to civilian uses. Although many products have both military and civilian uses, many others have characteristics unique to the military. For those firms producing products limited to military uses, the transition to civilian production means dealing with an entirely different set of products. The emphasis in military procurement on producing a limited number of high-performance items with the latest technological advancements, such as fighter aircraft, does not typically encourage the development of organizational skills needed to produce high-quality but not necessarily state-of-the-art products for civilian buyers at lower cost. *Conversion to civilian production means responding to different customers, with goals and constraints often much different from those of the government.* Selling to civilian markets differs markedly from competing with only a few other firms for government contracts in a highly politicized environment.

Although the effects of defense spending cuts are likely to be felt in most sectors of the economy, a few industries will be most affected. Producers of aircraft, radio and TV communication equipment, missiles and space vehicles, and ships are expected to incur some of the largest employment losses. Job changes will probably be more evenly distributed among States because of the wide geographic dispersion of defense production. Many of these forecasts are tentative, however, because of uncertainty about the eventual magnitude of the cuts and which individual spending programs will be reduced or eliminated.

The most appropriate policy for dealing with the problems of defense cutbacks is to cushion the effect of change by providing the same assistance to affected defense workers that is available to all workers displaced by economic changes. Many such programs are available to workers who lose their jobs because of spending cuts. The Job Training Partnership Act provides training opportunities for those workers whose skills are no longer in demand, and the Employment and Training Administration of the Department of Labor also has numerous programs for addressing the needs of displaced workers. In addition, the President's Economic Adjustment Committee, chaired by the Secretary of Defense and composed of 18

Federal departments and agencies, is explicitly charged with providing financial assistance and other support to communities affected by defense spending reductions. These existing programs should be sufficient to ease the transition for workers displaced by defense spending cuts of the size now likely to occur.

Effect of Reduced Recruiting on Civilian Labor Markets

Changes in the Nation's defense budget are also likely to reduce the military's need for manpower. During the 1980s the four military services recruited and trained nearly 3.1 million young men and women, or about 300,000 people each year. This number is expected to decline substantially in the decade ahead. Although the size of the reduction is difficult to forecast with certainty, the services could reduce their annual recruiting by about 100,000 inductees below the average of the 1980s. This number can certainly be absorbed easily in an economy that produced a net employment increase of 19 million jobs during the 1980s and will reduce the impact of the lower rates of labor force growth expected during the next decade.

It is not widely known that the military services are one of the largest single providers of vocational training in the United States. Each year, trained veterans return to civilian life with skills that are highly valued by civilian employers. In the short term, the economy will benefit from the release from military service of a large number of well-trained veterans. Over the long term, the military services will continue to provide training and employment for hundreds of thousands of young people.

SUMMARY

- Proposed cuts in defense spending over the next few years start from a much smaller share of GNP and are modest in size relative to the demobilizations after World War II, the Korean war, and the Vietnam war.
- The economy will adjust smoothly to reductions in defense spending, but some workers and firms will need to adapt to new circumstances.
- Programs are in place to help workers and communities adjust to reductions in defense employment.

CONCLUSION

The ability of the U.S. economy both to generate and to accommodate change is remarkable; the economy's flexibility is one of its major assets. The high U.S. standard of living is due in large part to a flexible economy that encourages innovators to invest in finding new ways to do things and allows entrepreneurs to marshal the resources necessary to bring new products and processes to market.

The government affects the flexibility of the economy in many ways. Flexibility is enhanced by creating an environment conducive to investment and innovation, by minimizing regulatory interference in markets, by lowering barriers to international trade and investment, and by providing a competitive and accountable educational system. The evolution of the agriculture, health care, and telecommunications sectors illustrates the potential for innovation but also demonstrates the harm of government policies that reduce flexibility. Reduced military spending will provide another opportunity to benefit from the economy's ability to redirect resources to new uses.

Change generally creates both winners and losers, and the U.S. political system always allows the losers to argue for protection from the impersonal forces of the market. The true long-run costs of accommodating such demands for interference with market forces is almost always underestimated because the value of the opportunities lost when the economy's ability to change and adapt is reduced can never be fully known. If it is decided that victims of change must be helped, the assistance should not inhibit the economy's natural evolution. Doing so would reduce the economy's flexibility and thus throw away a significant portion of the possible benefits of change.