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Remarks by

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The United States economy has long been characterized by a strong tradition of entrepreneurial spirit among our business people, a high level of skill among our workers, and an openness by firms and workers alike to intense competition within and beyond our borders. Those attributes have given us a standard of living unparalleled for so large a population--and one that has risen steadily over the history of our nation.

But with that bounty has also come the inevitable stresses and anxieties that accompany economic advance. One concern that has persisted for some time is the fear that we are irreversibly losing manufacturing jobs because of businesses' efforts to extract rapid gains in production efficiencies and to cut labor costs by tapping the lower-wage economies of Asia and Latin America.

More recently, similar concerns have arisen about the possibility that an increasing number of our better-paying white-collar jobs will be lost to outsourcing, especially to India and China. Many of these jobs are in the service sector, and they were previously perceived as secure and largely free from the international competition long faced in the manufacturing sector. There is a palpable unease that businesses and jobs are being drained from the United States, with potentially adverse long-run implications for unemployment and the standard of living of the average American.

The issue is both important and sensitive, dealing as it does with the longer-term wealth of our nation and with the immediate welfare of so many individuals and communities. In the debate that has ensued, a large gulf is often perceived between the arguments of economists, who almost always point to the considerable benefits offered over the long term by exposure to free and open trade, and the obvious stress felt by those caught on the downside of turbulence created by that exposure. It is crucial that this gulf be bridged.

As history clearly shows, our economy is best served by full and vigorous engagement in the global economy. Consequently, we need to increase our efforts to ensure that as many of our citizens as possible have the opportunity to capture the benefits that flow from that engagement. For reasons that I shall elucidate shortly, one critical element in creating those opportunities is to provide rigorous education and ongoing training to all members of our society. This proposal is not novel; it is, in fact, the strategy that we have followed successfully for most of the past century and a strategy that we now should embrace with renewed commitment.

Over the long sweep of American generations and waves of economic change, we simply have not experienced a net drain of jobs to advancing technology or to other nations. Since the end of World War II, the unemployment rate in the United States has averaged less than 6 percent with no apparent trend; and as recently as 2000, it dipped below 4 percent.

Moreover, real earnings of the average worker have continued to rise. Over the past century, per capita real income has risen at an average rate of more than 2 percent per year, declining notably only during the Great Depression of the 1930s and immediately following World War II. Incomes trended higher whether we had a trade deficit or a trade surplus and whether international outsourcing was large or small.

The reason for this positive long-run trend in living standards appears to be that more fundamental economic forces are determining real incomes, irrespective of the specific jobs in which they are earned and irrespective of the proportion of domestic consumption met by imports.

Intensive research in recent years into the sources of economic growth among both developing and developed nations generally point to a number of important factors: the state of knowledge and

skill of a population; the degree of control over indigenous natural resources; the quality of a country's legal system, particularly a strong commitment to a rule of law and protection of property rights; and yes, the extent of a country's openness to trade with the rest of the world.

For the United States, arguably the most important factor is the type of rule of law under which economic activity takes place. When asked abroad why the United States has become the most prosperous large economy in the world, I respond, with only mild exaggeration, that our forefathers wrote a constitution and set in motion a system of laws that protects individual rights, especially the right to own property. Nonetheless, the degree of state protection is sometimes in dispute. But by and large, secure property rights are almost universally accepted by Americans as a critical pillar of our economy.

While the right of property in the abstract is generally uncontested in all societies embracing democratic market capitalism, different degrees of property protection do apparently foster different economic incentives and outcomes. Someone who owns a piece of land, but is restricted to a specific use, does not have unequivocal ownership and will act accordingly. Indeed, economic regulation, by its nature, impinges on the exercise of a property right. Continuous changes in regulations and, hence, in the consistency of property protection create a less certain environment, which undermines incentives to long-term investment and prevents the most productive use of our resources. The high level of protection for property rights and, for the most part, our reliance on regulation that is market-sensitive are significant factors in the overall attractiveness both to Americans and to foreigners of investing in the United States.

The second critical aspect of wealth creation in the United States, and doubtless globally, is the level of knowledge and skill of the population. Today, the knowledge required to run the economy, which is far more complex than in our past, is both deeper and broader than ever before. We need to ensure that education in the United States, formal or otherwise, is supplying skills adequate for the effective functioning of our economy. The recent exceptional trends in U.S. productivity suggest that we are coping, but this observation should not lead to complacency.

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Productivity in the United States has increased generation after generation, creating ever-rising standards of living. This trend has persisted whether our competitive advantage came from the development of more efficient technologies in agriculture, textiles, and steel, or, more recently, from the design and fabrication of microprocessors and the harnessing of the human genome. Our knowledge-based skills in a business environment, supported by a rule of law, have enabled our workforce to create ever-greater value added--irrespective of what goods and services we have chosen to produce at home and what and how much we have chosen to import.

Only when property rights are adequately protected will the entrepreneurs willingly work a heroic eighteen hours a day in their garages or at their computer terminals, secure in the knowledge that they will own what they create. In addition, those workers who are fortunate to work in a nation that protects the property rights of investors, both foreign and domestic, will benefit from the low cost of capital associated with secure property rights. That protection has fostered a thriving venture capital industry to finance the nascent ideas of budding entrepreneurs and has motivated existing businesses to invest some of their profits in research development.

The real income earned by a worker depends importantly on his or her intelligence and skill. The capacity of workers, after being displaced, to find a new job that will eventually provide nearly comparable pay most often depends on the general knowledge of the worker and the ability of that individual to learn new skills. Even in the best of circumstances, discharged workers experience some loss of income in a transition to a new job and the associated new skills. Indeed, finding a new job takes time, and typically results in at least a temporary drop in pay. That loss, especially in a soft labor market, is not only a short-term drag on aggregate incomes but also a source of stress on the affected individuals.

Generic capabilities in mathematics, writing, and verbal skills are key to the ability to learn and to apply new skills and thus to earn higher real wages over time. The avenues to acquiring those skills are many, and one effective tool that we have developed to facilitate the transition to a new job or profession has been our community colleges. These two-year institutions have been in the forefront of teaching the types of skills that build on workers' previous experiences to create new job skills. Currently almost one in three of their enrollees are aged thirty or older, a statistic that suggests that these individuals have previous job experience. The impressive expansion of these learning centers attests to their success in imparting both general and practical job-related learning. A rising proportion of the population is also taking advantage of both general adult education and work-related instruction. The fact that, over the years, more than 94 percent of the workforce has been employed, on average, indicates that U.S. workers apparently have been sufficiently skilled and motivated to learn the new tasks that enable them to earn, on average, an ever-rising real wage.

The never-ending necessity to learn new skills is due to the gradually but inexorably changing nature of our economy. The innovations that have so accelerated productivity in recent years are an extension of a longer-term, ever-growing conceptualization of economic output. The value added to our GDP from physical material input and manual labor has grown very slowly over the decades.¹ By far, the greatest contribution during the past half century to our average annual real GDP increase of 3-1/4 percent has been the ideas embodied in both our human and physical capital. Technological advance is continually altering the shape, nature, and complexity of our economic processes.

This rising complexity has required the labor force to be more and more technically oriented. Years of schooling, a rough proxy for skills, averaged nine and one-quarter years in 1950. A half century later schooling averaged more than twelve years. But technology and, more recently, competition from abroad have risen to a point at which demand for the lowest skilled workers in developed countries is diminishing, placing pressure on their wages. These workers will need to be equipped with the skills to compete effectively for the new jobs that our economy will create.

But where will these jobs come from? For generations, human ingenuity has been creating products, industries, and jobs that never before existed, from vehicle assembling to computer software engineering, and with them have come new opportunities for workers with the necessary skills. Judged by rates of return and productivity gains, our workforce has appeared sufficiently skilled, through these generations to manage our increasingly complex capital stock.

¹“Technology and Trade.” Remarks by Alan Greenspan before the Dallas Ambassadors Forum, Dallas, Texas, April 16, 1999.

But in the past two decades, our system has had obvious strains, apparently reflecting an inability of our workforce to fully meet the ever-increasing skill requirements of an economy whose GDP is becoming more conceptual.

At the risk of some oversimplification, if the skill composition of our workforce meshed fully with the needs of our increasingly complex capital stock, wage-skill differentials would be stable, and percentage changes in wage rates would be the same for all job grades. But for the past twenty years the real incomes of skilled, especially highly skilled, workers have risen more than the average of all workers, whereas real wage rate increases for lesser-skilled workers were below average, indeed flat.

This situation suggests that, broadly speaking, we have been facing a shortage of highly skilled workers and a surplus of lesser-skilled workers relative to the optimum needs of our capital stock. Through the 1960s, the addition of skilled college graduates to the labor force, in part the result of schooling financed by the GI Bill, was sufficient to hold wage increases among the highly skilled to average gains. Real wages of the lesser skilled also rose significantly, in part, the result of effective high-school educations and the many skills learned during the war.

Although in recent years the proportion of our labor force made up of those with at least some college has continued to grow, we appear, nonetheless, to be graduating too few skilled workers to address the apparent imbalance between the supply of such workers and the burgeoning demand for them. Perhaps the accelerated pace of high-tech equipment installations associated with the large increases in productivity growth in recent years is placing unachievable demands for skilled graduates over the short run. If the apparent acceleration in the demand for skilled workers to staff our high-tech

capital stock is temporary as many presume, the pressure on our schools would ease as would the upward pressure on high-skilled wages.

More broadly, in considering the issue of expanding our skilled workforce, many have a gnawing sense that our problems may be more than temporary and that the roots of the problem may extend back through our education system. Many of our students languish at too low a level of skill, and the result is an apparent excess of supply relative to a declining demand. These changing balances are most evident in the failure of real wages at the lower end of our income distribution to rise during the past quarter century.

The hypothesis that we should be able to advance the knowledge that our students acquire as they move from kindergarten to twelfth grade, gets some support from international comparisons. A study conducted in 1995 revealed that, although our fourth-grade students were above average in both math and science, by the time they reached the eighth grade, they had dropped closer to the average. By the time they were in their last year of high school, they had fallen well below the international average.² Accordingly, we apparently have quite a distance to go before we catch up.

In short, our secondary school system needs to serve the requirements of a changing economy in the same way that the expansion of high schools with a broad curriculum served us so well in the first half of the twentieth century. Early last century, technological advance required workers with a higher level of cognitive skills--for instance the ability to read manuals, to interpret blueprints, or to understand formulas.

²The Third International Math and Science Study is a project of the International Study Center, Lynch School of Education, Boston College. A complete set of TIMMS publications is available on the center's web site, <http://timms.bc.edu/timms1995.html>.

Our educational system responded: In the 1920s and 1930s, high school enrollment in this country expanded rapidly, pulling youth from rural areas, where opportunities were limited, into more-productive occupations in business and broadening the skills of students to meet the needs of an advancing manufacturing sector. It became the job of these institutions to prepare students for work life. In the context of the demands of the economy at that time, a high-school diploma represented the training needed to be successful in most aspects of American enterprise. The economic returns for having a high-school diploma rose and, as a result, high-school enrollment rates climbed.

By the time that the United States entered World War II, the median seventeen-year-old was a high-school graduate--an accomplishment that set us apart from other countries. I cannot dismiss the notion that we can learn something from that period and perhaps from other countries. Still, I realize that the world was different from today in many ways. Societal changes have been numerous and profound, and our schools are being asked to do a great deal more than they have in the past. We need to be forward looking in order to adapt our educational system to the evolving needs of the economy and the realities of our changing society. Those efforts will require the collaboration of policymakers, education experts, and--importantly--our citizens. It is an effort that should not be postponed.

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We have seen encouraging signs of late that the labor market is improving. In all likelihood, employment will begin to increase more quickly before long as output continues to expand. But fears about job security are understandably significant when nearly two million of our workforce have been unemployed for more than a year. We have reason to be confident that new jobs will displace old ones

as they always have, but America's job-turnover process is never without pain for those caught in the job-losing portion.

Those who have lost jobs, I know, are not readily consoled by the fact that current job insecurity concerns are not new. But keeping the current period in context is instructive. Jobs in the United States were perceived as migrating to low-wage Japan in the 1950s and 1960s, to low-wage Mexico in the 1990s, and most recently to low-wage China. Japan, of course, is no longer characterized by a low-wage workforce, and many in Mexico are now complaining of job losses to low-wage China.

To be sure, many of our fellow citizens have experienced real hardships in our economic environment, which is becoming ever more internationally competitive. But the protectionist cures being advanced to address these hardships will make matters worse rather than better.

The loss of jobs over the past three years is attributable largely to rapid declines in the demand for industrial goods and to outsized gains in productivity that have caused effective supply to outstrip demand. Protectionism will do little to create jobs; and if foreigners retaliate, we will surely lose jobs. We need instead to discover the means to enhance the skills of our workforce and to further open markets here and abroad to allow our workers to compete effectively in the global marketplace.

In closing, I have stressed the importance of redressing the apparent imbalances between the supply and demand for labor across the spectrum of skills. Those imbalances have the potential to hamper the adjustment flexibility of our economy overall. But these growing imbalances are also aggravating the inequality of incomes in this country. The single central action necessary to ameliorate

these imbalances and their accompanying consequences for income inequality is to boost the skills, and thus earning potential, of those workers lower on the skill ladder.

To be sure, Americans have not been obsessed with the distribution of income but have instead placed much greater emphasis on the need to provide equality of opportunity. But equal opportunity requires equal access to knowledge. We cannot expect everyone to be equally skilled. But we need to pursue equality of opportunity to ensure that our economic system works at maximum efficiency and is perceived as just in its distribution of rewards.