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Remarks by  
Alan Greenspan  
Chairman  
Board of Governors of the Federal Reserve System  
before the  
Center for the Study of Rural America  
Conference  
“Beyond Agriculture: New Policies for Rural America”

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I am pleased that my good friend, Tom Hoenig, the president of the Federal Reserve Bank of Kansas City, invited me to speak to this group on the challenges facing our rural economy in the twenty-first century. The Kansas City Reserve Bank has long maintained a special commitment to monitoring developments in this segment of our society and has most recently demonstrated that commitment through its creation of a new research unit, the Center for the Study of Rural America. The new unit is much appreciated by those of us in Washington who have always looked to the Reserve Banks to provide in-depth field coverage of our complex and ever-evolving economy.

Rural America and its relationship to the broader economy has changed enormously over time. A century ago, rural towns and villages were isolated by the high costs of conducting transactions across large distances. Goods were bulky, transportation poor, and lines of communication to points outside the local area primitive. About a third of the American people lived on farms, which at the time were relatively self-contained economic units that purchased little from outside and consumed on the farm a good bit of what was produced. Life in rural areas tended to be stable but not very prosperous. By today's standards, incomes were low, services minimal, and opportunities limited.

Technology changed all of that, as farming and the other resource-based industries in rural areas were altered by the past century's great waves of invention and innovation. The rise of the petroleum industry transformed the energy base of agriculture from that of animal and human labor to a system driven by gasoline and diesel fuel. Mechanization of agricultural processes, which had been pushed ahead earlier by the cotton gin, the steel plow, and the reaper, now was powered by the tractor, the combine, and a host of other types of farm machinery. Discoveries in the use of chemicals helped in plant nutrition and pest control, and the

introduction of new crop varieties, such as hybrid corn, boosted yield potential enormously. Perhaps just as important, principles of organization and management that had proved successful in industry were increasingly applied to farming operations.

Agricultural productivity rose dramatically as a result of the combined and cumulative effects of these innovations. Crop yields, in particular, started to surge about six decades ago, when the effects of a number of innovations seemed to converge. Apart from fluctuations related to weather, national average corn yields had been remarkably stable at roughly 25 bushels per acre from the time of the Civil War to around 1940. But by the latter half of the 1970s, the average yield had quadrupled, to more than 100 bushels per acre, and it since has climbed further, to more than 130 bushels. Wheat yields, which had seldom exceeded 15 bushels per acre in the three-fourths of a century leading up to World War II, thereafter turned up sharply, and they have climbed to more than 40 bushels per acre in some recent years. Yields of other major crops also accelerated. Overall farm productivity sped up enormously, and its growth since the second World War has far outstripped the growth in output per hour in the rest of the economy.

The sharp rise in output per worker created large excess supplies of agricultural labor and led to a huge migration of farmers and farm workers from agriculture to other industries. Similar developments were at work in other resource-based industries, such as the mining of coal, copper, and iron. As workers in agriculture and the other primary commodity industries declined in number, many of the smaller rural villages and trade centers that had formed when earlier, more labor-intensive technologies prevailed were no longer viable as commercial centers. Spatial arrangements in rural areas shifted toward larger market centers that were farther apart, a

move that was helped along by improvement in transportation technologies and the development of the modern highway system.

A hundred years ago, no one could possibly have anticipated the implications for rural America of the innovations that were emerging. Indeed, if rural citizens had known only of the dislocations that were in store--the migration of millions of workers and the eclipse of many small towns and villages--they would have been deeply incredulous. They surely could not have anticipated the diversity of modern rural America, tied to a broader economy through linkages provided by electricity, highways, and modern communications. Most of all, those rural citizens of a hundred years ago would likely have been astounded to realize that, despite all the dislocations, huge increases in the standard of living would take place not only in the cities but in rural areas as well. Yet that is what happened.

The fact is that in rural America as a whole, the nonfarm population and the level of employment have increased substantially over time, more than offsetting large declines in farming and the other resource-based industries. Growth in manufacturing created many new jobs in rural areas over the decades following World War II, and more recently, many rural places have become home to service-based industries. For all counties that are labeled nonmetropolitan by current definitions, population is about one-fourth larger than it was in 1960, and that does not take into account the very rapid growth in counties that were rural in 1960 but have since been absorbed into expanding metropolitan areas. Moreover, although growth of the present rural areas appeared relatively sluggish in the 1980s, there is little doubt that it has picked up this past decade. Rural communities close to the metropolitan areas continue to be among the faster growing places in our strong economy, but stronger-than-average growth also has been

reported in many other rural places, especially those with attractive amenities that are much in demand among today's workers.

For an understanding of how so much dislocation could take place this past century and the result still be general improvement in the standard of living, we must look to the process of creative destruction that guides the evolution of a free and open market economy. Invention and innovation are constantly at work to replace the old with the new; to reduce the costs of materials, labor, time, space, and overhead; to alter the mix of goods and services or the mix of jobs; or to shift the locations of economic activity and populations. And out of this change has come economic advance.

Now we are in the midst of yet another great wave of invention and innovation, and rural America, like urban America, is certain to be swept along. Unfortunately, it is extremely difficult to predict how the comparative advantage of different industries and regions might ultimately change in response to broad shifts in technology. History provides ample reason for us to be cautious in this regard. For instance, electricity--like the new information technologies--was once viewed as a potentially decentralizing technology, and in many respects it was. But in conjunction with innovations that were taking place at the same time in other industries, such as steel, electricity also unleashed some forces that were strongly centralizing. For one thing, it brought increased efficiency to factories, which by their nature pull together in one location many economic functions, and the greater factory efficiency translated into lower costs and expanded markets for the centrally produced goods. Steel and electricity also combined to produce the modern urban skyscraper, steel providing the framing to go higher than in the past and electricity providing the means of elevating people from the ground to the fiftieth floor.

The central cities that factories and skyscrapers did so much to create continue to exert a powerful gravitational force on the economic landscape, even as manufacturing itself has spread out more broadly. Part of the gravitational pull of the cities comes from having concentrations of population that are sufficiently large to support highly diverse mixes of personal and business services. Moreover, the computer and the other new technologies are introducing economies of scale in the ability of firms to process large amounts of information about their internal operations or the characteristics of their markets. The lower cost of collecting and processing information will help businesses that are centrally located to reach further into rural markets.

But reduction of economic distance works two ways, and the information technologies that are bringing increased competition to rural markets are also working to create new opportunities for the businesses that are located in rural areas and incentives for those contemplating new rural business opportunities. One important change that has come with the new technologies, for example, is an increased capacity for separating the point at which a service is consumed from the point at which it is produced. Thus, business locations that might not have been feasible in the past because of their distance from central markets are becoming increasingly attractive in light of the new technologies. That, together with some basic cost advantages, no doubt helps to explain the recent rapid growth in a number of rural areas. The standard of living in rural places also is being enhanced by technological changes that are expanding the menu of consumption possibilities. Rural citizens are gaining access to a broader range of goods and services, and the already existing goods and services are available more expeditiously and at lower cost. Goods that have been around a long time are appearing with more options than before, and new goods and services are continually coming on line. Among

the latter are many electronic products, such as satellite television, that have helped to counter the remoteness of many rural places. Remote locations also stand to benefit from innovations such as telemedicine, whereby expertise that is centrally located can be effectively transmitted to distant locations. Similar arrangements presumably are being developed, or considered, for many other types of services and should add to the quality of life in areas in which populations are too dispersed to support an indigenous supply of services.

Agricultural production, of course, for the foreseeable future will continue to be located in rural areas that are more distant from the central markets--it must be that way as long as the population is ultimately dependent on crops that require huge spaces. But as everyone in this audience knows, technological change and cost reduction are greatly altering the position of the farmer in the chain of production. Many livestock operations have become more like factories, with increased dependence on flows of information, tighter control over product quality at all stages of production, and greater standardization of output. Crop producers are turning to innovations such as electronic technologies, including those linked to satellites, to attain greater precision in planting, irrigation, fertilization, and weed-control. Genetic discoveries that should raise productive potential for both crops and livestock are being reported with great frequency.

All of these changes in farming technology and organization have implications for the size of the farm population and the structure of rural economies. Most indications point toward still further reductions in the number of commercial farms and increases in their size. However, new technologies also should continue to create profitable opportunities for smaller farms, as alternative uses for agricultural products are discovered and developed. Meanwhile, expansion of agricultural service industries should be a source of continued economic and employment

growth in many rural areas.

The reductions of effective distance that are coming with the new technologies do not stop at our nation's borders. Farmers today are highly dependent on exports to absorb their remarkable productivity, and the ability to compete internationally depends on lowering unit costs faster than costs are being lowered by producers in other countries. Given the institutions that our nation has developed for pushing agricultural innovation ahead at a rapid pace and spreading information about new innovations quickly throughout the farm economy, U.S. producers are well positioned on this score. However, efforts to increase the openness of foreign markets for agricultural products will need to be maintained and intensified, so that the full benefits of farm productivity gain can show through into increased market opportunity and farm incomes.

Quite apart from the effects of a changing farm economy, rural towns and villages are likely to experience, within their local jurisdictions, a good bit of change in economic structure as a result of the new technologies. Many small and medium-size towns have seen their local business centers shift in recent decades from downtown locations to fringe areas that have an abundance of parking and can accommodate warehouse-sized outlets. Now, the distributors that have been successful on the outskirts are facing new challenges from information technologies that squeeze the costs of distribution down to bare minimums, effectively bringing the producer and consumer into closer economic proximity. In response to competition from new sources, some traditional distributors have moved quickly to implement electronic linkages that complement their bricks-and-mortar outlets. Other distributors are lagging and may ultimately have difficulty competing. With communications linkages tightening, businesses that are seeking

a location in which a supply of dependable workers is readily available can more easily gather information about distant rural locations than in the past, and energetic rural communities with access to the Internet should find it easier to make themselves known to firms that are seeking a place.

Like all the previous episodes of technical advance, the revolution in information technology already has improved living conditions in numerous ways, and it will likely bring future benefits to rural communities that we now can only scarcely imagine. The benefits are perhaps most striking for those who are fully in tune with the new equipment for processing information. But the consumer who has never touched a computer or thought about information technology also is seeing beneficial effects, in the form of lower prices at the grocery store or other retail outlet than would otherwise prevail. Through channels such as these, efficiency gains get diffused widely throughout our economy, resulting in a broadly based increase in living standards. Although dislocations are bound to accompany economic growth, we should not shrink from accepting the changes that technology will bring but rather should rise to its challenges and look forward to the great benefits that it can provide over time to all our people, whether they live in congested urban areas or in the still-open spaces of rural America.