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Mr. Chairman, I am pleased to appear before this Subcommittee to discuss the issue of economic performance and productivity in the United States, with particular reference to the need for a new industrial policy. We have been studying this complex issue over the last few months and are making our preliminary conclusions available in a staff memorandum for the record. In my remarks today, I will summarize our analysis to date, which has focused on three major areas:

- o Definition of the problem, which we see as one of declining productivity growth;
- o Causes of the productivity slowdown; and
- o Outlook and policy reponses.

THE PROBLEM--PRODUCTIVITY DECLINE

An economic system is performing well if it is able to improve the well being of its population through increased production of goods and services. A useful measure of welfare or standard of living is Gross National Product (GNP) per capita. The level of this measure indicates how well the United States is performing relative to other countries, and its change shows how fast our standard of living is increasing. Although our level of real GNP per capita remains above that of most countries, our growth rate did slow somewhat in the 1970s compared to the 1960s--an

average annual growth rate of 2.7 percent as opposed to 3.1 percent. The performance of the 1970s was better, however, than over the whole post-World War II period (1948 to present), when the average annual growth rate was only 2.3 percent. Our growth rate of real GNP per capita over the 1970s was roughly comparable to that of other industrialized countries.

Although many factors cause the growth in output per capita, they can all be grouped into two categories: increased inputs, and increased efficiency in the use of these inputs. For example, real GNP per capita can be increased by having more of the population employed in producing goods and services. This is essentially what occurred during the 1970s. The entry of the "baby boom" generation into the labor force and the increased participation rates of women together increased the share of the total population in the work force. Increases in GNP per capita that are caused by increased labor input, however, simply represent the product of more work. They are not as desirable as increases in GNP per capita that are created from increased efficiency, which represent increases in the standard of living over and above those that are created by more production inputs.

Increases in efficiency over time can be best measured in terms of productivity growth--that is, the rate at which output increases relative to inputs. An approximation of efficiency change can be obtained from "labor productivity," which simply measures the change in output per man hour. A

more appropriate measure, however, is "total factor productivity," which includes the contribution to production of all inputs: capital and material inputs as well as labor. Increases in total factor productivity represent output increases over and above those accounted for by input increases. These productivity changes are critical because they are the only real source of increases in the standard of living that do not require additional work.

The growth of total factor productivity in the United States during the 1970s was slower and more erratic than in the previous decade. For example, between 1969 and 1980, the average annual growth in total factor productivity was only 0.9 percent, whereas between 1960 and 1969 the average was nearly triple that--2.6 percent per year. A major part of this decline occurred after the 1973 oil boycott, as total factor productivity declined dramatically to 0.4 percent per year during the 1973-1980 period.

While international comparisons of total factor productivity are difficult, the data that are available indicate that our slowdown has been mirrored throughout the industrialized world, although to varying degrees. For example, the U.S. annual average growth rate dropped from 2.1 percent in 1961-1973 to 0.6 percent in 1973-1979. During these same periods, Japan's growth rate dropped from 6.1 percent to 1.3 percent, Germany's

from 3.2 percent to 1.9 percent, and Great Britain's from 2.1 percent to -0.3 percent.

Productivity increases are a major source of long-run improvements in the standard of living. The broadest and most encompassing goal of any industrial policy, therefore, must be to facilitate an increase in productive efficiency.

The Causes of the Productivity Slowdown

Several different explanations have been offered for the recent productivity slowdown in the United States. In our view, the following seem to be important causes of the slowdown:

- Major shifts in relative prices;
- Inflation; and
- Regulation.

Shifts in Relative Prices. Business decisions are made to yield profits over some period of time. In order to earn profits, firms must forecast the products that will be demanded, as well as the market prices for those goods. In addition, they must decide how to produce those goods most efficiently or at the lowest possible cost. The cost and efficiency of

different production processes depends on the prices of various inputs and the amount of each input used in the process. If prices change rapidly, businesses may find that the production processes they have chosen are neither least cost nor efficient. If firms could adjust to the new prices by changing their input mix without delay, then efficiency could be maintained. However, inflexibility of the plant and equipment prevents this adjustment from occurring.

During the latter part of the 1960s and the decade of the 1970s, the United States witnessed several major shifts in relative prices, particularly oil, energy in general, and labor. During the 1973-1974 period, following decades of declining real prices, oil prices quadrupled. In 1979, they doubled again. Changes of this magnitude undoubtedly created major inefficiencies in certain types of production processes. For many industrial firms, it became far less expensive and more efficient to generate steam heat with coal, rather than oil-fired boilers, but such conversions require entirely new boilers, which take several years to plan and install. In the meantime, firms adopted temporary measures, such as using labor to conserve energy, that reduced productivity. More importantly, the dramatic change in oil prices changed the types of goods demanded by individual consumers. Two notable examples of this are automobiles and tires. Consumer demand for small cars and radial tires grew to such an extent that producers were incapable of changing their production process quickly enough to meet the new

demand, and consequently profits and productivity declined perceptibly. The capital equipment required to produce radial tires is quite different from that required to produce bias-ply tires. More surprisingly and perhaps as importantly, there was a major shift in the price of labor relative to the cost of machinery equipment and fuels. From 1955 to 1972, labor compensation per hour in the nonfarm business sector increased 121 percent, while prices for machinery and fuels increased 53 and 26 percent, respectively. From 1972 to 1980, however, labor costs increased about 78 percent, which was less than the increase in the price of machinery and fuels. In all likelihood, this shift in the relative prices of labor between these two time periods was caused by the entrance into the labor force of both the postwar baby boom and increased numbers of women, which appeared to depress the relative price of labor over this period. Such averages, however, may mask other major shifts in the relative price of labor in some industries. For example, steel industry workers increased their wages over 200 percent during the decade of the 1970s.

Inflation. Inflation reduces productivity growth by causing firms to choose production processes that are not the most efficient. It does so in at least four ways. First, by raising interest costs and the costs of financing, inflation tends to reduce investment in general. This is reflected in the drop in the average annual growth rate of real business fixed investment from 5.9 percent between 1955 to 1966 to 3.8 percent between 1973 to 1980. Second,

by raising tax rates, inflation biases investment decisions against long-lived equity-financed capital goods, even though this form of capital may be the most efficient. For example, the proportion of nonresidential fixed investment made up of shorter-lived equipment, as opposed to longer-lived structures, rose from about 56 percent in the early 1960s to approximately 70 percent in the late 1970s. Third, inflation triggers restrictive macroeconomic policies, which in turn frustrate efficient production by reducing sales below planned levels of output. Finally, inflation increases relative price instability and aggravates the problems created by shifting relative prices. In other words, during inflation most prices do not increase at the same rate, but in fact increase at extremely different rates. This pushes firms away from the most efficient production process because the capital stock cannot be adapted in the short run.

Regulation. Regulation reduces productivity because it often increases inputs--for example, capital costs for air or water pollution abatement--without increasing measured output. In addition, unanticipated regulations that require a change in the production process are very similar to a relative price change: they render the current input mix less efficient. Regulation is a particularly important factor in the productivity slowdown of specific industries, such as steel, paper, chemicals, and mining. For example, mining productivity declined at an annual average rate of 3.2

percent per year during the 1973-1978 period, after growing 2.8 percent during the 1948-1965 period.

Outlook and Policy Responses

Outlook. Projecting productivity growth in the 1980s is most difficult, but there are some reasons for optimism. First, the postwar baby boom has been absorbed into the labor force and, barring any dramatic changes in labor force participation, labor growth should return to the more stable pattern of the 1960s. Second, while oil price increases in the 1980s will probably be greater than the general rate of inflation, huge increases are unlikely. Third, inflation should moderate as oil price increases will be smaller and fiscal and monetary policies are expected to be more restrictive than in the 1970s. If these reasons for optimism do materialize, then relative price changes in the future will be less than we have experienced in the past, and productivity should rebound above the levels of the 1970s. The extent to which productivity does increase will depend in part upon the degree to which the private sector increases investment.

Policy Responses. Federal options that may assist U.S. productivity fall essentially into two categories: those which decrease price instability and those which are directed toward investment. Federal policies to decrease price instability and increase certainty regarding future prices would be helpful, but the number of options in the category are limited. The most obvious ones are more consistent regulatory, monetary, and fiscal policies, although others, such as agreements between western oil consumers and OPEC on future oil prices, might also be helpful in avoiding future price shocks.

With respect to investment, it is clear that inflation has retarded and distorted private investment over the decade of the 1970s through its effects on depreciation allowances in the corporate income tax. Policies to mitigate these adverse effects of inflation, such as adjusting the depreciation lives, would be expected to stimulate investment and productivity in the future. It is particularly important to note that inflation has had a different impact on the tax treatment of different types of assets. For example, taxes on long-lived equipment have been effected far more than on short-lived assets. Eliminating this bias in tax treatment may be as important as providing an overall investment stimulus.

Whether the federal government should provide incentives above those necessary to offset inflation is not as clear although a case can be made for

some additional temporary incentives. Given that profits have been restrained over the 1970s, it will take the private sector a number of years to generate the funds necessary to make higher rates of investment. Therefore, the federal government may wish to provide some temporary incentives above those necessary to offset the recent effect of inflation.