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IMPORTANCE OF THE FACTS

Productivity has been much discussed in recent years, and too frequently misunderstood.

Productivity deserves the attention that it has received, for it is a measure of the efficiency with which resources are converted into the commodities and services that men want. Higher productivity is a means to better levels of economic well-being and greater national strength. Higher productivity is a major source of the increment in income over which men bargain and sometimes quarrel. And higher — or lower — productivity affects costs, prices, profits, output, employment and investment, and thus plays a part in business fluctuations, in inflation, and in the rise and decline of industries.

Indeed, in one way or another, productivity enters virtually every broad economic problem, whatever current form or new name the problem takes — industrialization, or research and development, or automation, or tax reform, or cost-price squeeze, or improvement factor, or wage inflation, or foreign dollar shortage.

Despite its importance and the wide attention paid it, productivity is a subject surrounded by considerable confusion. For this there are a number of reasons. First, people employ the same term but mean different things. As a consequence, various figures on productivity change come into use, and these often differ in significant degree. Further, the rate of productivity change is not a fixed quantity. Our figures will show that it varies from one period to another. What the past or current rate of productivity change is will depend on the particular period for which the calculation is made. If no reference is made to the period, and if the period varies considerably from one context to another, confusion results. In addition, the statistical information available for calculating productivity indexes is deficient in various respects. Better or worse — or merely different — methods of meeting these deficiencies, enumerated below, often yield results that differ appreciably. Failure to specify the methods and the assumptions involved in the process of estimation, or failure to understand them, adds to the confusion.

As I have said, the questions into which productivity enters are important. They are also difficult. We all have far to go before any

of us can claim to understand fully the process of productivity change, its causes, or its consequences, or to see clearly the way to deal with the issues involved. But surely the way to more effective policy would be clearer if the basic facts of productivity change were established and widely known.

Establishing important economic facts is an objective of the National Bureau. Because the facts bearing on productivity are important, the Bureau has for a long time devoted a portion of its efforts to their determination and analysis. Its completed studies of national income, capital formation, production trends, mechanization, employment, and productivity have contributed essential pieces of information.

Currently, the task of cultivating this significant area of economic knowledge is being undertaken at the National Bureau in a number of separate, though related, projects: a study of trends in wages and productivity; a study of trends in national product, capital formation, and the relation between capital and product; and a study of cycles in productivity, costs, and profits. Some of the results of these current investigations have already been published; some are in press; others are in various stages of preparation.¹ The studies are rather technical in character, devoted as they are to the examination of concepts, the sifting of evidence, the preparation of estimates, and the analysis of complex results. All are, or will be, spread over

¹The reports already published and those soon forthcoming are as follows:

John W. Kendrick, *Productivity Trends: Capital and Labor*, NBER, Occasional Paper 53, 1956

John W. Kendrick, "Productivity Trends in the United States" (typescript, 1958)

Clarence D. Long, "Wages and Earnings in the United States: 1860-1890" (mimeograph, 1958)

Albert Rees, "Real Wages in Manufacturing, 1890-1914" (typescript, 1958)

Simon Kuznets, "Capital in the American Economy: Its Formation and Financing" (mimeograph, 1958)

Leo Grebler, David M. Blank, and Louis Winnick, *Capital Formation in Residential Real Estate: Trends and Prospects*, Princeton University Press, 1956

Alvin S. Tostlebe, *Capital in Agriculture: Its Formation and Financing since 1870*, Princeton University Press, 1957

Melville J. Ulmer, *Capital in Transportation, Communications, and Public Utilities: Its Formation and Financing*, in press

Daniel Creamer, Sergei P. Dobrovolsky, and Israel Borenstein, "Capital in Manufacturing and Mining: Its Formation and Financing" (mimeograph, 1958)

Thor Hultgren, "Changes in Labor Cost during Cycles in Production and in Business" (typescript, 1958)

the many pages needed to expose to public scrutiny the evidence on which they are based — essential if they are to merit the confidence needed for wide acceptance.

It is useful, in these circumstances, to put together some of the main results of this substantial research effort, state the findings in a minimum of technical language, and make the results available promptly. This is the purpose of the present paper.

Even a summary of facts will have to cover a good deal of territory. Something needs to be said about each of the following matters: the long-term average rate of growth of national productivity; the degree to which growth of productivity has experienced change in pace; productivity increase in relation to the rise in the nation's real output; the extent to which increase of productivity has been the general experience of the various industries of the economy; and the relation between productivity increase and the increase in real wages. To each of these subjects, therefore, a brief section is devoted which lists the main facts and provides such discussion of concepts, data, alternative measurements and findings as is necessary to make the results intelligible. We conclude with a word on recent changes in productivity.

THE LONG-TERM RATE OF INCREASE IN NATIONAL PRODUCTIVITY

Over the sixty-four years between 1889 and 1953 — the period which has been examined most closely and for which presently available statistics are most adequate — the rate of increase in productivity has been as follows:²

Physical output per manhour in the private economy has grown at an average rate that appears to be about 2.3 per cent per annum.

Comparing output with a measure of labor input in which a highly paid manhour of work counts for proportionately more than a low-wage manhour yields a measure of productivity for the private economy that grew at a significantly smaller rate — about 2.0 per cent per annum.

A measure of productivity for the private economy that compares output not only with labor input (so determined) but also

²Average annual rates for the slightly longer period 1889-1957 (utilizing preliminary estimates for 1954-57) are not significantly different.