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PRODUCTIVITY AND ECONOMIC PROGRESS*

Over the last half century the real national product of the United States increased five-fold, while population doubled. Output per capita of the population increased two and one-half times. Here was the basis of a substantial advance in economic power and in levels of consumption. Over this same period the total volume of human effort going into production (measured by manhours of labor input) increased by 80 per cent. The great gain in total output was won with an increase in labor input well below the increase in population. Here is evidence of a gain in welfare in another dimension — a saving of effort and a lightening of the toil by which the material needs of life are satisfied.

The major instrument used in the winning of these dual gains was enhanced productivity. During this period there was an unbroken advance in average physical output per manhour of work done. Decade by decade the effectiveness of productive effort increased. In the final decade output per manhour of labor input was 2.81 times what it was fifty years before.

The movements thus briefly summarized reflect four basic trends in the growth of the economy of the United States (see table

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In a paper presented at a meeting of the American Economic Association at Boston, in December 1951, I drew upon some of the materials utilized in this report, and presented preliminary estimates of some of the quantities here given. Concepts, procedures, and estimates have been modified somewhat in the present essay. A fuller discussion of the topics here dealt with may be expected in a subsequent National Bureau publication.

I am indebted to Maude R. Pech for assistance in this study.

REAL GROSS NATIONAL PRODUCT, POPULATION, LABOR INPUT, AND
PRODUCTIVITY, UNITED STATES, BY DECADES, 1891-1950

<i>Decade</i>	<i>Gross national product</i>		<i>Population</i> (relative)	<i>Total man- hours of labor input</i> (relative)	<i>Output per manhour</i> (relative)
	(billions of 1929 dollars)	(rela- tive)			
1891-1900	294	100.0	100.0	100.0	100.0
1901-1910	455	154.8	120.6	126.1	122.8
1911-1920	603	205.1	143.4	140.5	146.0
1921-1930	838	285.0	165.4	145.1	196.4
1931-1940	843	286.7	181.9	122.8	233.5
1941-1950	1,493	507.8	201.4	180.5	281.3

above). These trends are examined in the pages that follow. We there attempt to determine the magnitudes of some of the elements of growth, to outline the uses to which we have put our expanding productive power and, in so doing, to define some aspects of the pattern of progress over this half century of economic expansion.

I

FACTORS IN THE GROWTH OF PRODUCTION

Economic resources may be used for maintenance, for defense, or for material progress. Maintenance includes the support of the population (which may be a growing population) at an established consumption level and the full upkeep of an existing stock of capital equipment. It could, indeed, include defense, because military protection is necessary to the preservation of an existing way of life, but there are advantages in treating defense in a separate category of uses. Economic progress is possible when there is a margin of output over and above the needs of maintenance and defense.

Output, effort input, and productivity

Progress in this sense is not, of course, defined by the rate of change in total output. Yet, with a growing population, an increas-