

November 7, 1980

Productivity Slowdown: I

Economists and policymakers have become increasingly concerned in recent years about the slowdown in U.S. productivity. Productivity has always exhibited a strong cyclical movement in line with changes in business conditions, but analysts today are less concerned with these quarter-to-quarter gyrations than with the *secular* (noncyclical) trend.

For the private economy, the annual rate of increase in labor productivity (output per hour) averaged 3.2 percent for the 1948-65 period, but slowed to 2.3 percent in the 1965-73 period and then to only 1.2 percent in the 1973-78 period. The rate of increase in total factor productivity (output per weighted unit of capital and labor input) exhibited a similar slowdown—from an annual rate of 1.3 percent in the first period to 0.7 percent and 0.4 percent in the last two periods, respectively. Since 1978, the figures have been much worse, largely reflecting adverse cyclical factors in addition to this secular weakness.

Importance of productivity

Concern over the secular trend of productivity stems from its role as the key determinant of the nation's material standard of living. For example, at a 3.2-percent annual growth rate (the 1948-65 average), real income per hour would double in only 22 years, whereas at a 1.2-percent rate (the 1973-78 average), 58 years would be required. Moreover, the rate of labor-productivity increase is the major determinant of the difference between wage and price inflation. With a 3.2-percent rate of increase in labor productivity, annual wage inflation of 10.0 percent would translate roughly into price inflation of 6.8 percent. With a 1.2-percent productivity increase, however, the same rate of wage inflation would translate into price inflation of 8.8 percent. Labor-productivity growth therefore is clearly central to the political issues that arise when the gap narrows between wage and price inflation.

What factors underlie the secular deterioration in productivity growth? A decade ago, many studies attributed the deceleration in productivity growth to shifts in employment and output among sectors with different levels of labor efficiency. In particular, the early-postwar shift of workers out of the low-productivity farm sector to higher productivity sectors initially boosted aggregate U.S. productivity growth, but this positive effect waned as the farm share of total employment declined from 18 percent in 1948 to 5 percent in the 1970s.

The productivity slowdown would not be a major public-policy issue if this were all that was involved, because basic structural changes in the economy cannot be manipulated easily by government policy. Even if they could be, generally it would not be in the public interest to do so, for such structural changes tend to reflect the public's basic preferences to spend their incomes and seek employment in ways that increase society's general welfare.

Sectoral shifts

The importance of sectoral shifts can be tested by subdividing the economy into twelve sectors, and then breaking down aggregate labor productivity change into "rate" and "level" effects. The rate effect is the part of aggregate productivity change that is attributable to productivity change within sectors, and the level effect is the part attributable to shifts in labor (and output) between sectors with different productivity levels. Thus, one can determine the degree to which the aggregate productivity slowdown has resulted from slowdowns within individual sectors, as opposed to shifts of labor and output among the twelve sectors.

The first point to note is that the level effect (intersectoral shifts) accounted for very little of the aggregate productivity slowdown over the 1948-78 period—specifically for only 0.3

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percentage points of the total 2.0 percentage-point deceleration between 1948-65 and 1973-78. Also, while the level effect has contributed to the *slowdown* in aggregate productivity growth over the entire post WWII period, it nevertheless is still positive. This reflects the fact that workers have tended to shift from low-to-high productivity sectors over this period, but at a *diminishing* rate. Thus, the level effect accounted for 0.4 percentage points of the 3.2 percentage-point rate of productivity advance in the 1948-65 period, and for only 0.1 percentage point of the 1.2 percentage-point rate of increase over the 1973-78 period.

Large productivity boosts from sectoral shifts, while typical of the nation's past economic history, are much less evident here today than in developing nations. In some developing countries, aggregate productivity change may increase as much as 20 percent per year, as masses of workers shift from low-productivity agricultural employment to high-productivity industrial jobs.

Slowdown within sectors

Productivity slowdowns within most of the twelve major sectors of the economy (the rate effect) in contrast accounted for 1.7 percentage points of the 2.0 percentage-point slowdown in aggregate labor productivity growth between the 1948-65 and 1973-78 periods. Labor-productivity growth decelerated significantly in ten out of the twelve sectors, and in three of those ten, growth rates turned negative, meaning that their productivity actually declined. The same general patterns were evident in terms of total factor productivity—the productivity of capital and labor combined. Sectoral analysis thus points to the conclusion that the productivity problem is symptomatic of most sectors.

The communications and service sectors were the only exceptions to the declining trend, and in the latter case the explanation may simply be data inaccuracies. Within much of this sector, it is difficult to value outputs independently of inputs and to adjust

properly for quality change. Thus, the productivity data, which show a fairly steady annual rate of increase of just under 2 percent, may not give an accurate reflection of the true trends in the service sector, and in particular, may fail to pick up significant changes in trend.

The communications sector—primarily the telephone industry—in contrast was the only star productivity performer of the 1970s. Labor-productivity growth accelerated in that sector from 5 percent previously to 7 percent annually over the 1973-78 period. Total factor productivity also advanced sharply in communications.

Weakened productivity

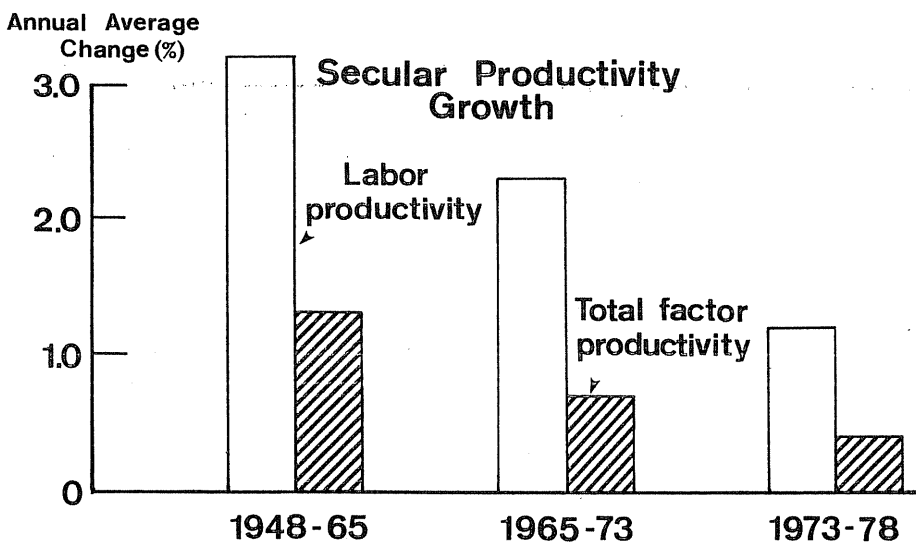
Productivity performance elsewhere was generally dismal in the 1970s, in terms of both labor and total factor productivity. Indeed, labor productivity actually declined in mining, construction, and wholesale trade during the 1973-78 period. Mining (oil, gas, coal and metals) showed the most dramatic deterioration, from a plus 4.3-percent annual rate in 1948-65 to a minus 4.8-percent rate in 1973-78. This dramatic decline reflected the increasing cost of marginal production in mining—particularly in light of incentives to increase marginal output under rising world energy prices—and also reflected the adverse effects of safety and environmental legislation on the industry's measured output. (For the most part the benefits of such programs are not part of *measured* output. Regardless of their positive effects, therefore, they tend to reduce measured productivity growth.)

Declining levels of productivity in construction and wholesale trade remain a mystery to productivity analysts. The problem in construction may reflect measurement problems—although measurement problems have always plagued this sector, and therefore should not have caused the significant change in trend which actually occurred in that industry.

Seven other industry sectors experienced positive productivity increases over the 1973-78 period, but at a much slower pace than in the earlier postwar period. This trend was so pervasive that it suggests macroeconomic rather than microeconomic factors—that is, the underlying causes were probably

common to most of the sectors. A general slowdown in capital investment may be the most likely cause, and consequently we shall examine that factor in detail in our next *Weekly Letter*.

Jack Beebe and Jane Haltmaier



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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT
 (Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding	Change from	Change from year ago	
	10/22/80	10/15/80	Dollar	Percent
Loans (gross, adjusted) and investments*	141,607	269	6,684	5.0
Loans (gross, adjusted) — total#	119,591	212	7,928	7.1
Commercial and industrial	35,000	149	3,189	10.0
Real estate	48,757	202	6,918	16.5
Loans to individuals	23,674	- 33	78	0.3
Securities loans	1,185	55	- 546	- 31.5
U.S. Treasury securities*	6,654	77	- 957	- 12.6
Other securities*	15,362	- 20	- 287	- 1.8
Demand deposits — total#	44,041	-4,066	871	2.0
Demand deposits — adjusted	33,048	-1,909	1,869	6.0
Savings deposits — total	29,785	15	- 162	- 0.5
Time deposits — total#	64,951	418	8,980	16.0
Individuals, part. & corp.	56,265	365	8,648	18.2
(Large negotiable CD's)	24,416	194	3,494	16.7
Weekly Averages of Daily Figures	Week ended 10/22/80	Week ended 10/15/80	Comparable year-ago period	
Member Bank Reserve Position				
Excess Reserves (+)/Deficiency (-)	- 66	139	-	1
Borrowings	146	94		179
Net free reserves (+)/Net borrowed(-)	- 211	45		- 181

* Excludes trading account securities.

Includes items not shown separately.

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