

Causes of Declining Growth in Industrialized Countries

Kumiharu Shigehara

A clear break in the post-World War II pattern of rapid productivity growth was a virtually universal phenomenon across Organization for Economic Cooperation and Development (OECD) countries, in most of them beginning in the early 1970s. This development had implications for both the evolution of aggregate supply, as well as the growth of real income and the types of macroeconomic and structural policies needed to sustain and enhance economic welfare. The 1980s saw some signs of revival in output and productivity growth in the OECD area, but they are not yet broad enough, nor have they been sustained long enough to justify optimism about improved trends.

This conference comes at an opportune moment for assessing the causes and consequences of the slowing of output and productivity growth. In recent years economists have begun to rethink the fundamental sources of long-term growth. Although it is premature to say that a new consensus has been reached, the associated empirical work is by now sufficiently advanced that it is useful to take stock and extract the policy lessons, if any, from this effort.

Let me summarize my views up front. We know many more stylized facts than we used to about the characteristics of countries that grow fast over the long term. In brief, rapid growth is associated with high saving, well-educated work forces, and the ability to tap the technology of the leading countries. Export orientation, low government spending, and stable political systems are also often linked with good growth performance. Based on the work that I have seen, however,

the changes in these factors are insufficient to account entirely for the clear break in the postwar pattern of OECD growth.

In this paper, I will raise the possibility that part of the growth and productivity slowdown may reflect such factors as high and variable inflation and increased structural rigidities, although their impacts are extremely difficult to quantify. I shall argue that stable rules with respect to macroeconomic policymaking that allow economic agents to take a long-term view, encouragement of competitive behavior, and flexibility in labor and product markets are extremely helpful in establishing a basic environment conducive to the improvement of growth and productivity performance.

In developing my argument, I will first discuss the postwar trends in respect to OECD growth. Second, I will discuss both the "earlier" candidates for explaining the growth slowdown and more recent explanations. Third, I will stress some factors that have been relatively overlooked until now and suggest how they may alter our interpretation of the empirical evidence. Finally, I will distill some policy implications from this work, and give my views on some of the items currently on the international policy agenda that may have a bearing on the evolution of long-term growth.

Styled facts of OECD growth

In virtually all OECD countries, the slowing of business-sector output and labor productivity occurred between 1968 and 1975, with a noticeable concentration around the time of the first oil shock. Overall, the average annual growth rate of OECD business-sector output declined from 5.3 percent between 1960 and 1973 to 2.7 percent between 1973 and 1990—a slowing that can be accounted for almost entirely by the drop in the growth of output per worker (Table 1). In some countries, notably the United States, somewhat faster employment growth initially offset some of the slowdown in business-sector productivity growth. But, for the OECD as a whole, employment growth has been about the same in both the pre- and post-1973 periods.

Table 1
Business-Sector Output, Productivity and Employment Data

	Output			Total Factor Productivity			Labor Productivity			Employment		
	<u>1960-73</u>	<u>1973-79</u>	<u>1979-90</u>	<u>1960-73</u>	<u>1973-79</u>	<u>1979-90</u>	<u>1960-73</u>	<u>1973-79</u>	<u>1979-90</u>	<u>1960-73</u>	<u>1973-79</u>	<u>1979-90</u>
U.S.	4.0	2.5	2.5	1.6	-.4	.2	2.2	.0	.6	1.7	2.6	1.9
Japan	10.0	3.5	4.3	5.9	1.4	2.0	8.6	2.9	3.0	1.3	.6	1.2
Europe	4.9	2.4	2.3	3.2	1.4	1.3	5.0	2.7	2.1	-.1	-.2	.3
OECD	5.3	2.7	2.7	2.8	.5	.8	4.1	1.4	1.5	1.1	1.3	1.3
	<u>1979-85</u>		<u>1985-90</u>	<u>1979-85</u>		<u>1985-90</u>	<u>1979-85</u>		<u>1985-90</u>	<u>1979-85</u>		<u>1985-90</u>
U.S.	2.2		2.7	.1		.3	.7		.4	1.5		2.3
Japan	3.9		4.8	1.8		2.4	2.8		3.3	1.0		1.5
Europe	1.5		3.5	1.0		1.7	1.9		2.2	-.4		1.2
OECD	2.3		3.3	.7		1.0	1.5		1.4	.8		1.8
	<u>1960-73</u>		<u>1973-90</u>	<u>1960-73</u>		<u>1973-90</u>	<u>1960-73</u>		<u>1973-90</u>	<u>1960-73</u>		<u>1973-90</u>
U.S.	4.0		2.5	1.6		.0	2.2		.4	1.7		2.1
Japan	10.0		4.0	5.9		1.8	8.6		3.0	1.3		1.0
Europe	4.9		2.3	3.2		1.3	5.0		2.3	-.1		.1
OECD	5.3		2.7	2.8		0.7	4.1		1.5	1.1		1.3

Source: OECD, Analytical Data Base.

As the greater part of the post-1973 slowing of output growth came from labor productivity in virtually all OECD countries, I will concentrate on this element of the growth slowdown for most of my talk.¹ For simplicity I will ignore multifactor productivity, whose trends have moved broadly in line with labor productivity in most countries and whose measurement is more controversial.

One should first ask whether it is correct to focus on the post-1973 productivity slowdown. As Angus Maddison and others have emphasized, post-1973 performance is actually pretty good, if one takes a long historical perspective.² The 1950s and 1960s appear to be exceptional, in terms of the rapidity of productivity growth, as compared to the average record in the first half of this century (Table 2). In the United States, the rapid growth of the early postwar period has been attributed to an abundance of new technology that was not fully exploited due to the Great Depression and World War II. Other countries took advantage of the new opening of trade and mobility of technology following the war to catch up to the U.S. productivity level. Empirically, this sort of catch-up is important in explaining productivity growth differences between countries and changes over time within the fast-growers. Hence, some slowing was inevitable, but, in my opinion, not to the degree actually observed.

While in some countries, notably the United States and the United Kingdom, there was some apparent revival of productivity growth in manufacturing in the 1980s, productivity growth has remained low at the economywide level (Table 3). Some analysts have argued that measurement problems have led to an understatement of overall productivity growth, but the consensus is that the economywide productivity slowdown is real and cannot be accounted for by data errors.³

Causes of the slowdown

The earlier candidate explanations

The productivity slowdown more or less coincided with four important events:

Table 2
Growth in GDP per capita
Average growth rates in percent

	United States	Japan	Europe	OECD average
1900-13 ¹	2.0	1.0	1.3	1.6
1913-50 ¹	1.6	.9	.8	1.3
1950-73 ¹	2.2	8.0	4.1	3.5
1973-87 ¹	1.5	2.8	1.8	1.9
Memo:				
1960-73 ²	2.7	8.3	3.8	3.7
1973-90 ²	1.5	3.1	1.8	1.9

GDP Per Capita

	Thousands of 1990 \$US based on PPPs			US = 100		
	<u>1960</u>	<u>1973</u>	<u>1990</u>	<u>1960</u>	<u>1973</u>	<u>1990</u>
United States ²	11.7	16.6	21.4	100	100	100
Japan ²	3.7	10.5	17.6	32	63	82
Europe ²	6.4	10.4	14.1	54	63	66
OECD ²	7.7	12.3	17.0	66	74	79

¹ Data from Maddison (1989)

² Data from OECD (1992).

Source: Maddison (1989), OECD (1992).

Table 3
Basic Data on Manufacturing Industry
Average growth rates in percent

	Output			Labor Productivity			Hours Worked		
	1960-73	1973-79	1979-90	1960-73	1973-79	1979-90	1960-73	1973-79	1979-90
U.S.	4.8	1.6	1.8	3.3	1.2	2.5	1.4	.4	-.6
Japan	12.7	3.2	5.4	10.2	5.0	4.1	2.3	-1.8	1.2
Europe	5.7	2.2	1.5	5.8	4.1	3.2	-.1	-1.9	-1.6
OECD	6.8	2.2	2.4	5.7	3.1	3.0	1.0	-1.0	-0.6
	<u>1979-85</u>		<u>1985-90</u>	<u>1979-85</u>		<u>1985-90</u>	<u>1979-85</u>		<u>1985-90</u>
U.S.	.7		3.2	1.9		3.1	-1.2		.1
Japan	5.8		4.9	3.9		4.3	1.8		.6
Europe	.4		2.8	3.5		2.8	-2.4		-.7
OECD	1.7		3.3	3.0		3.1	-1.1		-.1
	<u>1960-73</u>		<u>1973-90</u>	<u>1960-73</u>		<u>1973-90</u>	<u>1960-73</u>		<u>1973-90</u>
U.S.	4.8		1.7	3.3		2.0	1.4		-.2
Japan	12.7		4.6	10.2		4.4	2.3		.1
Europe	5.7		1.7	5.8		3.5	-.1		-1.7
OECD	6.8		2.3	5.7		3.0	1.0		-.7

Note: Labor productivity is measured as output per hour
Source: U.S. Bureau of Labor Statistics.

- the first oil price hike;
- some research and development (R&D) slowdown (mainly in the United States);
- many inexperienced workers entering labor markets as a result of the baby boom and rising female participation; and
- the breakdown of the Bretton Woods system and the financial instability that both preceded and followed it.

All of these factors have been put forward as major candidate explanations for the slowdown. There is a vast literature that attempts to quantify the impacts of the first three, and let me briefly summarize the results of such attempts. I will come back to the interaction of productivity performance and financial stability a little later.

In general, the bottom line of this work is that these supply-related factors were not significant enough to account for the bulk of the slowdown. For either energy prices or R&D to account for the bulk of the slowdown would require an impact that is greatly disproportionate to their weight in economic activity.⁴ Some analysts have argued that energy could indeed have such a disproportionate impact via a large energy-using bias in technological progress, but if that were the case, I think we would have seen far more discussion of whether high energy taxes outside of North America were key factors deterring growth.⁵ Similarly, most calculations of the impact of demographic changes yield small effects, especially when averaged over 15-20 years.⁶

Furthermore, history has provided us with some further testing of these possibilities. In the 1980s, all of these factors have been reversed without there being much effect on measured productivity. Oil prices have come down; spending on R&D as a percent of GDP increased in many countries (Table 4); the work force is more experienced in most countries (Table 5); and strike activity is well below previous levels (Table 6). Productivity growth increased in the late 1980s in most countries, but this gain is correlated with a decline in unemployment and some pickup in inflation—which is more characteristic of a demand, than supply-induced, advance. In sum, it is hard to see these three factors as prime candidates for explaining the observed changes in medium-term productivity trends in the OECD area.

Table 4
Spending on R&D as a Percentage of GDP

	1963	1975	1981	1989
United States	2.7 ¹	2.3	2.4	2.8
Japan	1.5	2.0	2.3	3.0
Germany	1.4 ²	2.2	2.4	2.9
France	1.6	1.8	2.0	2.3
United Kingdom	2.3 ²	2.0	2.4	2.3

¹ From Kendrick (1981).

² 1964.

Sources: OECD, Division of Science, Technology and Industry Indicators, Kendrick (1981).

Table 5
Demographic Changes

	1960-70	1970-80	1980-90
Share of labor force aged 25 or less			
United States	.20	.25	.21
Japan	.23	.16	.13
Europe	.20	.20	.19
Share of women in labor force			
United States	.34	.39	.43
Japan	.40	.38	.40
Europe	.34	.35	.39

Source: OECD. Labor Force Statistics.

Table 6
Days Lost Due to Labor Disputes
(Millions of Days)

	U.S.*	Japan	Germany	France*	U.K.
1971	33.0	6.0	4.5	3.5	13.6
1972	18.0	5.1	.1	2.5	23.9
1973	19.0	4.6	.6	2.6	7.2
1977	21.3	1.5	.0	2.4	10.1
1978	23.8	1.4	4.3	2.1	9.4
1979	20.4	.9	.5	3.2	29.5
1988	4.4	.2	.0	1.0	3.7
1989	16.5	.2	.1	.8	4.1
1990	5.9		.4		1.9

Note: Cross-country data are not strictly comparable because of differences in coverage.

* Adjusted to reflect change in national coverage.

Source: International Labor Organization.

More recent candidate explanations

In recent years, the "new" growth theories and the associated empirical work have greatly advanced our knowledge of the factors associated with long-run growth.⁷ To be sure, many of the factors emphasised by the "new" theories were stressed in the "old" growth economics as well. However, the emphasis on the potential productivity bonus to human and physical capital and on teasing out the factors associated with cross-country growth differences are important distinguishing features.

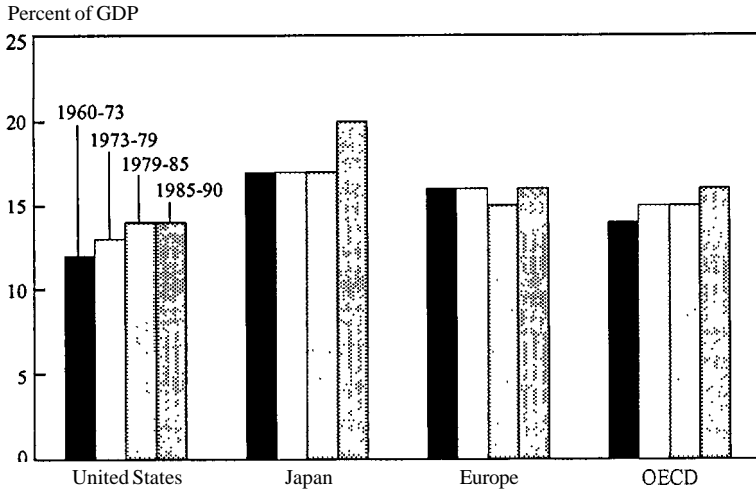
The empirical work associated with the new growth theories has in some cases produced very impressive estimated effects. According to one study (Levine and Renelt), raising the GDP share of private

investment by 6 percentage points is associated with about a one-percentage-point increase in the per capita GDP growth rate.⁸ Harris and Steindel at the New York Fed argue for somewhat smaller productivity effects for the United States than estimated by Levine and Renelt, but even so, their results show that the cumulative effects on potential output over a decade or so of higher U.S. saving and investment would be quite substantial.⁹ It is argued that this bonus to physical investment generally results from externalities coming from learning-by-doing, spillovers, demonstration effects or so-called "thick market effects" that improve productivity by enlarging markets. However, it is worth noting that, with the possible exception of spillovers, the other mechanisms generating externalities have been difficult to pin down empirically.¹⁰

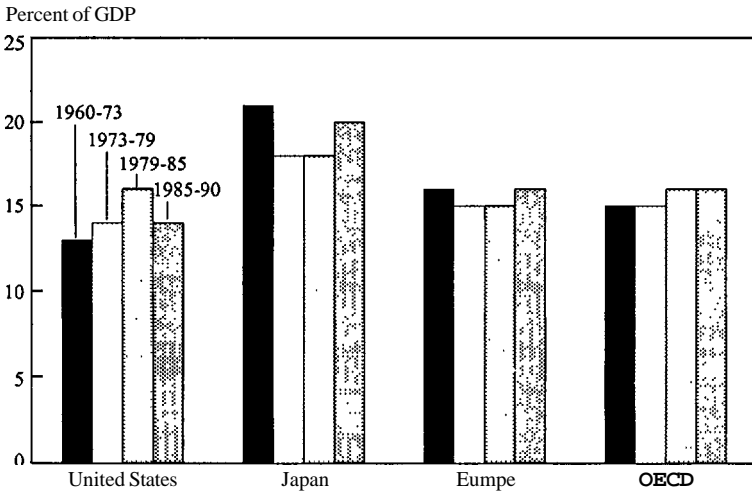
Whatever the source of this bonus to investment may be, it cannot account for the bulk of the post-1973 productivity slowdown in OECD countries. Private capital formation in the OECD area as a whole has been somewhat weaker, but not sufficiently so as to explain the slowdown (Chart 1).¹¹ As for the results of empirical studies focusing on the retrenchment of public infrastructure as a factor accounting for the private-sector productivity slowdown, some recent work at the OECD suggests that, on the one hand, the estimated magnitude seems too high, and on the other, the implied contribution of the remaining conventional factors is diminished excessively.¹² However, even if the estimated contribution of public capital formation to U.S. private-sector productivity appears unrealistically high, the widespread shift in public spending priorities to transfers and entitlements in the 1970s and the failure to rein this back in most OECD countries in the 1980s has probably adversely affected productivity performance. Indeed, work at the OECD shows that public investment as a proportion of GDP declined to very low levels in the 1980s in most OECD countries except Japan (Table 7).¹³

Human capital, mainly measured by the growth or level of education has also been found to be significant in many cross-sectional studies which have covered developing and developed countries jointly. But this factor does not sufficiently explain the OECD productivity slowdown. Most studies find that OECD education levels continued to improve after 1973 (Table 8).¹⁴

Chart 1
Investment and Capital Accumulation
Nominal Investment¹

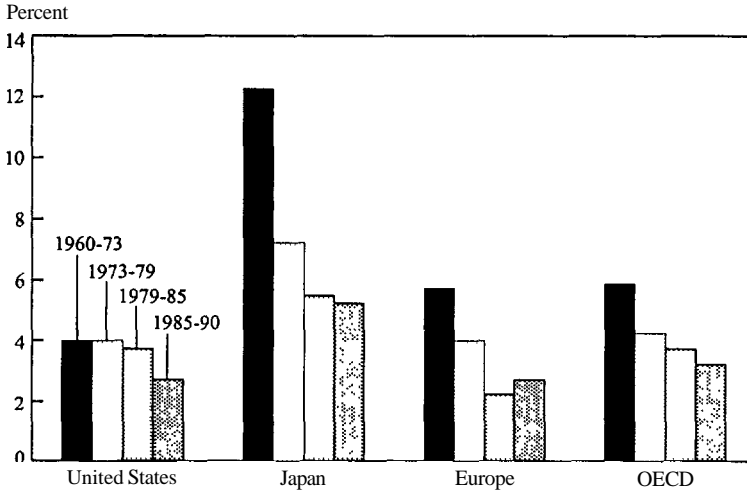


Real Investment¹



¹Non-residential business sector gross investment as percent of business sector output.

Chart 1 (continued)
 Gross Capital Stock²
 (annualized growth rates)



²The change in the gross capital stock equals gross real investment less estimated scrapping.

Table 7
Net Public Infrastructure Investment
 (As percent of GDP)

	1963-73	1973-79	1979-88
United States	3.6	2.2	1.5
Japan	5.5	6.8	6.2
Europe	2.5	2.1	1.7
OECD	3.6	3.0	2.4

Source: Ford and Poret (1992).

Table 8
Educational Attainment in the OECD:
Average Years of Schooling

Estimated by Maddison			
	1950	1973	1984
United States	9.5	11.3	12.5
Japan	8.1	10.2	11.2
Germany	8.5	9.3	9.5
France	8.2	9.6	10.8
United Kingdom	9.4	10.2	10.9
Estimated by Barro			
	1960	1975	1985
OECD	6.2	7.3	8.3

Note: For Maddison average years of schooling in population aged 25-64. For Barro unweighted average of individual OECD countries' average years of schooling for population 25 and older.

Source: Barro (1992), Maddison (1987).

It is hard to feel confident that the route to faster productivity growth in the OECD is simply increasing the number of people in university and graduate programs. In studies where levels, rather than growth rates, of human capital are found to be important, there is again not much explanation for the downturn since a slow productivity growth country like the United States still has the most highly educated population by most measures and no OECD country shows an absolute decline in education levels. It is true that concerns have been expressed in the United States about educational quality, but most other advanced OECD countries have similarly high levels of educational attainment and slowing growth rates. Hence, if we are looking to education as the culprit for the slowdown, we have to find an explanation that holds for all countries.

Political stability is also stressed as an important determinant of growth in some of the empirical studies. While factors related to political instability cannot be ignored, they are probably far more relevant for developing countries than for OECD economies.

More fundamental causes

Despite the questions I have raised about these studies, let me stress that they have advanced our knowledge of growth processes greatly. My concern is that they may be taken too literally, that it is tempting to assume that the coefficients obtained in statistical regressions can be translated into quantitative predictions of the effects of real-world policy actions. One worry was raised above—the associations of these factors with long-term productivity performance does not encompass individual OECD country experience over the last 20 years, a long time by the standards of most of our analyses.

Apart from this, however, I wonder whether policymaking would not be helped by a focus on more fundamental causes. Let me propose a set of such basic causes for the slowdown. While this set is not opposed to the previous set, and in fact is largely complementary, it can be more helpful in identifying the desired course of policy actions to enhance productivity performance and economic welfare.

My first proposition is that the interaction of OECD inflation and productivity performance over the last 30 years merits more attention (Table 9). In part, high and variable inflation affects productivity performance adversely by distorting the investment decisions that are made. While one can find different estimates of these and other costs of inflation in different studies, ranging from small to quite substantial, it is difficult to forget the twisted allocations of time and resources that came from the interactions of inflation with accounting and tax systems, and the anguish felt by the least sophisticated investors as they saw the value of their savings **diminished**.¹⁵ It may not have been accidental that the OECD productivity slowdown in the 1970s followed the deterioration of price performance in many OECD countries which led to the breakdown of the Bretton Woods system. Indeed, there is some preliminary empirical work at the OECD which lends support to this **proposition**.¹⁶ Although inflation is by now its lowest

in 20 years in most OECD countries, residual uncertainty and credibility problems may be limiting an underlying improvement in productivity performance.

Table 9
OECD Inflation Rates¹
(Annualized Growth Rates)

	1960-73	1973-79	1979-85	1985-90
United States	3.6	8.0	6.3	3.7
Japan	6.0	8.1	2.5	1.2
Europe	5.2	11.2	8.5	4.6
OECD	4.4	8.8	6.2	3.5

¹ Growth of implicit GDP deflator.

My proposed explanations for the slowdown extend beyond inflation shocks to embrace the increasing structural rigidities and growing ossification of economies, increases in rent-seeking activities, exemplified by the growth of nontariff barriers and impediments to trade, and the problems that some financial markets have experienced in channeling investment funds toward **long-term** productive uses.

It is striking that there is some evidence that the 1960s, which we view in retrospect as a relatively tranquil period, showed more shifts in resources across sectors than the post-1973 period, when large supply and demand shocks might have been expected to induce such transfers.¹⁷ The willingness of labor and investors to shift resources from one sector to another depends largely on their confidence that the rewards of such shifts exceed the rewards of attempting to preserve old structures. The rise in **NAIRUs** (the unemployment rates that are consistent with stable inflation) in most OECD countries suggests a **marked** deterioration in the efficiency of labor markets, at considerable economic and social cost.

