

The Sources of Economic Growth in OECD Countries: A Review Article

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In early 2003 the OECD published a major report entitled *The Sources of Economic Growth in OECD Countries*¹ that summarized the main findings of the OECD growth project initiated in 1999. The objective of the project had been to explain the reasons for different growth experiences across OECD countries and to identify policies, institutions and other factors that could contribute to enhancing long-term growth prospects. This review article provides an overview of the report and comments on the key findings.

The first broad conclusion is that there have been widening disparities across the OECD countries in rates of growth in GDP per capita in the 1990s. Some of this is due to the continued catch-up of low-income countries in the sample. But beyond this the disparities were the result of high growth rates in some already affluent countries such as the United States, Canada, Australia, the Netherlands and Norway, together with low growth rates in much of continental Europe.²

The OECD study also notes that disparities in growth have arisen largely from differences in labour utilization, with low growth countries experiencing slow growth or declines in employment and hours. Further, where there was weakness in labour utilization, this was not offset by faster productivity growth. The study finds that some frac-

tion of overall growth was the result of “labour upskilling” (a shift to a more experienced or better educated workforce), but notes that in the slow-growing countries this was partially due to the fact that the low-skilled were kept out of work.

Sources of Economic Growth

The study turns next to an analysis of the sources of economic growth based upon aggregate data and using cross-country regression analysis, with a particular emphasis on the ways in which policies affect outcomes. The study argues that the causal variables looked at are able to explain much of the observed growth differences over time and across countries. It was found that investment in physical and in human capital were important to growth; that sound macro policies yield higher growth; and that the overall size of government in the economy may hinder growth if it becomes too large, although the pattern was mixed. Some government spending was found conducive to growth, while high levels of direct taxation (taxes on wages and profits) discouraged growth. R&D activities by the business sector had high social returns, and hence contributed to growth, but there was no evidence in this analysis

of positive effects from government R&D. The study found some evidence that financial markets are important to growth, helping to channel resources towards the most rewarding activities, and encouraging investment.³

A very interesting and surprising result from the aggregate regression analysis is that “exposure to international trade” is an important determinant of output per working age person. The analysis concludes that an increase of 10 percentage points in trade exposure (an adjusted average of exports and imports as percentages of GDP)⁴ raises output per person by 4 percentage points.⁵ This result is not surprising in terms of the direction of the effect, but is remarkable in the magnitude — the report states that between the 1980s and 1990s trade exposure on average increased by about 10 percentage points. This result, if taken at face value, gives strong support to the view that increased globalization improves economic performance. It suggests that all OECD countries should move aggressively to remove remaining barriers to trade, and do so for their own advantage.

The OECD study does not highlight this conclusion in its main report, perhaps because of the difficulty of interpretation. There may be an issue as to whether trade leads to stronger growth or whether stronger growth leads to more trade. And since trade is so concentrated in manufacturing, which is only a modest fraction of GDP, the implied impact on manufacturing would have to be four or five times as large as the impact on GDP — a result that may be hard to swallow. Nevertheless, the fact that this result comes through in the regression analysis so strongly is reassuring to those of us who believe trade and other forms of globalization are an important factor in improving productivity. It is easier to think of scaling back an effect that looks too big than trying to rationalize why an effect that is said to be important does not show up in the regression.

Some of the limitations that apply to the coefficient on trade exposure also apply to other aggregate findings. There is always the possibility that correlations at the aggregate level are not getting at the underlying causal structure. For example, it is not surprising that rapid growth in a country will require fairly high levels of capital investment and will benefit if there is an ample supply of educated workers. But it is just as plausible that a high rate of, say, capital investment is more the result of rapid growth than the underlying cause. An increase in business opportunities in an economy will spur both growth and investment.

Industry and Firm Dynamics

Acknowledging the limitations of aggregate regression analyses, the OECD study then turns to a more micro focus, looking both at growth by industry and at firm dynamics. The industry analysis starts by asking what fraction of productivity growth within the OECD countries is the result of shifts among industries. Historically this has been important, as workers move from low productivity jobs in agriculture to much higher productivity jobs in industry and services. Many years ago Edward Denison argued that this accounted for an important part of the rapid growth in Europe and Japan after WWII. In the 1990s, however, industry shifts were not that important for the high-income countries like France, Germany, Italy, the United Kingdom, the United States or Japan. Almost all of the difference in overall growth rates is accounted for by differences in productivity performance within industries. The industry analysis also revealed that productivity growth differences across countries *within* manufacturing industries were not large. However, the fact that the high-tech sector in the United States was larger than in Europe gave it an advantage in productivity growth in the manufacturing sector as a whole.

The OECD regression analysis of industry productivity starts by estimating multifactor productivity (MFP) for each industry in each country in each year over the period 1984-98 — a huge data exercise. MFP growth in a given year/industry/country then depends on how fast MFP is growing in the productivity leader (a measure of how fast the frontier is moving out); how far the level of MFP is behind the leader (a measure of the potential for catch-up); and a set of policy variables. Tests are made for the impact of industry and country dummy variables and additional regressions are run to assess the role of R&D, corporate structure and industrial relations systems.

Policy Implications

The conclusions, and particularly the implications that emerge for policy, from this effort are as follows. The finding judged most important is that “stringent regulatory settings in the product market, as well as strict employment legislation, have a negative bearing on productivity at the industry — and, therefore, macro — levels.”⁶ This broad finding is qualified, however, by the argument that the impact of regulation varies depending on the nature or position of an industry. In particular, the impact of product market regulation on productivity is greater when industries are far away from the productivity frontier. That result makes sense, since the structural changes needed to reach the frontier will be larger in those cases and presumably more sensitive to barriers to change created by regulation.

The impact of labour market regulation also varies by industry situation. Hiring and firing restrictions have a negative effect on productivity performance when they are not offset by lower wages or by internal training. Thus the adverse effect of labour market rigidity is mitigated,

according to these findings, if workers are willing to pay for it, through lower wages, or if firms respond to it by providing additional worker training.

The study does find some support for the view that R&D contributes to growth, but the results are qualified in ways that I do not find intuitive. I end up concluding that this data set does not provide very clear guidance as to the role or importance of R&D to growth. There is one intuitive result that is linked to innovation, however. The study finds that a German-style company structure does well in making incremental innovations in industries with a stable dominant technology (one thinks of the success of German capital goods producers). A more relaxed structure without institutionalized labour relations does better at innovating in rapidly evolving technologies (one thinks of IT and Silicon Valley).

This finding may explain, in part, the problems with job creation in Europe. Innovation in large firms with established technologies will often result in productivity growth that reduces employment. This is the picture one sees in industries such as steel and autos. Innovation in new firms or new establishments is more likely to involve new products and services.

The final step of the study is to incorporate findings from a large volume of new work based on individual firms or establishments. Data at this level has revealed a very large degree of heterogeneity among firms in productivity growth rates and levels. This is consistent with a “creative destruction” view of the economy in which new firms enter, weak firms exit and incumbent firms struggle for market share and profits. There is also, of course, the problem that data errors introduce spurious differences across firms or over time. It is easy to see the heterogeneity, but discerning clear patterns in the data is much harder. The OECD and the academics that were part of the study worked at length to

clean the data and capture its insights. The study included Finland, France, West Germany, Italy, the Netherlands, Portugal, the United Kingdom and the United States, and the productivity growth calculations were based on two five-year intervals, 1987-92 and 1992-97. The results for manufacturing are much more extensive than for services, but there are some service sector findings also.

The first insight is that for these OECD countries, the bulk of labour productivity growth comes from improvements within firms rather than from reallocation of output or inputs among firms. The entry and exit of firms is important however, accounting for 20 to 40 per cent of total growth. For most of the countries the entry of new firms adds to productivity growth, but the United States is different. Entrants in the United States start with productivity levels well below the average and grow from there. The positive contribution in the United States comes from the exit of low productivity firms. Inevitably, the contribution of entry to growth is greater over longer periods of time.

The findings for MFP are a bit different, in that within-firm productivity growth is a smaller part of the total and the impact of entry and exit and reallocation are larger. Tentatively, therefore, the conclusion is that incumbent firms, which are generally larger, are able to invest and raise labour productivity, while new firms bring more innovative technology or new business processes.

An important and very surprising finding is that entry and exit rates are not greatly different between the United States and European countries. Despite the similarity in average turnover rates across countries, the regression analysis does tease out a negative effect of both product and labour market regulation on firm entry rates. Controlling for other determinants of entry and exit, the impact of regulation does show up in the data.

There is an argument made, indeed I have often made it myself, that rigidities in Europe discourage the entry of new firms and restrict the exit of old firms. If this is correct, it is very surprising that it does not show up as lower overall entry and exit rates in Europe, relative to the United States, either in manufacturing or in the broader business sector. I am not ready to discard old views just on the basis of this finding, and indeed neither is the OECD study, so how can this puzzle be resolved? One possibility is that rigidities in Europe delay adjustment and delay the exit of firms, but over time they cannot override the market forces that force uneconomic firms to leave. For example, if real wages are stuck at too high a level in Europe, then the economic pressure on firms to exit, over this period, may have been even higher than in the United States.

The most dramatic difference between the United States and Europe that shows up in this firm-level analysis occurs in the extent to which entering firms add to their employment over time. This finding has received a good deal of attention, understandably so. It shows that entering firms in the United States have dramatically increased their employment after 2, 4 or 7 years relative to their initial size. Entrants in the United States overall are smaller than in most of the other countries, have an above average probability of survival and grow employment much more than entrants in the other countries.

In summary, the firm level analysis does provide some intriguing insights, if not yet, complete answers. The study stresses, correctly, the high degree of churning in all countries. The importance of the creative destruction process and market experimentation is clear. Compared to Europe, entering firms in the United States are smaller and of lower relative productivity. If successful, however, they grow employment much more rapidly than entrants in the other countries.

In the policy arena this part of the research supports the idea that excessively stringent regulation in both product and labour markets will hinder growth. It illustrates vividly the constant churning that goes on in markets and shows that even though many European countries have barriers to economic change, the change happens anyway. There is an irresistible force of economic change and industry evolution. These barriers, however, may slow down the pace of innovation and the creation of new employment opportunities.

Overall, therefore, the OECD growth study provides important new understanding of economic growth in the 1990s and how policy differences have resulted in different outcomes. The diversity of performance within Europe in particular is notable. There is not just a U.S.-E.U. split in growth performance; some European economies and other OECD economies besides the United States have performed well over this period. (Truth in advertising: during my time as Chairman of the Council of Economic Advisers I was a strong supporter of this project). Aside from the comments and criticisms given above, the main omission from the study is of ways to improve employment growth, especially in Europe. Combining full employment with high productivity is the challenge for policymakers and this report says very little about the need for labour market reform.

Notes

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- 1 The report can be downloaded at no cost in PDF e-book format or purchased for \$40 U.S. from the OECD online bookshop (see www.oecd.org).
- 2 See page 51 in the report.
- 3 See pages 89-90 in the report.
- 4 The variable is described as a weighted average of export intensity and import penetration. In the empirical analysis this measure was adjusted for country size by regressing the crude trade exposure variable on population size and taking the estimated residuals from this exercise as the adjusted trade exposure. See Box 2.3 on page 78 of the report.
- 5 Table 1 in OECD, *The Policy Agenda for Growth*, 2003, a summary of the larger report.
- 6 See page 121 in the report.

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Source of Economic Growth # 2. Natural Resources: The second classical factor of production is natural resources. The important resources here are arable land, oil and gas, forests, water, and mineral resources. Some high-income countries like Canada and Norway have grown primarily on the basis of their ample resource base, with large output in agriculture, fisheries, and forestry. Economic growth inevitably rides on the four wheels of labour, natural resources, capital, and technology. But the wheels may differ greatly among countries, and some countries combine them more effectively than others. Related posts: [5 Factors that Affect the Economic Growth of a Country.](#)