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December 2017

Slowing Productivity Growth in Europe: An overview of the issues

Productivity growth across European and other advanced economies has disappointed since the financial crisis. The issue is not just weakness in measured business and government capital—plant, equipment, software, and the like. Rather, growth in total factor productivity (TFP)—which adjusts for observable capital growth as well as the skills of the population—has been weak. In the long run, TFP is typically taken as a broad measure of innovation and efficiency.

Some observers have taken this disappointing pace as *prima facie* evidence that the financial crisis and ensuing weak demand has been the cause of the weakness. After all, there are a number of reasons why the poor macroeconomic environment, as well as unusual features of the recent period, might have weighed on TFP growth (see, for example, IMF, 2017).

Quantitatively, the 2016 vintage of EU KLEMS data (which are extended and improved in this project) shows that aggregate TFP growth in most major European economies was negative in the 2007-2015 period.

However, an important backdrop to the disappointing recent performance is the longer-term, pre-recession origins of slow productivity growth. For example, Timmer, et al., 2010 discuss the slowing pace of European productivity growth after the mid-1990s. Because of this longer-term slowing trend, in some cases, the recent productivity experience might best be considered as a continuation of previous trends as opposed to a crisis-induced break.

Indeed, Cetto, Fernald, and Mojon (2016) argue that for major European economies, the notable break in TFP relative to the “frontier” occurred around the mid-1990s. Prior to that time, productivity performance in many advanced economies is well described by productivity convergence. Since then, however, relative productivity in continent Europe has steadily fallen relative to U.S. levels. The divergence was modest in some cases, but sharp in others.

In this overview paper, we will use aggregate and industry data to explore these two hypotheses of a pre-recession trend versus a crisis-induced break. Note that they are not mutually exclusive. For example, even if the trend were slowing, it is possible that in some or many countries, the recession itself might then have been an important additional contributor to the disappointment. The experience could differ across countries depending on factors such as the depth of the downturn, the sectoral composition of production, and the degree to which the financial sector was impaired in the country.

Of course, this analysis depends on the productivity data being reliable. Hence, we also review a number of measurement issues that are relevant for assessing the question, [and which are addressed in detail in the various work projects]. Broadly, these can be grouped under potential mismeasurement of output, and mismeasurement of input.

- Mismeasurement of output. Inflation-adjusted output is always hard to measure.

- Price deflators are challenging to get right. One concern is that quality-adjusted deflators for many information-technology products, such as computers and smart phones, might overstate prices and understate growth. A second concern is that with the rise of digital services (and the increasing shift of economic activity towards services generally), deflators for the economy as well as for specific activities might have gotten worse.
- Increasing amounts of time are spent on valuable activities that appear “free” to users. For example, the benefit to consumers of Google searches or Facebook does not directly show up in gross domestic product, since it is not priced to the consumer. A concern is that focusing solely on market-based output that is inside the boundaries of conventional national accounts might be less relevant in a world where increasing amounts of time are spent on apps that are “free” to users (e.g., Google searches or Facebook) or, otherwise, that take place on our phones.
- Many intangible investments are not counted in the official data as final output. Gross domestic product aims to measure “final” output, so intermediate transactions are netted out. Considerable recent research highlights that a lot of spending by businesses that is currently counted as intermediate expenditure is, conceptually, no different from final spending on tangible capital investments. [One work project aims directly at improving measures of intangible investment output.]
- Globalization and the fragmentation of production raise several challenges.
 - These include capturing the “true” location of intellectual property: Businesses often find ways to shift the apparent location to a low-tax jurisdiction.
 - Import prices are often poorly measured, in part because many import transactions involve transfer prices by multinationals.
 - Global value chains also raise a question of whether innovation gains show up in productivity, or in the terms of trade. For example, firms might shift the fastest-growth portion of the value chain to another country, leading to slower domestic productivity growth—yet the gains to purchasers nevertheless show up in cheaper (true) import prices.
- Mismeasurement of input. Both capital and labor input could be mismeasured, thereby biasing price statistics.
 - In terms of capital inputs, intangible investments done by firms need to be capitalized. (Note that intangibles thus affect both measures of output, and measures of inputs; so the effect on labor productivity measurement is larger than the effect on TFP).
 - In terms of labor inputs, a challenge is to measure the “quality” of the labor force, in terms of education, experience, and (potentially) other skills.

- Over the course of business cycle fluctuations, a challenge is to adjust for variation in “true” input use associated with the workweek of capital and labor effort. In recessions, capital utilization typically falls and firms might hoard labor of workers with scarce skills—meaning, loosely, that the firm has excess capacity and workers don’t have enough to do. Although variations in utilization are an important reason why measured TFP is procyclical (Fernald and Wang, 2016), it is less likely to be an important factor in explaining weak productivity growth over a decade or more.
- Cross-country comparisons. For some purposes, such as understanding diffusion of best-practices, it is helpful to have reliable data on the level of productivity across countries.

Assuming that the weak pace of TFP growth is not simply a figment of mismeasurement, there are a number of analytical mechanisms that might explain why TFP growth has slowed, or why there might be a break between trends in measured TFP and technology.

- Frontier technology might have slowed. For example, one prominent hypothesis for the global nature of the productivity slowdown is that the broadbased gains from information-technology have ebbed.
- There might be barriers to the diffusion of ideas across countries and/or across firms.
- The financial crisis might have slowed investment in R&D and other intangible investment in new ideas; or, these ideas might have been adopted more slowly because of weak demand (e.g., Anzoategui et al, 2017).
- Credit or other frictions have led to a worsening in the allocation of resources, lowering measured TFP growth. Indeed, some papers argue that resource misallocation has increased in many countries.
- Rising market power might have changed the relationship between technology change and measured TFP growth.

Looking ahead, this analysis will shed light on what to expect in the future. To the extent that trend growth has been slow for reasons unrelated to the recession and financial crisis, the best guess is that slow trend growth at the frontier will continue. Even in that case, however, uncertainty remains high regarding future trends. On the other hand, to the extent that some of the weak performance in Europe reflects temporary cyclical factors that will reverse, productivity growth could pick up relatively quickly. However, if the widespread divergence from the frontier reflects underlying structural factors such as misallocation, it may take more than a business-cycle recovery to reverse the tide.

References

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