



B A C K G R O U N D E R S

Productivity

Productivity measures how much output is produced per unit of input. Increases in productivity reflect improvements over time in the economy’s ability to boost output by finding ways to use these inputs (also known as factors of production) more efficiently.

Different measures of productivity

Productivity can be defined and measured in various ways. The simplest and most commonly used measure of productivity is *labour productivity*, which tells us how much output is produced per worker or per hour worked. An advantage of labour productivity is that it is relatively easy to measure as it relies only upon readily available data on output and labour input. A limitation is that labour productivity can mask the important contributions that other factors (e.g., capital and technology) play in overall efficiency.

An alternative gauge of an economy’s use of its production resources is *total factor productivity* (TFP), or *multifactor productivity*, which aims at capturing the effect of underlying technology used by producers. TFP, though, is very difficult to measure. It is typically calculated as the percentage increase in output that is not accounted for by changes in labour and capital inputs. While measuring hours worked is fairly easy, measuring capital inputs is not. Even more difficult to measure are improvements over time in the quality of inputs.

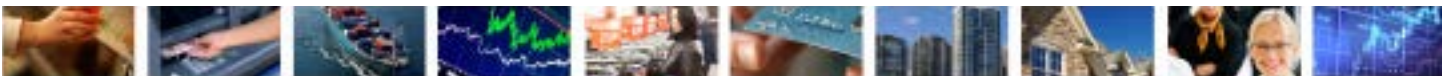
Because of these complications in obtaining a reliable measure of TFP, analysts usually focus on the more straightforward concept of labour productivity, which has the added advantage of being more directly comparable across countries. Importantly, it is also more directly related to our standard of living (as measured by real income per person).

Why do we care about productivity?

There are, of course, other factors besides productivity growth that affect our standard of living, such as changes in Canada’s terms of trade (the prices we receive for what we sell abroad relative to the prices we pay for imports) and changes in employment rates (the proportion of the population that is actually employed).

However, productivity growth is a major source of improvement in our economic well-being in the long run. Gains in productivity allow businesses to pay higher real (inflation-adjusted) wages and still keep costs down and stay profitable and competitive. So, rising productivity is vital to *sustained* improvements in real incomes and living standards over time.

Labour productivity also matters for the conduct of monetary policy because it is a key variable affecting potential output and, hence, the **output gap**, which is an important indicator of inflation pressures in the economy.





Canada's productivity record

Canada's productivity record over the past decade has been disappointing. Labour productivity, which had shown signs of improvement in the late 1990s, has grown by only about 1 per cent a year, on average, since 2000—less than half the rate of increase in U.S. labour productivity.

Although the reasons for this lacklustre performance are not fully understood, a number of factors have been highlighted by researchers. One proposed explanation is that Canadian businesses have been relatively slow at adopting the latest information and communication technology. Related to this is the fact that Canada's innovation record has been rather poor, particularly among small- and medium-sized enterprises. In addition, higher prices for oil and natural gas, metals, and minerals may reduce productivity in the commodity-producing sector as they encourage the mining of resources that are harder and more costly to extract. Finally, our economy has undergone structural changes in recent years, especially in the wake of the 2008–09 recession. These changes involve significant reallocation of labour and capital across firms and sectors. In the long run, this means more efficient economic specialization and use of production resources; but in the short run, productivity may suffer because it takes time and training for reallocated workers to become fully productive.

Given Canada's current demographics—which imply a shrinking of the working population—it is now more important than ever to improve our labour productivity, as it will be essential to our future well-being.

How can the Bank of Canada support productivity growth?

The best way the Bank can support growing productivity and a higher standard of living for Canadians is by providing an environment of low and stable inflation. Low inflation reduces uncertainty about future prices and helps to prevent “boom-and-bust” cycles in the economy and to keep interest rates low. All of this encourages investments in new equipment and technology that enhance productivity. The Bank also promotes the safety and stability of Canada's financial system, which plays an important role in helping to allocate credit efficiently to productive investments.

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