



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—labour and capital equipment. 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. Labour productivity is, however, an incomplete gauge of overall efficiency because it can be boosted through worker education and training, an increase in the amount of capital (especially technologically advanced machinery and equipment) available to workers, improved organization of the production process, etc.

A better gauge of an economy's use of its production resources is *total factor productivity* (TFP), or *multifactor productivity*, which aims to assess the efficiency with which labour and capital are combined. TFP, though, is very difficult to measure. It is typically calculated as the percentage increase in output that is not accounted by changes in labour and capital inputs. While measuring hours worked is fairly easy, measuring the amount of physical capital in the economy is not. Even more difficult to measure are improvements over time in the quality of inputs.

Because of all these complications, analysts usually focus on the more straightforward and measurable 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 *the* 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.

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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, four factors seem to be behind this. First, workers in Canada have less high-tech, high-efficiency equipment with which to work. Second, Canada's innovation record has been rather poor, particularly among small- and medium-sized enterprises. Third, higher prices for oil and natural gas, metals, and minerals reduce productivity in the commodity-producing sector as they encourage the mining of resources that are harder and more costly to extract. Fourth, 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.

The effect of restructuring should diminish over the medium term, and investment in machinery and equipment should strengthen, boosting labour productivity. Improved labour productivity will be even more critical to our well-being in the future, against the backdrop of a less-favourable demographic scenario that will see our working population shrink.

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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