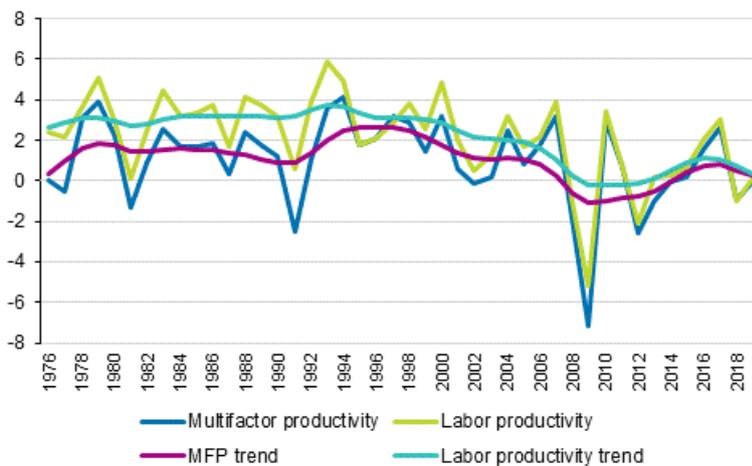


# Productivity surveys 2018

## Labour productivity did not grow much in 2019

Labour productivity calculated from preliminary national accounts data grew by 0.1 per cent in Finland in 2019. As the volume of value added grew by 1.3 per cent and the number of hours worked by 1.2 per cent, only slightly more value added than before was thus achieved in one hour worked.

### Annual changes and the trends of multifactor productivity and labor productivity 1976-2019, % units



Labour productivity is calculated as the volume change of value added per hour worked. It is also possible to separate which factors have had an effect on the change in productivity. The capital data of national accounts are used to view what share of the change in productivity is caused by employees having more capital at their disposal than before. The contributions have been separately calculated for ICT and R&D assets, machinery and equipment, residential buildings and other capital resources. The total contribution of capital intensity was 0.6 per cent in 2019. The contribution of the structural change in labour input can also be calculated separately. This indicates that productivity grows because of the improved educational level of the labour force, for example. In 2019, it was -0.01 per cent. Total factor productivity is derived when the total contributions of labour input and capital input are deducted from the change in labour productivity. In 2019, the effect of total factor productivity was also nearly zero (-0.03 per cent).

Alternatively, labour productivity can be calculated by dividing output by the number of hours worked. Then the effect of the change in the volume of intermediate product input on labour productivity can be

separated into a specific factor. These data can also be found in Statistics Finland's database tables. Further information about the concepts and definitions is available under Concepts and definitions ([http://www.stat.fi/til/ttut/kas\\_en.html](http://www.stat.fi/til/ttut/kas_en.html)).

The Hodrick-Prescott filtered long-term growth trend indicates that the pace of growth in labour productivity slowed down strongly in the whole economy from good three per cent in the mid-1990s to 0.6 per cent in 2015 (Figure 1). On account of the development in 2016 and 2017, the declining trend of labour productivity after the mid-1990s was about to turn more positive, but in 2018 the growth in labour productivity halted again.

### Average growth rates of labor productivity and its components in given time periods

	1976-1989	1990-1999	2000-2009	2010-2019 <sup>1)</sup>	2019 <sup>1)</sup>
Change in volume of value added, %	3.39	2.03	1.90	1.07	1.32
Change in the amount of hours worked, %	0.31	-1.13	0.55	0.32	1.17
Change in labor productivity, %	3.08	3.16	1.35	0.75	0.15
Contribution of hours reallocation, %-units	0.28	0.19	-0.07	-0.12	-0.31
Contribution of capital services, %-units	0.99	0.68	0.93	0.48	0.49
Contribution of the change in the quality of labour input, %-units	0.34	0.41	0.18	0.04	-0.01
Contribution of Multifactor productivity (incl. the change in the quality of labour input), %-units	1.47	1.87	0.30	0.35	-0.02

1) The figures concerning 2017 to 2019 are based on preliminary data.

Table 1 examines the components of labour productivity in different decades. The values are the average growth rates for each decade. Labour productivity is calculated as the difference between change in volume of value added and change in hours worked. On the other hand, examined at the level of the whole economy, the components of labour productivity are total factor productivity, change in the quality of labour input, capital intensity and reallocation of hours worked.

The table shows that in the late 1970s and 1980s labour productivity grew every year, by an average of three per cent per year. The volume of value added grew faster than the number of hours worked, which in some years even decreased. The quality of labour input also grew steadily – the educational level of the labour force improved every year. The contribution of capital input was also higher than in later decades, an average of one percentage point per year over the whole period. The contribution of total factor productivity was, on average, 1.5 percentage points per year, so it explained nearly one-half of the growth in labour productivity.

According to the theory of the growth calculation, total factor productivity means technology development. In reality, it may also include such effects that are otherwise not detected in the model (e.g. measurement errors and externalities). Total factor productivity is a significant contributor to the growth of labour productivity. This is due to the declining marginal productivity of capital and labour and natural constraints. For example, getting a computer into use can increase an employee's productivity significantly, but the second and third computers no longer have the same effect. Labour input, or the number of hours worked per employee, cannot grow unlimited either. In contrast, labour productivity can, precisely due to technical progress.

The recession in the 1990s was visible as an increase in labour productivity, as the number of hours worked contracted more than value added. Indeed, the average growth in labour productivity in the whole 1990s was of the same size as in the 1980s. In the 1990s, the average growth in value added was only two per cent per year, compared to three per cent in the 1980s. At the same time, the number of hours worked decreased by an average of one per cent per year, so labour productivity grew by 3.1 per cent. In the 1990s, the contribution of capital input was 0.7 percentage points per year, on average, but included were years of both positive and negative contributions. By contrast, the contribution of total factor productivity was

high, on average nearly two per cent over the whole decade, thus explaining alone the majority of the growth in labour productivity.

The average growth in the volume of value added has slowed down further in the 2000s. During the 2000 to 2009 period, the average annual growth in value added was, however, clearly higher than the annual change in hours worked. This is visible as an increase in labour productivity. However, compared to the 1990s, the average annual growth in labour productivity halved to 1.3 per cent. Over the past two periods (2000 to 2019), the level of total factor productivity also fell to under 0.4 per cent.

The average annual change in hours worked in 2000 to 2009 was 0.6 per cent and in 2010 to 2019 it was 0.3 per cent. When examining labour productivity at the level of the whole economy, the effect of reallocation of hours worked must also be taken into account. The term of reallocation is positive when hours worked shift from low-productivity to high-productivity sectors. The term of reallocation has been positive in the first two periods of the table, but its effect has been negative in the 2000s.

In 2010 to 2019, labour productivity growth contracted further, being 0.7 per cent per year, on average. Labour productivity was even lower in 2019, only 0.1 per cent. In 2010 to 2019, the average growth in the volume of value added has been 1.1 per cent per year. The change in value added in 2019 slightly exceeds the average growth rate, being 1.3 per cent. Although the change in the volume of value added was positive in 2010 to 2019, in relative terms its growth was slower than that of hours worked, which is visible as slowing down of the growth in labour productivity. In 2019, annual changes in the volume of value added and hours worked were almost of the same size, which is visible as slight growth in labour productivity (0.1%).

In the entire time series, the change in the quality of labour input has had a positive effect on the growth of labour productivity. After 2010, its contribution has, however, declined clearly. When examining only 2019, the change in the quality of labour input had a negative effect on the development of labour productivity.

The productivity indicators presented in these statistics are based on the KLEMS method. Further information can be found in the methodological description of the statistics ([https://www.stat.fi/til/ttut/ttut\\_2017-11-28\\_men\\_001.html](https://www.stat.fi/til/ttut/ttut_2017-11-28_men_001.html)) (in Finnish only).

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