

Chapter 2. The challenge: Broadly shared productivity gains

Reviving productivity growth and ensuring that productivity gains are broadly shared through higher wages and better employment opportunities are key to raising well-being for all members of society. This chapter discusses the role of the labour market as an engine of a dynamic economy sustained by strong productivity growth whose benefits are shared with all workers through enhanced employment opportunities, higher wages and better working conditions.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Introduction

A well-functioning labour market is crucial for sustaining gains in productivity which underpin high and inclusive growth and rising levels of well-being. Yet productivity growth has tended to slow in practically all advanced and emerging market economies over the past two decades. At the same time, median real wages have failed to keep up with even this diminished productivity growth in many countries, making growth less inclusive. Thus, not only have productivity gains become smaller, but the share transmitted to low-wage and middle-wage workers through real wage increases has also declined, resulting in real wage stagnation for workers in the bottom half of the wage distribution.

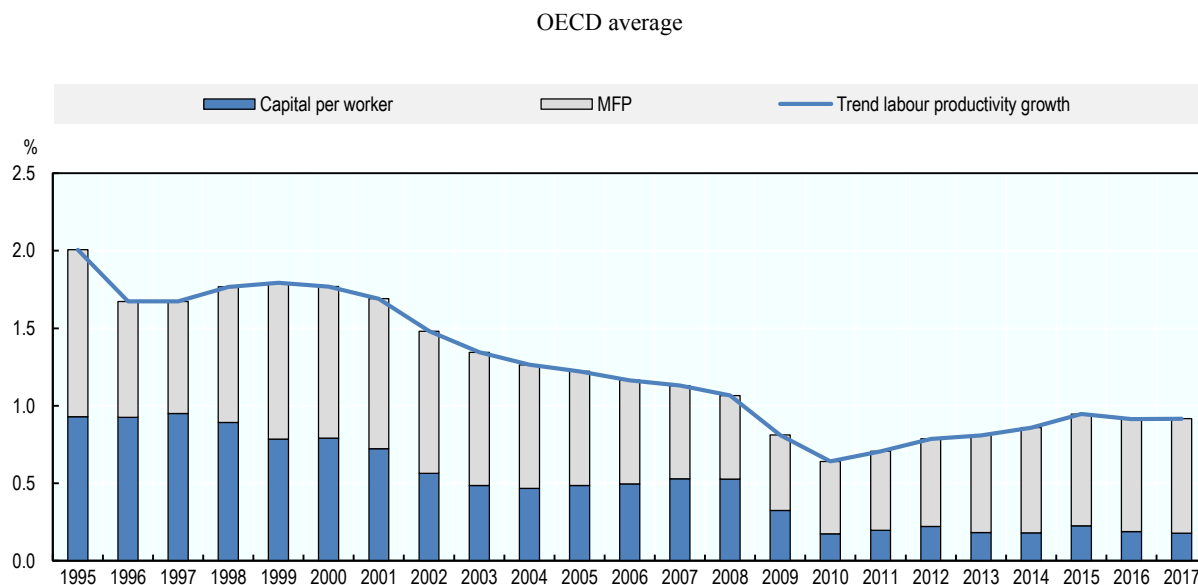
In this light, this chapter discusses how a well-functioning labour market can foster a dynamic economy sustained by strong productivity growth that benefits all workers through enhanced employment opportunities, higher wages and better working conditions. Labour markets are crucial for the efficient re-allocation of resources in the economy, providing workers with opportunities to acquire and upgrade their skills and ensuring decent working conditions for all workers, including those in a weak bargaining position. The tax and benefits system also has an important role to play in improving workers' well-being, but on its own it cannot raise living standards for all or provide the sense of gratification that work potentially offers through economic engagement, social interaction and personal accomplishment.

The remainder of this chapter is structured as follows. Section 2.1 describes the twin challenge of achieving high productivity growth and ensuring that the gains of productivity growth are transmitted to all workers through better employment opportunities and higher wages. It also outlines trends in productivity, wages and employment over the past two decades and links these trends to underlying drivers. Section 2.2 discusses the role of the labour market in promoting: high productivity growth; a good transmission from productivity to wages; and the availability and accessibility of good employment opportunities.

2.1. The challenge

Over the past two decades, productivity growth in the OECD has slowed, raising concerns about growth in living standards and the creation of high-quality job opportunities. The productivity slowdown reflects both slower capital deepening (growth in capital per worker) and lower multi-factor productivity growth (Figure 2.1). The slowdown in capital deepening was particularly pronounced after the global crisis of 2008-09, suggesting that economic downturns can have long-lasting effects. By contrast, low growth in multi-factor productivity appears to be a structural development that pre-dates the global crisis. In conjunction with the projected decline in overall labour force participation due to population ageing, a structural slowdown in productivity growth could significantly reduce growth in living standards (Guillemette and Turner, 2018^[1]).

Figure 2.1. Productivity growth has declined over the past 20 years



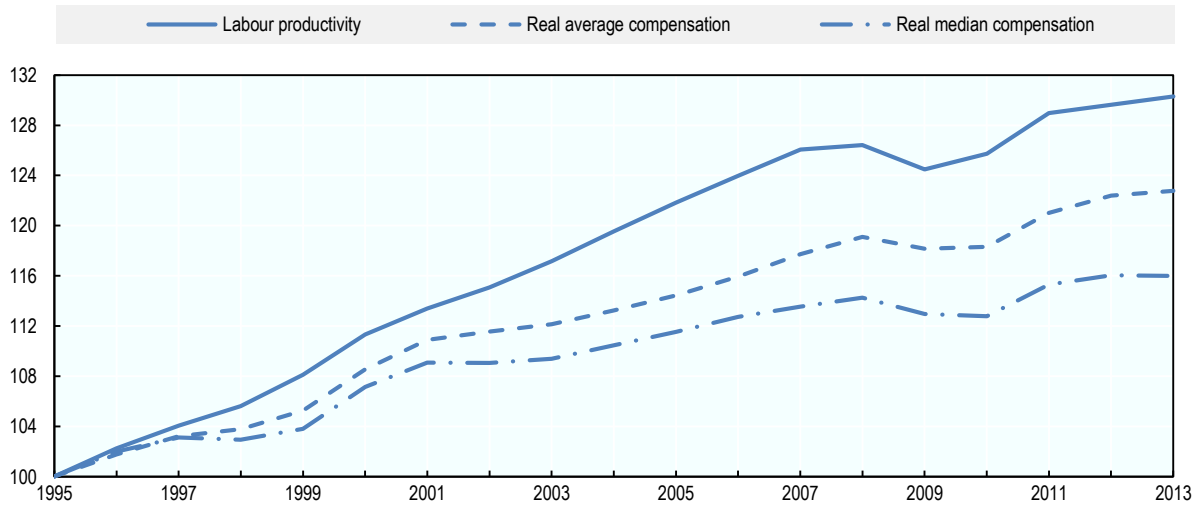
Source: OECD (2018), “OECD Economic Outlook No.103” (Edition 2018/1), *OECD Economic Outlook: Statistics and Projections* (database), <https://doi.org/10.1787/494f29a4-en> (accessed on 22 November 2018).

StatLink  <http://dx.doi.org/10.1787/888933880945>

In many OECD countries, real wage growth has been even lower than the growth in labour productivity (Figure 2.2). In many OECD countries, real average wages have decoupled from labour productivity, i.e. there has been a decline labour shares (the share of national income accounted for by labour compensation in the form of wages, salaries and other benefits).¹ Moreover, real median wages have grown at an even lower rate than real average wages in the overwhelming majority of OECD countries, which means that wage inequality has increased.² Consequently, in many OECD countries, productivity gains are no longer translating into broadly shared wage gains for all workers (OECD, 2018^[2]; Schweltnus, Kappeler and Pionnier, 2017^[3]; Sharpe and Ugucioni, 2017^[4]).

Figure 2.2. Real median wages have decoupled from labour productivity

Total economy excluding primary, housing and non-market industries, 1995=100



Note: Employment weighted average of 24 countries (two-year moving averages ending in the indicated years). 1995-2013 for Finland, Germany, Japan, Korea, United States; 1995-2012 for France, Italy, Sweden; 1996-2013 for Austria, Belgium; United Kingdom; 1996-2012 for Australia, Spain; 1997-2013 for Czech Republic, Denmark, Hungary; 1997-2012 for Poland; 1996-2010 for Netherlands; 1998-2013 for Norway; 1998-2012 for Canada, New Zealand; 1999-2013 for Ireland; 2002-11 for Israel; 2003-13 for Slovak Republic. All series are deflated by the value added price index excluding the primary, housing and non-market industries. The industries excluded are the following (ISIC rev. 4 classification): (1) Agriculture, Forestry and Fishing (A), (2) Mining and quarrying (B), (3) Real estate activities (L), (4) Public administration and defence, compulsory social security (O), (5) Education (P), (6) Human health and social work activities (Q), (7) Activities of households as employers (T), and (8) Activities of extraterritorial organisations and bodies (U).

Source: OECD (2018^[5]), “Decoupling of wages from productivity: What implications for public policies?”, in *OECD Economic Outlook, Volume 2018 Issue 2*, https://doi.org/10.1787/eco_outlook-v2018-2-en.

StatLink  <http://dx.doi.org/10.1787/888933880964>

The slowdown in aggregate productivity growth and the decoupling of real median wages (the wages of “typical” workers) from productivity have gone hand in hand with growing divergences between firms in both productivity and wages (Box 2.1). While firms at the technological frontier (firms belonging to the global top 5% in terms of productivity) have recorded robust productivity growth since the early 2000s, the productivity of non-frontier firms has stagnated, weighing on aggregate productivity (Andrews, Criscuolo and Gal, 2016^[6]). Divergence in productivity between firms in turn has been accompanied by divergence in wages (Berlingieri, Blanchenay and Criscuolo, 2017^[7]), which in many countries explains a large part of developments in wage inequality.³ Moreover, in a number of countries, there are growing signs that in firms at the technological frontier wages have decoupled from productivity while their market shares were increasing. Irrespective of whether decoupling at the technological frontier reflects increases in profit margins or higher capital intensity, these developments have contributed to the aggregate decoupling of wages from observed productivity.

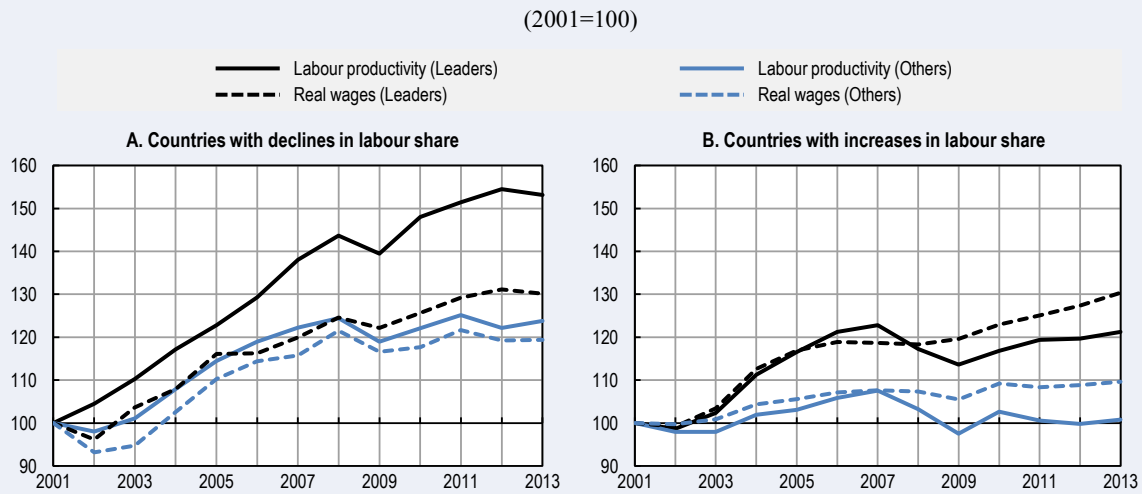
Box 2.1. Productivity and wage dispersion: The role of “winner-takes-most” dynamics

Growing productivity and wage divergence between firms could reflect “winner-takes-most” dynamics, in which a few firms reap outsized rewards. While the relevant market for the best manufacturing firms used to be primarily national or regional, the fall in transport costs and tariffs mean that these firms can now serve significant shares of the global market, strengthening economies of scale (Autor et al., 2017^[8]; Frank and Cook, 1995^[9]; Rosen, 1981^[10]). The trend toward larger market size has been reinforced by rapid progress in information and communication technologies (ICT) that allow the matching of sellers and buyers across geographically distant locations. Rapid progress in ICT has also facilitated the emergence of markets with a global scale in a number of traditional services industries, such as retail and transport, as well as new ICT services for which the marginal cost of scaling up operations is near zero. In some of these industries, including ICT services, retail and transport, network externalities that favour the emergence of a dominant player have become more important. Consistent with “winner-takes-most” dynamics, emerging evidence suggests that trade integration and digitalisation have contributed to the divergence of wages between the most successful firms and the rest (Berlingieri, Blanchenay and Criscuolo, 2017^[7]).

The aggregate decoupling of median wages from productivity partly reflects declines in labour shares at the technological frontier (defined as the top 5% of firms in terms of labour productivity within each country group in each industry and year). In countries where aggregate labour shares have declined, real wages in firms at the technological frontier have decoupled from productivity, whereas this has not been the case in the remaining firms (Figure 2.3). This could indicate the presence of “winner-takes-most” dynamics, as frontier firms take advantage of technology- or globalisation-related increases in economies of scale and scope to reduce the value added share of fixed labour costs (e.g. related to research and development, product design or marketing) and/or gain a dominant position that allows them to raise their mark-ups (Autor et al., 2017^[11]; Calligaris, Criscuolo and Marcolin, 2018^[12]; Philippon, 2018^[13]). By contrast, there has been no such decoupling of wages from productivity in frontier firms in countries where labour shares have increased, which suggests that “winner-takes-most” dynamics have been less pronounced in these countries.

The decoupling of wages from productivity at the technological frontier coincides with increasing market shares of frontier firms. In principle, this could indicate a rise in anti-competitive forces as superstar firms increase their markups. However, the evidence thus far supports a more benign view that considers the rise in market concentration as a temporary development related to technological dynamism. Schwellnus et al. (2018^[14]) find evidence that the decoupling of wages from productivity at the technological frontier primarily reflects the entry of firms with low labour shares into the technological frontier. Autor et al. (2017^[8]) find evidence that growing market concentration in the United States occurs primarily in industries with rapid technological change. Nevertheless, there is a risk that over time incumbent technological leaders could hamper market entry through anti-competitive practices (Furman, 2018^[15]).

Figure 2.3. Average wages and productivity for leading firms and others

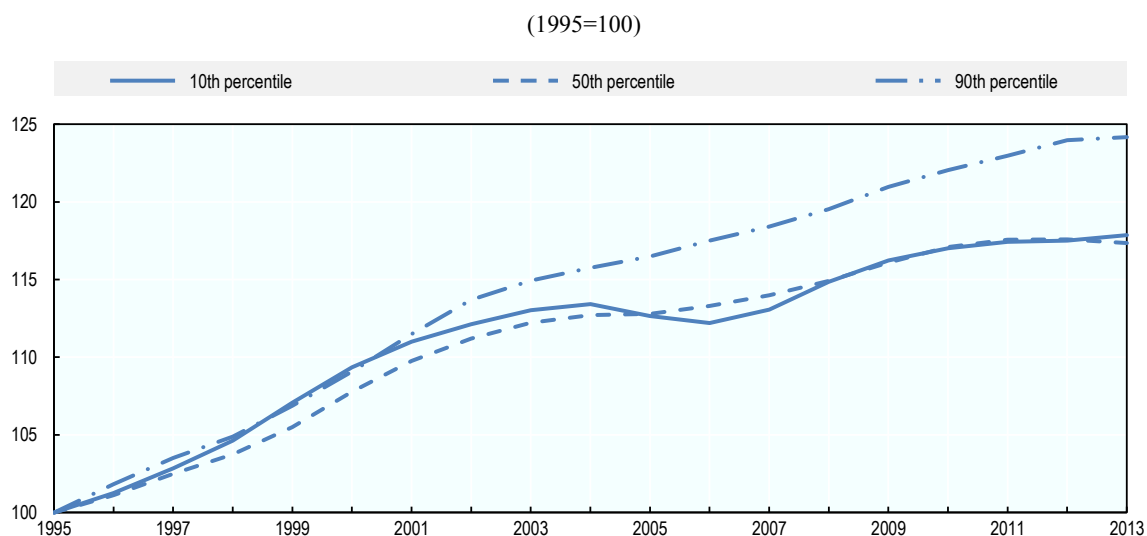


Note: Labour productivity and real wages are computed as the unweighted mean across firms of real value added per worker and real labour compensation per worker. Leaders are defined as the top 5% of firms in terms of labour productivity within each country group in each industry and year. The countries with a decline in the labour share excluding the primary, housing, financial and non-market industries over the period 2001-13 are: Belgium, Denmark, Germany, Ireland, Japan, Korea, Sweden, United Kingdom and United States. The countries with an increase are: Austria, Czech Republic, Estonia, Finland, France, Italy, Netherlands and Spain.

Source: Schwellnus et al. (2018_[14]), “Labour share developments over the past two decades: The role of technological progress, globalisation and “winner-takes-most” dynamics”, OECD Economics Department Working Papers, No. 1503, <https://doi.org/10.1787/3eb9f9ed-en>.

StatLink  <http://dx.doi.org/10.1787/888933880983>

The decoupling of wages from productivity is not limited to the median worker but extends to all workers in the bottom half of the wage distribution (Figure 2.4). Low-wage workers at the 10th percentile of the wage distribution fared no better than workers in the middle of the distribution, whereas workers at the top of the distribution experienced high wage growth, with one of the most striking developments over the past two decades being the divergence of wages of the top 1% from the rest (Alvaredo et al., 2017_[16]; Schwellnus, Kappeler and Pionnier, 2017_[3]). This decoupling of low- and middle-wages from productivity has been accompanied by polarisation in terms of jobs, i.e. the gradual disappearance of middle-wage and middle-skill jobs (Box 2.2).

Figure 2.4. Wage growth in the bottom half of the distribution has decoupled from the top

Note: GDP weighted average of 24 countries (two-year moving averages ending in the indicated years). 1995-2013 for Finland, Germany, Japan, Korea, United States; 1995-2012 for France, Italy, Sweden; 1996-2013 for Austria, Belgium; United Kingdom; 1996-2012 for Australia, Spain; 1997-2013 for Czech Republic, Denmark, Hungary; 1997-2012 for Poland; 1996-2010 for Netherlands; 1998-2013 for Norway; 1998-2012 for Canada, New Zealand; 1999-2013 for Ireland; 2002-11 for Israel; 2003-13 for Slovak Republic. All series are deflated by the same total economy value added price index.

Source: OECD Earnings Distribution Database, www.oecd.org/employment/emp/employmentdatabase-earningsandwages.htm.

StatLink  <http://dx.doi.org/10.1787/888933881002>

Box 2.2. Polarisation and automation

In recent decades, labour markets across the OECD have experienced profound transformations in their occupational and industrial structures. The process of de-industrialisation – involving significant shifts of employment from manufacturing to services – has been accompanied by job polarisation, whereby the number of middle-pay, middle-skill jobs has declined relative to the number of high-skilled and to a lesser extent low-skilled ones. Figure 2.5 shows that during the 1995-2015 period the employment share of middle-skilled jobs declined in all countries analysed by about 10 percentage points on average, while the shares of low-skilled and high-skilled employment increased.

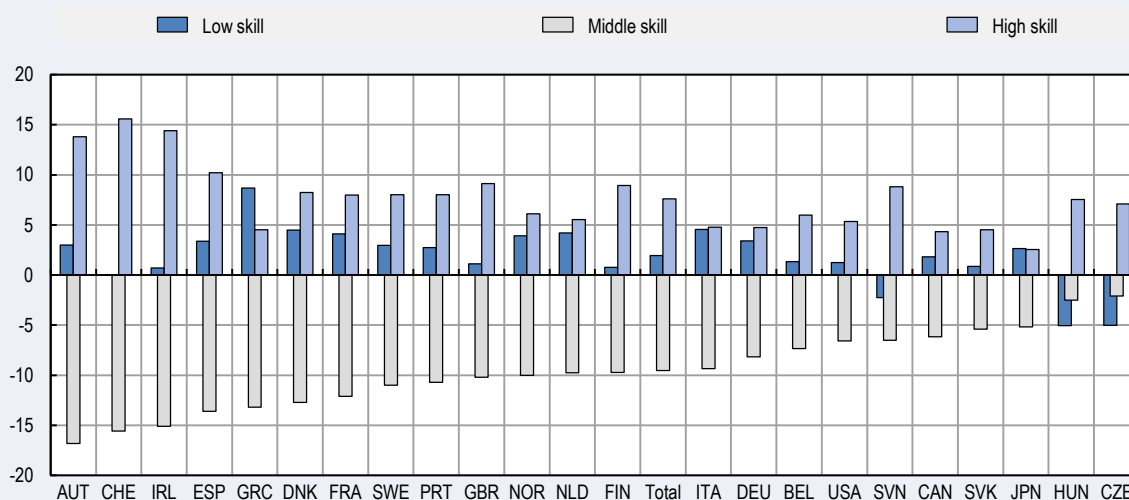
These changes can cause significant disruption in workers' lives and raise significant policy challenges. Employment is being reshuffled across occupations and industries, confronting workers with the risk of job loss followed by the possible need to make a difficult transition to a job in a different occupation or industry. Even workers who are able to stay in the same job are often faced with changing skill demands that require retraining (Battisti, Dustmann and Schönberg, 2017_[17]). Moreover, different changes in skill demands, driven by changing industrial structures, can affect trends in wage inequality over time (Acemoglu and Autor, 2010_[18]).

The increasing ability of technology to perform easy-to-codify routine tasks has been singled out as a key driver of job polarisation (Goos, Manning and Salomons, 2014_[19]). At the same time, the offshoring of production to countries with lower labour costs has contributed to growing concerns about the negative impacts of globalisation in developed countries. The emergence of new players, including China's transition to a market economy and its entry into the World Trade Organization, has heightened these concerns and been linked to the decline in manufacturing employment in advanced economies (Autor, Dorn and Hanson, 2016_[20]), and to job polarisation in particular (Keller and Utar, 2016_[21]). Using industry-level data for 22 OECD countries over two decades, the OECD (2017_[22]) shows that technology in the form of more widespread use of ICT contributed to job polarisation while no such evidence is found for globalisation, whether related to a country's involvement in global value chains or the penetration of imports from China.

Further progress in digitalisation and automation is likely to further widen job polarisation in advanced countries and has even raised concerns that the number of routine jobs destroyed could outweigh the non-routine ones created, resulting in technological unemployment (Acemoglu and Restrepo, 2018_[23]; Brynjolfsson and McAfee, 2011_[24]; Mokyr, Vickers and Ziebarth, 2015_[25]). In their seminal contribution, Osborne and Frey (2017_[26]) estimate that up to almost half of jobs in the United States could be subject to automation. Recent OECD research by Nedelkoska and Quintini (2018_[27]) paints a less radical picture, suggesting that only one-in-seven jobs across the 32 OECD countries analysed are at risk of automation, but also that (OECD, 2015_[28]) about one-in-three are at risk of significant change. Whether jobs are destroyed altogether or their contents radically change, in both cases this presents significant challenges to policy and to lifelong learning and training systems in particular.

Figure 2.5. Jobs have become more polarised

Changes in employment shares by skill content of occupation (percentage points), 1995-2015

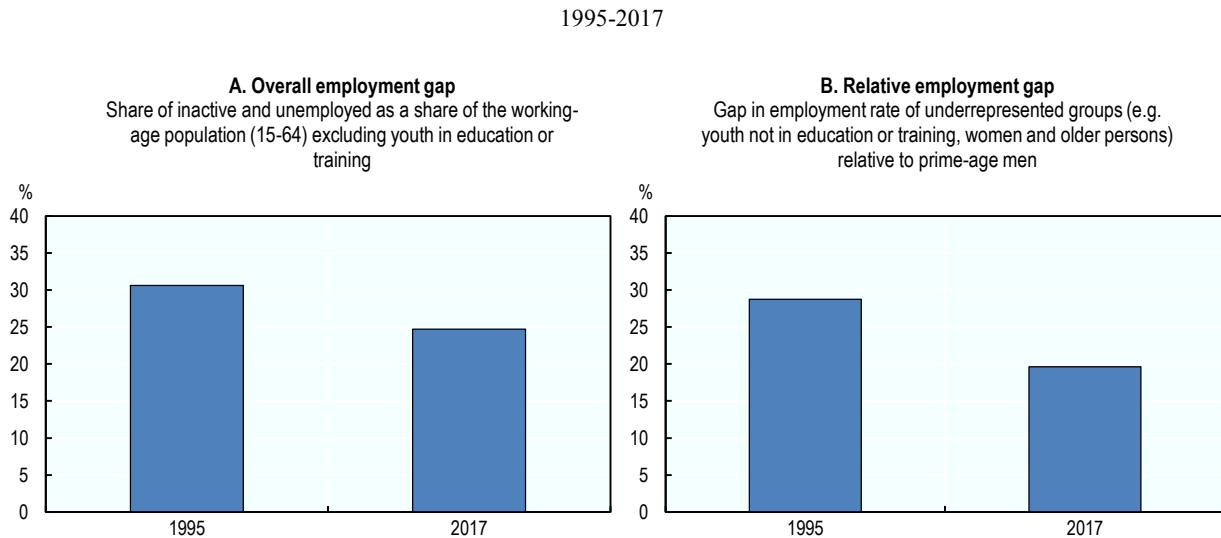


Note: High-skill occupations include jobs classified under the ISCO-88 major groups 1, 2, and 3. That is, legislators, senior officials, and managers (group 1), professionals (group 2), and technicians and associate professionals (group 3). Middle-skill occupations include jobs classified under the ISCO-88 major groups 4, 7, and 8 i.e. clerks (group 4), craft and related trades workers (group 7), and plant and machine operators and assemblers (group 8). Low-skill occupations include jobs classified under the ISCO-88 major groups 5 and 9: workers and shop and market sales workers (group 5), and elementary occupations (group 9).

Source: OECD (2017^[22]), “How technology and globalisation are transforming the labour market”, in *OECD Employment Outlook 2017*, https://doi.org/10.1787/empl_outlook-2017-7-en.

StatLink  <http://dx.doi.org/10.1787/888933881021>

High employment can support the broad sharing of productivity gains by ensuring that wage gains benefit as many people as possible. While employment gaps (the share of jobless people among the working-age population) have tended to decline, more than a quarter of people not in education or training still do not have any paid form of employment (Figure 2.6), with employment gaps being particularly large for the young, women and older people. Moreover, in many countries, an important share of the workforce is underemployed, either working less than they would like to or not fully using their skills in their jobs (OECD, 2016^[29]). Despite good progress in many countries, employment gaps remain particularly large for groups who are under-represented in the workforce (e.g. the young, women and older people): their employment rate is about 20 % lower than that of prime-age males. Integrating under-represented groups into the labour market is not only important to ensure that no groups are left behind but also represents a key way of improving overall employment performance, particularly in countries where employment rates for prime-age males are already very high.

Figure 2.6. Employment gaps remain large, particularly for underrepresented groups

Note: Unweighted average across 25 OECD countries (excluding Chile, Estonia, Finland, Iceland, Israel, Japan, Korea, Latvia, Lithuania, New Zealand and Slovenia). Panel B: Difference between the employment rate of prime age men (30-54) and the rest (women, youth men and older men), expressed as a percentage of the employment rate of prime age men (30-54).

Source: OECD Employment Database (www.oecd.org/employment/database); OECD (2018_[30]), *Education at a Glance 2018: OECD Indicators*, <https://doi.org/10.1787/eag-2018-en>.

StatLink <http://dx.doi.org/10.1787/888933881040>

To some extent, the tax and benefits system can correct the market distribution of income and ensure that gains from productivity growth are broadly shared with workers and their families. However, recent OECD evidence shows that redistribution through the tax and benefits system has tended to become less effective since the mid-1990s. To an important extent this reflects a shift of income support from workless households to working households (OECD, 2015_[28]; Causa and Hermansen, 2017_[31]). As a result of growing inequalities in market income inequality (pre-tax income excluding income from government sources) and the weakening of redistribution, inequalities in households' disposable incomes have reached unprecedented levels in many OECD countries. This raises concerns about fairness, social cohesion and the sustainability of economic growth (OECD, 2015_[28]; Cingano, 2014_[32]).

Summing up, in most countries productivity gains from technological change and globalisation have not been broadly shared with workers. Productivity growth at the technological frontier remains high, suggesting that only a small group of innovative firms are able to fully take advantage of technological advances and globalisation, while many others trail further and further behind, weighing on aggregate productivity growth. At the same time, the distribution of income has become more tilted towards capital at the expense of labour income and the distribution of income and wealth has become increasingly unequal. Higher employment rates have mitigated but not prevented the rise in income inequality, and more remains to be done to better integrate those excluded from the labour market and to raise the effectiveness of redistribution through the tax and benefits system.

2.2. The central role of the labour market for broadly shared productivity gains

Alongside product and financial markets, the labour market is a central element of a well-functioning market economy that delivers: 1) high productivity growth; 2) a broad sharing of the gains from productivity growth through wages; and 3) ensuring accessible job opportunities for all.

The labour market as an engine of productivity growth

High productivity growth requires constant reallocation, in the sense that highly productive firms enter the market and expand while less productive ones downsize and eventually exit if they do not manage to upgrade their production processes. Empirical studies for OECD countries suggest that entry and exit alone contribute 15-45% to industry-level productivity growth (Bartelsman, Haltiwanger and Scarpetta, 2009_[33]). The evidence also suggests that job reallocations between existing firms raise productivity growth further as firms with high initial productivity levels gain market shares at the expense of lower-productivity firms (OECD, 2009_[34]).

The labour market is a key facilitator of productivity-enhancing reallocation that allows workers to move from downsizing firms to new and expanding ones. Empirical studies suggest that in OECD countries job reallocation – firm-level job creation and destruction – affects around 20% of employment every year (OECD, 2009_[34]).⁴ Worker reallocation – the sum of hires and separations – is even higher at around 30%. Although not all reallocation necessarily enhances productivity, these figures imply that small changes in net employment mask large gross worker flows between firms.

Achieving productive matches between workers and firms requires some degree of labour market fluidity, especially during periods of rapid structural change. Technological development, globalisation and demographic change require the reallocation of labour to its most productive uses while limiting transition costs. In a well-functioning labour market, workers are able to switch jobs to seize higher-paid job opportunities elsewhere while firms adopting new technologies and business models are able to rapidly expand employment, thereby raising aggregate productivity.

A fluid labour market may also support the diffusion of technological advances across firms, helping to improve productivity at firms that are lagging behind. The adoption of new general-purpose technologies for production typically requires workers with the relevant technical expertise and some degree of reorganisation (David, 1990_[35]; Bresnahan, 2003_[36]). The evidence suggests that one channel for the diffusion of this expertise is the movement of workers between firms, including job switchers and consultants (Draca, Sadun and Van Reenen, 2009_[37]; Tambe and Hitt, 2014_[38]).

High productivity growth also requires the constant development of workers' skills. Skills raise worker productivity by allowing them to produce more at a given level of technology (Lucas, 1988_[39]) and promote innovation and the adoption of new technologies (Aghion et al., 1998_[40]; Stokey, 2018_[41]). Empirical studies suggest that there is a close causal link between cognitive skills and economic growth (Hanushek and Woessmann, 2015_[42]) and that human capital is a key factor in influencing the speed of technology adoption (Andrews, Nicoletti and Timiliotis, 2018_[43]).

The labour market is a key determinant of workers' skill development. While the education system lays the foundations for the acquisition of cognitive and non-cognitive skills, the labour market plays a crucial role in maintaining and developing them. A

well-functioning labour market promotes the development of relevant skills by: providing strong incentives for investment in human capital; facilitating the school-to-work transition; and offering opportunities for lifelong learning. It also allows workers to seek out and develop their comparative advantage through job-to-job transitions.

Rapid structural change in the form of technological progress, globalisation and population ageing puts a premium on continuous skill development in the labour market. Automation, digitalisation and the rapid development of artificial intelligence broaden the range of tasks that can potentially be carried out by machines, while declines in the cost of offshoring will lead to changes in the mix of tasks carried out domestically. At the same time, population ageing is likely to lead to longer careers. Maintaining the skills acquired in youth will not be sufficient for workers to adapt to these developments. Instead, workers will need to acquire and develop skills in the labour market that will allow them to transition to new and more productive tasks throughout their (longer) working lives.

The labour market also plays an important role in providing strong incentives for innovation and the adoption of technology and high-performance management and work practices within firms. Firms' capacity to innovate depends on how much flexibility they have to adjust the organisation of work, including employment levels and the definition of tasks (Griffith and Macartney, 2014^[44]; Bartelsman, Gautier and De Wind, 2016^[45]). But high-performance work and management practices are to an important extent geared towards building long-term employer-employee relationships to foster learning and innovation. More generally, incentives for human capital accumulation and workers' propensity to innovate depend on job security, with higher job security implying a higher return on their innovation effort (Acharya, Baghai and Subramanian, 2013^[46]). High rates of innovation and technology adoption within firms therefore require the right balance to be struck between sufficient flexibility for firms and sufficient job security for workers.

The labour market as a transmission channel of productivity gains to wages

By supporting workers' skills the labour market is not only crucial for raising productivity growth but also for determining the extent to which the benefits of technological developments are shared with workers. Automation and digitalisation are likely to have important implications for the kind of available jobs and the tasks required to perform them (see Box 2.2). For workers to make the most of these developments they will need to upgrade their skills, especially those required to carry out non-routine tasks that cannot easily be substituted by new technology.

The degree to which productivity gains are shared with workers also depends on their bargaining position. An emerging literature suggests that employer market power (labour market monopsony) is substantial and may be increasing (Dube et al., 2018^[47]; Benmelech, Bergman and Kim, 2018^[48]; Azar, Marinescu and Steinbaum, 2017^[49]). Such employer market power may reflect high costs for workers of switching jobs because of natural barriers to job mobility (such as search costs or costs of geographical relocation) or regulation (e.g. limited portability of social security entitlements, professional licencing rules, non-compete clauses). The potential emergence of dominant players in industries with strong network effects could further re-inforce this tendency toward labour market monopsony (Autor et al., 2017^[8]; Schwellnus et al., 2018^[14]). In addition, the emergence of non-standard forms of work, declining trade union membership and weaker collective bargaining institutions can further reduce workers' voice and their

bargaining position, and in doing so increase the role of monopsony in the labour market (OECD, 2018_[50]).

The labour market as a transmission channel of productivity gains to employment

The broad sharing of productivity gains requires high employment, which in turn requires a good alignment of average wages and productivity to support labour demand, low barriers to employment to promote labour supply and an efficient matching process between firms and workers.

While a broad sharing of productivity gains requires that wage growth does not fall short of productivity growth, it is also important that in the medium term aggregate labour costs do not grow more quickly than productivity to avoid undermining job creation. A good alignment of average wages and productivity at the aggregate level does not preclude the use of statutory or collective agreed wage floors that can play a useful role in supporting the earnings of workers and ensuring minimum labour standards in firms. However, they should not be set so high that they price low-productivity workers out of the market.

The job opportunities that are available should also be accessible. Jobless people and those marginally attached to the labour market often face one or several barriers to labour force participation and quality employment (Fernandez et al., 2016_[51]). They may have weak incentives to work because of a combination of poor job quality and ill-designed tax and benefit schemes. Alternatively, jobless people may simply lack the skills or experience needed for paid employment or may be unavailable for work because they have caring responsibilities, health and other social problems or because of weak hiring by employers. While some jobless people will be able to find work by themselves, many will need targeted support to overcome these specific barriers to paid employment. This highlights the importance of effective policies that connect people to work for a well-functioning labour market in which the gains from growing prosperity are shared as widely as possible.

An efficient matching process between job vacancies and jobseekers is also key for good employment performance. Systematic imbalances between jobseekers and vacancies in terms of educational qualifications and requirements (skills mismatch), the supply and demand for occupation-specific or industry-specific skills (occupational or sectoral mismatch), or the supply and demand for labour in different regions (geographical mismatch) reduces the efficiency of the matching process.

Mismatch results from barriers to job mobility due to cost of obtaining information on vacancies and jobseekers, the cost of moving between regions and the cost of retraining. It also may reflect deeper factors such as a disconnect between the world of education and the world of work or the lack of attention of country-wide policies and institutions for regional disparities.

Conclusions

Although it is conceptually useful to separate the labour market's roles in promoting high productivity growth, transmitting productivity gains to workers and strengthening economic inclusion, these objectives are closely interrelated. The key challenge is to develop a labour market that sustains high productivity growth and economic dynamism while at the same time fostering a broad sharing of productivity gains through higher wages and employment opportunities for all. Country evidence suggests that there can be

synergies between high productivity growth and the broad sharing of productivity gains. For example, episodes of high productivity growth, such as the second half of the 1990s in the United States, have often been associated with increasing labour shares, declining wage inequality and growing employment (Stansbury and Summers, 2017_[52]).

One mechanism through which the labour market can foster synergies between high and broadly shared productivity gains is the development of workers' skills. A labour market that provides opportunities for continual skill development not only raises productivity growth, but also contributes to a broader sharing of productivity gains. Increases in human capital contribute directly to productivity growth (Fernald and Jones, 2014_[53]). But they also help to alleviate barriers to finding work and reduce the risk of being displaced and staying unemployed as a result of technological change and globalisation. Promoting the skill development of low-wage and middle-wage workers is particularly important since it improves their employment opportunities, wages and productivity and so contributes to a more inclusive labour market.

Labour market dynamism is another mechanism that supports both high productivity growth and a broad sharing of productivity gains in the form of higher wages and employment, especially for disadvantaged groups. The efficient allocation of workers to jobs, firms and regions contributes to high productivity and raises wages and employment, especially of relative outsiders in the labour market, by making job offers more abundant (Moscarini and Postel-Vinay, 2016_[54]). Job switching is typically associated with significant increases in both wages and productivity as high-wage firms poach from low-wage firms (Haltiwanger et al., 2018_[55]). This mechanism is particularly important for the wage progression of young workers as it is unlikely that workers find the best possible match in their first job. A dynamic labour market thus prevents them from becoming trapped in low-productivity and low-wage firms (Haltiwanger, Hyatt and McEntarfer, 2018_[56]) or lagging regions with limited prospects for career advancement.

Keeping the economy close to full employment is crucial to achieve high and broadly shared productivity growth. The experience of the global crisis of 2008-09 suggests that it contributed to a further slowing of productivity growth as weak business expectations reduced investment (Ollivaud, Guillemette and Turner, 2018_[57]). This highlights the importance of stabilising aggregate demand and keeping the economy close to full employment for long-term productivity growth. At the same time, a vibrant labour market strengthens workers' bargaining position and allows workers to climb the job ladder within the same firm and by moving from low-wage to high-wage firms (Haltiwanger et al., 2018_[55]).

Notes

¹ Algebraically, the labour share is equivalent to the ratio of labour productivity to the real wage, with the real wage expressed in terms of the value added deflator.

² The positive gap between average and median wage growth implies a widening of wage inequality since medium- and lower-paid workers have experience lower wage growth than those in the upper part of the wage distribution.

³ Recent evidence on the role of cross-firm divergence in wages on overall wage inequality developments exists for Brazil (Helpman et al., 2017_[56]), Denmark (Bagger, Sørensen and Vejlin, 2013_[57]), Germany (Baumgarten, Felbermayr and Lehwald, 2016_[58]; Card, Heining and Kline, 2013_[59]; Goldschmidt and Schmieder, 2015_[60]), Italy (Card, Devicienti and Maida, 2014_[61]),

Portugal (Card, Cardoso and Kline, 2016_[62]), Sweden (Skans, Edin and Holmlund, 2009_[66]), the United Kingdom (Faggio, Salvanes and Van Reenen, 2010_[67]) and the United States (Dunne et al., 2004_[63]; Barth et al., 2016_[64]; Song et al., 2015_[65]).

⁴ Job creation is defined as the sum of net employment growth at all entering and expanding firms; job destruction as the total number of jobs lost at exiting and contracting firms; and job reallocation as the sum of job creation and destruction.

References

- Acemoglu, D. and D. Autor (2010), “Skills, Tasks and Technologies: Implications for Employment and Earnings”, *NBER Working Paper*, No. 16082, National Bureau of Economic Research, Cambridge, MA, <http://dx.doi.org/10.3386/w16082>. [18]
- Acemoglu, D. and P. Restrepo (2018), “The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment”, *American Economic Review*, Vol. 108/6, pp. 1488-1542, <http://dx.doi.org/10.1257/aer.20160696>. [23]
- Acharya, V., R. Baghai and K. Subramanian (2013), “Labor Laws and Innovation”, *The Journal of Law and Economics*, Vol. 56/4, pp. 997-1037, <http://dx.doi.org/10.1086/674106>. [46]
- Aghion, P. et al. (1998), *Endogenous growth theory*, MIT Press, <https://mitpress.mit.edu/books/endogenous-growth-theory>. [40]
- Alvaredo, F. et al. (2017), “Global Inequality Dynamics: New Findings from WID.world”, *American Economic Review*, Vol. 107/5, pp. 404-409, <http://dx.doi.org/10.1257/aer.p20171095>. [16]
- Andrews, D., C. Criscuolo and P. Gal (2016), “The Best versus the Rest: The Global Productivity Slowdown, Divergence across Firms and the Role of Public Policy”, *OECD Productivity Working Papers*, No. 5, OECD Publishing, Paris, <http://dx.doi.org/10.1787/63629cc9-en>. [6]
- Andrews, D., G. Nicoletti and C. Timiliotis (2018), “Digital technology diffusion: A matter of capabilities, incentives or both?”, *Economics Department Working Papers*, No. 1476, OECD Publishing, Paris, <http://dx.doi.org/10.1787/7c542c16-en>. [43]
- Autor, D., D. Dorn and G. Hanson (2016), “The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade”, *Annual Review of Economics*, Vol. 8/1, <http://dx.doi.org/10.1146/annurev-economics-080315-015041>. [20]
- Autor, D. et al. (2017), “Concentrating on the Fall of the Labor Share”, *NBER Working Paper*, No. 23108, National Bureau of Economic Research, Cambridge, MA, <http://dx.doi.org/10.3386/w23108>. [8]
- Autor, D. et al. (2017), “Concentrating on the Fall of the Labor Share”, *NBER Working Paper*, No. 23108, National Bureau of Economic Research, Cambridge, MA, <http://dx.doi.org/10.3386/w23108>. [11]

- Azar, J., I. Marinescu and M. Steinbaum (2017), “Labor Market Concentration”, *NBER Working Paper*, No. 24147, <http://dx.doi.org/10.3386/w24147>. [49]
- Bagger, J., K. Sørensen and R. Vejlin (2013), “Wage sorting trends”, *Economics Letters*, Vol. 118/1, pp. 63-67, <http://dx.doi.org/10.1016/J.ECONLET.2012.09.021>. [59]
- Bartelsman, E., P. Gautier and J. De Wind (2016), “Employment protection, technology choice, and worker allocation”, *International Economic Review*, Vol. 57/3, pp. 787-826, <http://dx.doi.org/10.1111/iere.12176>. [45]
- Bartelsman, E., J. Haltiwanger and S. Scarpetta (2009), “Measuring and Analyzing Cross-country Differences in Firm Dynamics”, in Dunne, T., J. Jensen and M. Roberts (eds.), *Producer Dynamics: New Evidence from Micro Data*, University of Chicago Press, <http://www.nber.org/chapters/c0480>. [33]
- Barth, E. et al. (2016), “It’s Where You Work: Increases in the Dispersion of Earnings across Establishments and Individuals in the United States”, *Journal of Labor Economics*, Vol. 34/S2, pp. S67-S97, <http://dx.doi.org/10.1086/684045>. [66]
- Battisti, M., C. Dustmann and U. Schönberg (2017), *Technological and Organizational Change and the Careers of Workers **, <https://www.technologyreview.com/s/515926/how-technology-is-destroying-jobs/> (accessed on 06 November 2018). [17]
- Baumgarten, D., G. Felbermayr and S. Lehwald (2016), “Dissecting between-plant and within-plant wage dispersion Evidence from Germany Dissecting between-plant and within-plant wage dispersion: Evidence from Germany”, *Ifo Working Paper*, No. 216, Ifo Institute – Leibniz Institute for Economic Research at the University of Munich, <https://www.cesifo-group.de/DocDL/wp-2016-216-baumgarten-felbermayr-lehwald-wage-dispersion.pdf>. [60]
- Benmelech, E., N. Bergman and H. Kim (2018), “Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?”, *NBER Working Paper*, No. 24307, <http://dx.doi.org/10.3386/w24307>. [48]
- Berlingieri, G., P. Blanchenay and C. Criscuolo (2017), “The great divergence(s)”, *OECD Science, Technology and Industry Policy Papers*, No. 39, OECD Publishing, Paris, <http://dx.doi.org/10.1787/953f3853-en>. [7]
- Bresnahan, T. (2003), “The mechanisms of information technology's contribution to economic growth”, in Touffut, J. (ed.), *Institutions, Innovation and Growth: Selected Economic Papers*, Edward Elgar Publishing, <https://www.elgaronline.com/view/1843765276.00013.xml>. [36]
- Brynjolfsson, E. and A. McAfee (2011), *Race Against The Machine: How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy*, Digital Frontier Press, Lexington. [24]
- Calligaris, S., C. Criscuolo and L. Marcolin (2018), “Mark-ups in the digital era”, *OECD Science, Technology and Industry Working Papers*, No. 2018/10, OECD Publishing, Paris, <http://dx.doi.org/10.1787/4efe2d25-en>. [12]

- Card, D., A. Cardoso and P. Kline (2016), “Bargaining, Sorting, and the Gender Wage Gap: Quantifying the Impact of Firms on the Relative Pay of Women”, *The Quarterly Journal of Economics*, Vol. 131/2, pp. 633-686, <http://dx.doi.org/10.1093/qje/qjv038>. [64]
- Card, D., F. Devicienti and A. Maida (2014), “Rent-sharing, Holdup, and Wages: Evidence from Matched Panel Data”, *The Review of Economic Studies*, Vol. 81/1, pp. 84-111, <http://dx.doi.org/10.1093/restud/rdt030>. [63]
- Card, D., J. Heining and P. Kline (2013), “Workplace Heterogeneity and the Rise of West German Wage Inequality”, *The Quarterly Journal of Economics*, Vol. 128/3, pp. 967-1015, <http://dx.doi.org/10.1093/qje/qjt006>. [61]
- Causa, O. and M. Hermansen (2017), “Income redistribution through taxes and transfers across OECD countries”, *OECD Economics Department Working Papers*, No. 1453, OECD Publishing, Paris, <http://dx.doi.org/10.1787/bc7569c6-en>. [31]
- Cingano, F. (2014), “Trends in Income Inequality and its Impact on Economic Growth”, *OECD Social, Employment and Migration Working Papers*, No. 163, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jxrjncwvxv6j-en>. [32]
- David, P. (1990), “The Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox”, *The American Economic Review*, Vol. 80/2, pp. 355-361, <http://www.dklevine.com/archive/refs4115.pdf>. [35]
- Draca, M., R. Sadun and J. Van Reenen (2009), “Productivity and ICTs: A review of the evidence”, in Avgerou, Chrisanthi Mansell, R., D. Quah and R. Silverstone (eds.), *The Oxford Handbook of Information and Communication Technologies*, Oxford University Press, <http://dx.doi.org/10.1093/oxfordhb/9780199548798.003.0005>. [37]
- Dube, A. et al. (2018), “Monopsony in Online Labor Markets”, *NBER Working Paper*, No. 24416, <http://dx.doi.org/10.3386/w24416>. [47]
- Dunne, T. et al. (2004), “Wage and Productivity Dispersion in United States Manufacturing: The Role of Computer Investment of the Census”, *Journal of Labor Economics*, Vol. 22/2, pp. 397-429, <http://www.jstor.org/stable/3653629>. [65]
- Faggio, G., K. Salvanes and J. Van Reenen (2010), “The evolution of inequality in productivity and wages: panel data evidence”, *Industrial and Corporate Change*, Vol. 19/6, pp. 1919-1951, <http://dx.doi.org/10.1093/icc/dtq058>. [69]
- Fernald, J. and C. Jones (2014), “The Future of US Economic Growth”, *American Economic Review*, Vol. 104/5, pp. 44-49, <http://dx.doi.org/10.1257/aer.104.5.44>. [53]
- Fernandez, R. et al. (2016), “Faces of Joblessness: Characterising Employment Barriers to Inform Policy”, *OECD Social, Employment and Migration Working Papers*, No. 192, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5j1wvz47xptj-en>. [51]
- Frank, R. and P. Cook (1995), *The winner-take-all society : how more and more Americans compete for ever fewer and bigger prizes, encouraging economic waste, income inequality, and an impoverished cultural life*, Free Press. [9]

- Frey, C. and M. Osborne (2017), “The future of employment: How susceptible are jobs to computerisation?”, *Technological Forecasting and Social Change*, Vol. 114, pp. 254-280, <http://dx.doi.org/10.1016/J.TECHFORE.2016.08.019>. [26]
- Furman, J. (2018), *Market concentration*, [15]
[https://one.oecd.org/document/DAF/COMP/WD\(2018\)67/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2018)67/en/pdf).
- Goldschmidt, D. and J. Schmieder (2015), “The Rise of Domestic Outsourcing and the Evolution of the German Wage Structure”, *NBER Working Paper*, No. 21366, [62]
<http://www.nber.org/papers/w21366>.
- Goos, M., A. Manning and A. Salomons (2014), “Explaining Job Polarization: Routine-Biased Technological Change and Offshoring”, *American Economic Review*, Vol. 104/8, pp. 2509-2526, <http://dx.doi.org/10.1257/aer.104.8.2509>. [19]
- Griffith, R. and G. Macartney (2014), “Employment protection legislation, multinational firms, and innovation”, *The Review of Economics and Statistics*, Vol. 96/1, pp. 135-150, [44]
http://dx.doi.org/10.1162/REST_a_00348.
- Guillemette, Y. and D. Turner (2018), “The Long View : Scenarios for the World Economy to 2060”, No. 22, OECD Publishing, Paris, <http://dx.doi.org/10.1787/b4f4e03e-en>. [1]
- Haltiwanger, J. et al. (2018), “Cyclical Job Ladders by Firm Size and Firm Wage”, *American Economic Journal: Macroeconomics*, Vol. 10/2, pp. 52-85, [55]
<http://dx.doi.org/10.1257/mac.20150245>.
- Haltiwanger, J., H. Hyatt and E. McEntarfer (2018), “Who Moves Up the Job Ladder?”, *Journal of Labor Economics*, Vol. 36/S1, pp. S301-S336, <http://dx.doi.org/10.1086/694417>. [56]
- Hanushek, E. and L. Woessmann (2015), *The knowledge capital of nations : education and the economics of growth*, MIT Press, <https://mitpress.mit.edu/books/knowledge-capital-nations>. [42]
- Helpman, E. et al. (2017), “Trade and Inequality: From Theory to Estimation”, *Review of Economic Studies*, Vol. 84, pp. 357-405, <http://dx.doi.org/10.1093/restud/rdw025>. [58]
- Keller, W. and H. Utar (2016), *International Trade and Job Polarization: Evidence at the Worker-Level*, National Bureau of Economic Research, Cambridge, MA, [21]
<http://dx.doi.org/10.3386/w22315>.
- Lucas, R. (1988), “On the mechanics of economic development”, *Journal of Monetary Economics*, Vol. 22/1, pp. 3-42, [http://dx.doi.org/10.1016/0304-3932\(88\)90168-7](http://dx.doi.org/10.1016/0304-3932(88)90168-7). [39]
- Mokyr, J., C. Vickers and N. Ziebarth (2015), “The History of Technological Anxiety and the Future of Economic Growth: Is This Time Different?”, *Journal of Economic Perspectives*, Vol. 29/3, pp. 31-50, <http://dx.doi.org/10.1257/jep.29.3.31>. [25]
- Moscarini, G. and F. Postel-Vinay (2016), “Wage Posting and Business Cycles”, *American Economic Review*, Vol. 106/5, pp. 208-213, <http://dx.doi.org/10.1257/aer.p20161051>. [54]

- Nedelkoska, L. and G. Quintini (2018), “Automation, skills use and training”, *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris, <http://dx.doi.org/10.1787/2e2f4eea-en>. [27]
- OECD (2018), “Decoupling of wages from productivity: What implications for public policies?”, in *OECD Economic Outlook, Volume 2018 Issue 2*, OECD Publishing, Paris, https://doi.org/10.1787/eco_outlook-v2018-2-en.. [5]
- OECD (2018), *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/eag-2018-en>. [30]
- OECD (2018), *OECD Employment Outlook 2018*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2018-en. [2]
- OECD (2018), “The role of collective bargaining systems for good labour market performance”, in *OECD Employment Outlook 2018*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2018-7-en. [50]
- OECD (2017), “How technology and globalisation are transforming the labour market”, in *OECD Employment Outlook 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2017-7-en. [22]
- OECD (2016), *Skills Matter - Further Results from the Survey of Adult Skills*, OECD Publishing, <https://doi.org/10.1787/9789264258051-en>. [29]
- OECD (2015), *In It Together: Why Less Inequality Benefits All*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264235120-en>. [28]
- OECD (2009), *OECD Employment Outlook 2009: Tackling the Jobs Crisis*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2009-en. [34]
- Ollivaud, P., Y. Guillemette and D. Turner (2018), “Investment as a transmission mechanism from weak demand to weak supply and the post-crisis productivity slowdown”, *OECD Economics Department Working Papers*, No. 1466, <http://www.oecd.org/eco/workingpapers..> [57]
- Philippon, T. (2018), *A Primer On Concentration, Investment and Growth*, <https://www.kansascityfed.org/~/media/files/publicat/sympos/2018/papersandhandouts/824180819philipponhandout.pdf?la=en>. [13]
- Rosen, S. (1981), “The Economics of Superstars”, *The American Economic Review*, Vol. 71/5, pp. 845-858, <http://dx.doi.org/10.2307/1803469>. [10]
- Schwellnus, C., A. Kappeler and P. Pionnier (2017), “The Decoupling of Median Wages from Productivity in OECD Countries”, *International Productivity Monitor*, Vol. 32, http://www.csls.ca/ipm/32/Schwellnus_Kappeler_Pionnier.pdf. [3]
- Schwellnus, C. et al. (2018), “Labour share developments over the past two decades: The role of technological progress, globalisation and “winner-take-most” dynamics”, *OECD Economics Department Working Papers*, No. 1503, OECD Publishing, Paris, <https://doi.org/10.1787/3eb9f9ed-en>. [14]

- Sharpe, A. and J. Ugucioni (2017), “Decomposing the Productivity- Wage Nexus in Selected OECD Countries, 1986-2013”, *International Productivity Monitor*, Vol. 32, pp. 25-43, http://www.csls.ca/ipm/32/Ugucioni_Sharpe.pdf. [4]
- Skans, O., P. Edin and B. Holmlund (2009), “Wage Dispersion Between and Within Plants: Sweden 1985-2000”, in Lazear, E. and K. Shaw (eds.), *The Structure of Wages: An International Comparison*, University of Chicago Press, <http://www.nber.org/chapters/c2372>. [68]
- Song, J. et al. (2015), “Firming Up Inequality”, *NBER Working Paper*, No. 21199, <http://www.nber.org/papers/w21199.pdf>. [67]
- Stansbury, A. and L. Summers (2017), “Productivity and Pay: Is the link broken?”, No. 24165, National Bureau of Economic Research, Cambridge, MA, <http://dx.doi.org/10.3386/w24165>. [52]
- Stokey, N. (2018), *Technology and Skill: Twin Engines of Growth*, National Bureau of Economic Research, Cambridge, MA, <http://dx.doi.org/10.3386/w24570>. [41]
- Tambe, P. and L. Hitt (2014), “Job Hopping, Information Technology Spillovers, and Productivity Growth”, *Management Science*, Vol. 60/2, pp. 338-355, <http://dx.doi.org/10.1287/mnsc.2013.1764>. [38]



From:
Good Jobs for All in a Changing World of Work
The OECD Jobs Strategy

Access the complete publication at:
<https://doi.org/10.1787/9789264308817-en>

Please cite this chapter as:

OECD (2019), “The challenge: Broadly shared productivity gains”, in *Good Jobs for All in a Changing World of Work: The OECD Jobs Strategy*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264308817-3-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.