CHAPTER 10

SUSTAINABLE AND INCLUSIVE PRODUCTIVITY GROWTH? DIAGNOSIS AND POSSIBLE POLICY ACTION

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Abstract

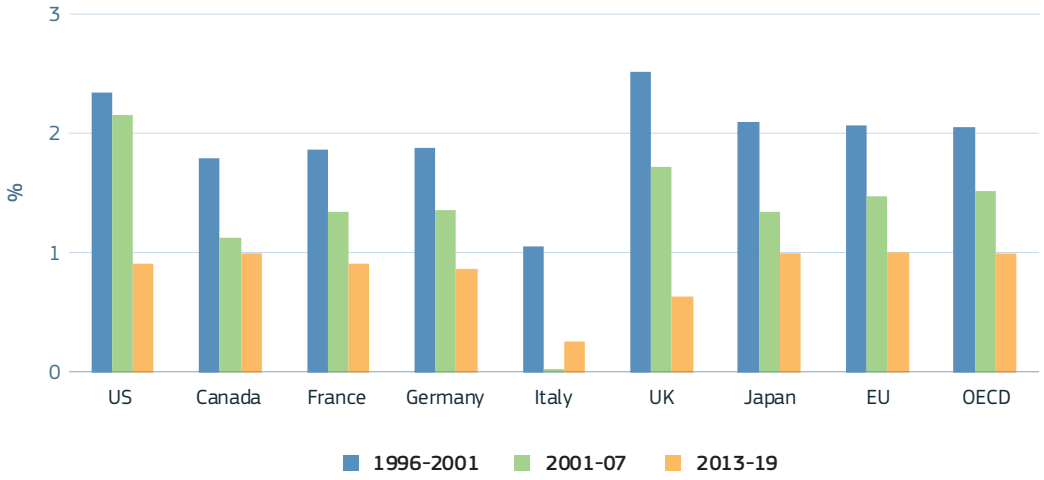
This chapter investigates the considerable slowdown in productivity growth observed globally, with a particular focus on the European Union. It explores the causes and consequences of this deceleration, highlighting the growing productivity gaps between leading "frontier" firms and less productive "laggards", as well as the challenges posed by digitalisation and the green transition. The analysis points out that digitalisation has favoured the emergence of "superstar" firms, increased market concentration, and reduced business dynamism. It suggests that these persistent trends may potentially dampen innovation and growth. The chapter also emphasizes the positive relationship between productivity growth, employment, and wages, and underscores the importance of inclusive growth strategies for strengthening these relationships. It argues for comprehensive policy actions to boost digital adoption, encourage innovation, and ensure that the benefits of productivity growth are widely shared.

1. Introduction

Productivity growth is vital for enhancing living standards and bolstering overall economic prosperity. The widespread productivity slowdown, i.e. the deceleration in the rate of productivity growth, is therefore a prevailing concern among both policymakers and academics.

Figure 10-1 illustrates the widespread nature of the productivity slowdown in both EU and OECD countries. Focusing on the evolution of productivity growth over time, data reveal a notable trend in the EU, where annual productivity growth averaged 2% during the period 1996-2001 but declined to 1.5% over the period 2001-2007 and further dropped to 1% during the period spanning 2013-2019[1]. These figures underscore the persistent and concerning deceleration in productivity growth over the years.

Figure 10-1 Gross Domestic Product (GDP) per hour worked: annual average growth



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Source: Calculations based on the OECD productivity database.

Note: Each bar represents the average annual growth of labour productivity, measured as GDP per hour worked for each period. The data for OECD excludes Estonia and South Korea due to differences in the periods covered.

1 The Figure excludes the period 2008-2013 corresponding to the great financial crisis and the Eurozone crisis, and subsequent recovery years, which were marked by particularly low productivity growth.

OECD research has further documented simultaneous and interconnected trends reflecting a decline in business dynamism. This decline is underscored by diminishing entry rates, reduced job reallocation rates and a shrinking share of young firms in total employment. These indicators collectively suggest a potential attenuation in the role of creative destruction, a vital driver of both employment and productivity growth. Moreover, prior and ongoing OECD analyses shed light on the evolution of proxies of competition at the sectoral level, with increases in mark-ups, concentration and entrenchment (Bajgar et al., 2019; Bajgar, Criscuolo and Timmis, 2021). These trends are also coupled with an increase in the gap between productivity-frontier firms and the rest of the business population (Andrews, Criscuolo and Gal, 2016; Berlingieri et al., 2020), with potential consequences for innovation (Akcigit and Ates, 2020) and inclusiveness (Criscuolo et al., 2022).

Academic research and OECD analyses have put forward different potential explanations for the observed phenomena. Notably, the uneven and incomplete nature of digital transformation and the increasing importance of intangible assets have played a key role in widening the productivity gap between the leading performers at the frontier and the rest, with the least productive firms (laggards) further falling behind (Berlingieri et al., 2020; Corrado et al., 2021).

Over the last few years, heightened uncertainty and what are generally referred to as polycrises, with events such as the COVID-19 pandemic, the Russian invasion of Ukraine with the subsequent increase in energy costs, heightened geopolitical tensions, global warming and recent shifts in economic conditions, have collectively moulded a new state of the economy, potentially presenting considerable challenges for productivity growth. A silver lining to these headwinds was thought to come from the sudden widespread adoption of digital technologies and telework during the pandemic (see also Criscuolo et al. (2021) and Calvino, Criscuolo and Ughi (forthcoming)) and the implementation of ambitious rescue and recovery packages. And the question is still open on whether the ongoing resurgence of new industrial policies and reliance on mission-oriented industrial strategies, for example in the context of COVID-19 resilience packages, could have the potential to transform these challenges into opportunities, fostering an accelerated transition towards a more inclusive and environmentally sustainable, climate-neutral, economy.

This chapter will summarise new evidence on productivity growth dynamics and the role of productivity for employment and wages, as well as the digitalisation of the economy and the green transition, uncovered in recent and ongoing work by the OECD. It will also discuss how the resurgence of industrial policies calls for additional analysis to measure and coordinate government action. The chapter is structured as follows.

Section 2 provides new evidence on widening productivity gaps, emphasising a divergence among firms. This includes an increasing heterogeneity between the most and least productive firms, as well as a deterioration in the relative productivity of small and micro firms. The section also discusses novel analysis linking challenges faced by the less productive and smaller firms in keeping pace with the rest to concerns for future aggregate productivity growth.

Section 3 extends the discussion to the role of productivity growth in supporting employment growth at both firm and aggregate levels and the importance of policies that promote catch-up and support contestable markets for boosting employment growth and resource reallocation. The chapter also delves into evidence on declining labour shares, indicating that the observed reduction in aggregate labour share can be, at least partly, attributed

to the reallocation of value added to high-productivity, low-labour-share firms. While such reallocation can enhance productivity at an aggregate level, policymakers need to ensure that potential trade-offs between productivity growth and inclusiveness are carefully considered when designing policies. Policies that focus on the development of skills, diffusion of technologies and best practices could play an important role as they could help achieve double dividends by raising the productivity of less productive firms and empowering workers to benefit from and support the diffusion of technology.

Section 4 discusses the challenges and opportunities arising for the business sector from the green and digital transitions. Evidence indicates that the COVID-19 crisis, while accelerating the digital transition, may have exacerbated digital gaps, raising concerns about further productivity divergence. Indeed, firms that were more engaged in digitalisation and were more productive before the crisis were more likely to adopt digital applications. Additional evidence examining the diffusion of artificial intelligence (AI) also highlights adoption patterns that favour larger and more productive firms. Policies are necessary to accelerate a broad and inclusive digital transition, which should also align with the green transition, requiring a profound transformation of the economy and the business sector. Addressing these challenges requires boosting innovation, diffusion, business dynamics and reallocation, and simultaneously fostering inclusiveness and economic resilience.

In this context, the industrial strategies discussed in section 5 will also be paramount. That section presents insights from the OECD Quantifying Industrial Strategies (QuIS) project, which quantifies and analyses industrial strategies across countries.

2. Business dynamism, productivity and divergences

2.1 Slowing dynamism and creative destruction

The OECD DynEmp project offers compelling evidence regarding the decline in business dynamism across countries, evident from declines in entry rates, job reallocation rates and the share of young firms in total employment within narrowly defined industries (Calvino and Criscuolo, 2019; Calvino, Criscuolo and Verlhac, 2020). Updated data show that these trends persisted prior to the COVID-19 crisis, as illustrated in Figure 10-2. Additional evidence from the project indicates a diminishing share of start-ups (0-2-year-old firms) among micro firms (2-9 employment units) over time, which may reflect declines in entry rates but may also raise concerns about the capacity of young firms to scale up and grow out of the micro firms size group[2]. Such evidence on declining dynamism, together with concomitant increases in dispersion of productivity (discussed next), declines in the speed of diffusion (Berlingieri et al., 2020; Akcigit and Ates, 2020) and the rise in industry concentration and mark-ups documented by the OECD (Bajgar et al., 2019; Bajgar, Criscuolo and Timmis, 2021; Calligaris, Criscuolo and Marcolin, 2018; Criscuolo, 2021) points to a possible decline in creative destruction, and an increase in entrenchment at the top (Van Reenen, 2018; Bessen, 2022). This has raised concerns in the academic and policy arena about the future of innovation, independently of whether these trends are linked to technology factors (see for example (Bessen, 2022; Haskel and Westlake, 2018; Haskel and Westlake, 2022; Van Reenen, 2018) and OECD work reported in previous SRIP reports (Criscuolo, Goretti and Manaresi, 2022)), a worsening of competition enforcement (Philippon, 2019; Covarrubias, Gutiérrez and Philippon, 2019) or a combination of the two as discussed in Crawford, Valletti and Caffarra (2020) and references therein.

New and young firms may face significant challenges when competing with market leaders (Akcigit and Ates, 2020; Akcigit and Ates, 2021) and need to build their reputation and customer base, which requires them to charge lower prices (Foster, Haltiwanger and Syverson, 2008). This could discourage potential entrants and limit upscaling, in line with evidence of the decline in high-growth young firms (Decker et al., 2016). Barriers to the diffusion of technology and knowledge may prevent entrants and laggard firms from innovating, adopting existing knowledge or learning from the best performing firms, and may further limit experimentation and reallocation through creative destruction. Theoretical models and empirical evidence suggest that, in recent years, an increase in these challenges may be at the root of secular stagnation (Aghion and Howitt, 2023). As suggested by Akcigit and Ates (2021), leaders may have become better at preventing the diffusion of their knowledge, via the acquisition of patents for defensive purposes, which would discourage innovation efforts by non-frontier firms, especially laggards, and increase rents for leaders. Aghion et al. (2023) compare trends in performance of frontier superstar firms and laggards and hypothesise that, thanks to the digital revolution, superstar firms may have been able to accumulate social capital and know-how or develop networks in a larger fraction of sec-

2 The fact that the share of young firms among micro firms is declining could be related to two factors: i) the decline in entry rates which is associated with a lower number of micro-entrants relative to the total business population and ii) insufficient post-entry growth which would imply that firms stay in the micro-size class longer, changing the age composition of this group.

tors, while non-frontier firms could not, and this may have allowed the former to increase their mark-ups. By maintaining their position as superstars, they discourage innovation and entry, leading ultimately to decline in growth[3].

Empirical evidence in line with these theories has been growing. Early work by the OECD on the great divergences in productivity and wages, the role of digital technologies and the growth in intangible assets as possible drivers of these trends (OECD, 2015; Berlingieri, Blanchenay and Criscuolo, 2017) has been further corroborated in single-country studies. In particular, Bessen (2022), Autor et al. (2020) and De Loecker, Obermeier and Van Reenen (2022) further link rising concentration and mark-ups and declining industrial disruption to the growth of proprietary software and, more broadly, to digitalisation and globalisation.

In sum, larger gaps between leaders and laggards, stronger concentration of both sales and labour/talent, defensive use of intellectual property rights and higher entrenchment may represent important factors hampering the creative destruction process as they reduce the chances for start-ups and laggards to leapfrog the leaders, potentially reducing incentives for experimentation and innovation. These dynamics related to slower knowledge diffusion and increased market power are possibly amplified by the digital transition (Calvino, Criscuolo and Verlhac, 2020).

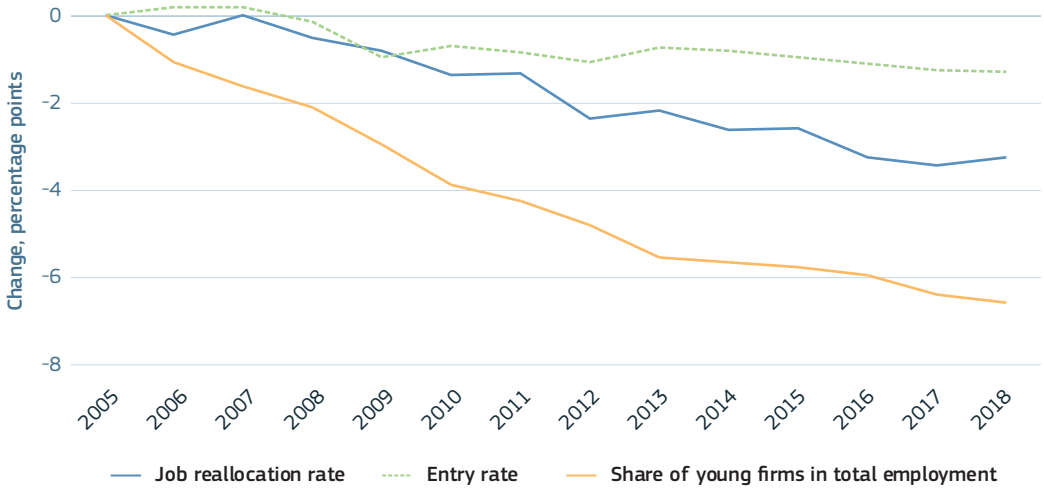
In this context of declining dynamism over the long term, dynamics of new business registrations and venture capital (VC) financing have been noticeable since the onset of the COVID-19 crisis (Berger, Dechezleprêtre and Verlhac, forthcoming). Following a large decline in registrations, many countries have experienced a rapid recovery and a surge in registrations that persisted in 2021. Overall, the impact of the crisis appears to have been mitigated and a 'missing generation' of new firms seems to have been avoided in most countries (with some noticeable exceptions such as Portugal). Therefore, business dynamics have shown significant signs of resilience during the COVID-19 crisis, in stark contrast with the 2008-09 crisis which demonstrated the potentially disproportionate impact of economic and financial disruptions on young firms. The VC market (further analysed in Berger, Dechezleprêtre and Verlhac (forthcoming)) also demonstrated resilience across various funding stages, regions and sectors and even reached peak values during the pandemic. The surge in registration and the peak in VC funding raises hopes that the pandemic may have triggered a wave of innovation.

Nevertheless, significant uncertainty prevails regarding whether these dynamics mark a turning point in the long-term trends of declining business dynamism across countries or simply a temporary uptick. Recent data from the OECD Timely Indicators of Entrepreneurship already suggest that this revival has been fading away, in a context marked by the Russian invasion of Ukraine in 2022, the related energy crisis, rising political and economic uncertainties and high inflation. In 2022, many

3 Note that dominant positions of superstar firms may not only discourage widespread innovation by disruptive innovators but may also slow down innovation by industry leaders as they become entrenched incumbents. If leaders dedicate more resources to avoiding competition, this may, in turn, reduce their productive innovation efforts, even though they initially gained their leading position through innovation and high efficiency. Aghion and Howitt (2022) further summarise mechanisms through which incumbents may avoid competition and deter innovation and growth. One mechanism (the 'automatic mechanism') arises from the fact that dominant firms with large market shares and large technological leads have little incentive to innovate in order to avoid competition, while the remote prospect of catching up and competing with leaders reduces the profitability of entry and innovation for other firms. a second mechanism relates to the strategic behaviour of leaders using their power to block innovation by potential rivals. This includes the use of pre-emptive mergers, strategic innovations and patent thickets, as well as lobbying that helps dominant firms raise regulatory barriers against potential rivals.

countries experienced a slowdown or even a decline in business registration relative to 2021, and these dynamics persisted over the first half of 2023, while bankruptcies returned to pre-crisis levels after the lows experienced during the pandemic. Mirroring the overall business dynamics, the VC market experienced a 'boom-and-bust' cycle as it reached peak values during the pandemic but subsequently reverted to pre-crisis levels towards the end of the pandemic. Therefore, reigniting business dynamics beyond the transient improvements experienced during the pandemic and its aftermath should remain a key policy objective.

Figure 10-2 Declining business dynamism



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Source: OECD DynEmp database, updated from Calvino, Criscuolo and Verlhac (2020).

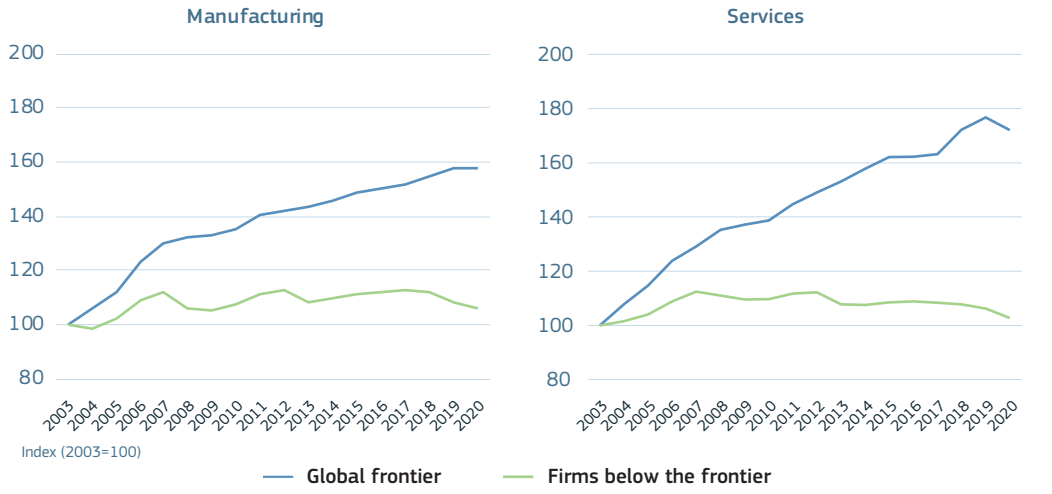
Note: This Figure reports average within-country-industry cumulative changes in the share of employment in young firms, changes in job reallocation rates and changes in entry rates based on the year coefficients of regressions within country-industry for the period 2005-18, including 16 countries: Austria, Belgium, Canada, Croatia, Denmark, Finland, France, Germany, Hungary, Italy, New Zealand, Norway, Portugal, Slovenia, Spain and Sweden. Each point represents cumulative change in pp since 2005.

2.2 New evidence on dispersion and the link between productivity divides and aggregate productivity growth

The widening of the productivity gap between firms at the frontier and others has occurred between the global frontier and the rest, but also between national frontier and non-frontier firms (Berlingieri, Blanchenay and Calligaris, 2017; Berlingieri, Blanchenay and Criscuolo, 2017; Corrado et al., 2021; Andrews, Criscuolo and Gal, 2016). Updated evidence shows that such divergence persisted over the period prior to the COVID-19 crisis, with increasing disparities between the global frontier and other firms (see Figure 10-3).

This widening dispersion in productivity mirrors a similarly divergent trend observed between firms of varying sizes. Berlingieri, Calligaris and Criscuolo (2018) documented substantial differences in productivity between firms of different sizes (in terms of employment), revealing more prominent disparities in manufacturing than in non-financial market services. Data from the OECD MultiProd project suggest that the productivity gaps between firms of different sizes have increased over time. In manufacturing industries, the productivity advantage of medium-sized and large firms relative to smaller firms has increased significantly over time, while the relative productivity of small and micro firms has deteriorated. In non-financial market service industries, the productivity gap between small and micro firms and the rest has also widened. Further evidence suggests that the productivity of both older and younger micro firms relative to larger firms has declined over time. This raises additional concerns about the widespread diffusion of technology and knowledge, especially among micro, small and medium-sized firms.

Figure 10-3 Divergence in labour productivity between the global frontier and the rest



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Source: André and Gal (2024). Updated calculations following the methodology in Andrews, Criscuolo and Gal (2016).

Note: Index (2003 = 100) of productivity at the frontier and below the frontier, approximated by changes in logs. Average across detailed industries using firm-level data and 3-year moving average. Labour productivity is defined as value added per employee. The global frontier is defined as the average of the productivity for the top 5 % of firms in the productivity distribution within each detailed (two-digit) NACE Rev.2 industry from 24 OECD countries for which firm-level data is available. 'Firms below the frontier' is the average productivity of all other firms within each industry. See more details in the paper cited in the source.

In light of the simultaneous long-term deceleration in aggregate productivity growth and the increasing divergence in micro-level productivity, recent work by the OECD explores the connection between these two phenomena. The analysis of Criscuolo et al. (forthcoming) delves into the question of whether policymakers, in their pursuit of economic growth, should be concerned about productivity divergence and the degree to which such divergence might indicate or exacerbate barriers to overall productivity growth. Specifically, it investigates the extent to which changes in divergence are associated with changes in productivity growth over subsequent years. This dynamic relationship between productivity and divergence can originate from several mechanisms.

On the one hand, the level of productivity dispersion may have direct effects on aggregate productivity growth as it may impact on the pace of reallocation, the incentives for innovation, and rates of market entry, which are linked to a set of mechanisms very similar to those discussed previously. More specifically, a widening of the productivity gap can induce a discouragement effect on the firms that fall further behind and a diminishing competition avoidance effect on the leaders, which widens their technological advantage (Akcigit and Ates, 2020). These mechanisms may be reinforced when markets become more dominated by leaders (in terms of market share and market power)[4].

On the other hand, rising dispersion may also be a consequence of different underlying mechanisms and forces such as innovation, technology diffusion or changes in the regulatory environment, which have different implications for productivity growth and shape the empirical link between productivity divergence and aggregate productivity growth.

The analysis of Criscuolo et al. (forthcoming) shows that counteracting mechanisms may indeed be at play and that rising dispersion may be both positively and negatively related to future productivity growth, depending on the prevalent forces. Rising dispersion at the top (i.e. between the most productive firms and the rest) appears to be linked to the presence of successful innovators and is associated with positive changes in aggregate productivity growth over subsequent years. On the other hand, rising dispersion at the bottom (between the least productive firms and the rest) appears to be related to slower technology diffusion and is associated with lower aggregate productivity growth.

Given these findings, the rise in productivity dispersion concentrated at the lower end (i.e. laggards falling behind) is a matter of concern. This divergence potentially plays a role in decelerating productivity growth, emphasising the need for policy intervention. To minimise the cost of divergence, policies may boost technology diffusion (absorptive capacities, skills, financial support to smaller and younger firms) while also ensuring that market selection and productivity-enhancing reallocation occur. At the same time, policies that favour innovation and boost productivity growth at the top can contribute to aggregate productivity growth despite rising dispersion at the top of the distribution, if markets remain competitive and contestable.

4 In this respect, digital and intangible intensive sectors deserve particular attention. Digitalisation and the growing role of intangible assets have reshaped the way firms produce and reach customers and have changed the way firms compete. While this may provide opportunities for new firms, it may also generate winner-takes-most dynamics and change market structures and the market power of leader firms. For instance, OECD evidence shows that intangible and digitally intensive sectors display higher increases in concentration, as well as in productivity and mark-up dispersion (Calligaris, Criscuolo and Marcolin, 2018; Bajgar, Criscuolo and Timmis, 2021; Corrado et al., 2021). Digitally intensive sectors further display lower levels of catch-up among laggard firms (Berlingieri et al., 2020). Ongoing OECD research (Calligaris et al., forthcoming) also shows that lower exposure to international competition is related to market concentration dynamics, as industries in which firms compete domestically have experienced higher increases in concentration. Taking account of larger markets (in sectors that compete globally) may further reinforce the positive relationship between intangible intensity and concentration, due to scale effects. Future work by the OECD Directorate for Science, Technology and Innovation will further investigate the link between AI, productivity and competition.

3. Productivity growth, employment, and wages

While policies should aim to revive productivity growth, the impact of productivity on employment and wages is the subject of ongoing debates, particularly in light of growing concerns about the potentially negative effects of technological progress on labour demand. Furthermore, declines in the aggregate labour share of value added call into question the extent to which the value created by firms and workers benefits the latter.

3.1 A positive link between productivity growth and employment

Some studies show adverse effects of robotisation on employment and wages (Graetz and Michaels, 2018; Acemoglu and Restrepo, 2020) which are related to the disappearance of routine tasks (Autor, Levy and Murnane, 2003). At the same time, technological change may also trigger favourable employment responses. New technologies may create demand for new tasks in the labour market (see Acemoglu and Restrepo (2016)), and firms that adopt productivity-enhancing technologies may become more competitive and increase sales, thereby increasing their use of inputs, including labour (Acemoglu, Lelarge and Restrepo, 2020; Aghion et al., 2020; Koch, Manuylov and Smolka, 2019)).

Overall, the extent to which there may be a trade-off between productivity and employment growth is an open empirical question, which has been addressed in a recent work by the OECD (Calligaris et al., 2023) using unique data from the MultiProd project. The work finds little evidence of a trade-off, and it rather suggests that productivity growth and labour demand are complementary rather than alternative policy targets.

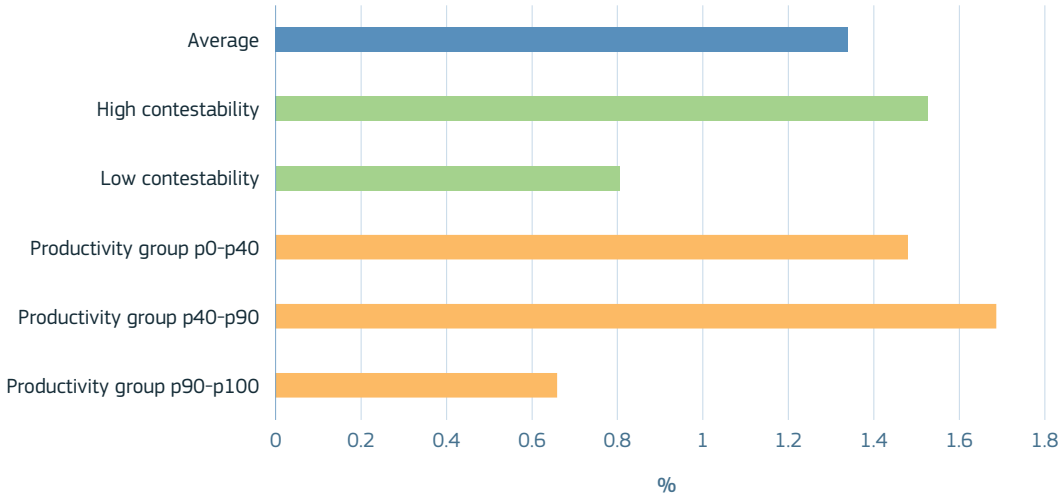
The evidence across 12 countries suggests that this complementary relationship persists across levels of aggregation. Focusing on firm-level dynamics, firms at the top of the productivity distribution experience higher employment growth than less productive firms. However, after accounting for initial differences in productivity, firms that achieve greater increases in productivity also experience stronger employment growth than other firms, suggesting additional benefits in promoting productivity growth and catch-up. This result is presented in Figure 10-4, which illustrates the estimated micro-level response of employment to an initial increase in productivity. The estimated elasticity suggests that firms that initially experience 10% stronger productivity growth grow by an average of around 1.35% more in terms of employment over 5 years.

The results also point to the importance of the policy environment in shaping these relationships. Indeed, the positive relationship between initial productivity growth and subsequent employment growth appears to be stronger in environments characterised by higher market contestability, as proxied by lower mark-up gaps across firms within country-sectors. This result is illustrated by the second and third bar in Figure 10-4, which shows that the positive employment-productivity link is only around half as strong in less contestable environments as in environments that are more contestable. Therefore, competitive markets and environments that favour reallocation may foster greater employment gains associated with productivity growth. Additionally, while more productive firms tend to exhibit higher employment growth, results also indicate that the

positive link between productivity growth and employment growth is more pronounced for non-frontier firms that are improving their productivity (see the last three bars in Figure 10-4). Combining these insights, results suggest that firms catching up in terms of productivity also tend to experience higher employment growth in a more competitive environment, indicating that upscaling might be easier for them in such environments, in line with the theories discussed in the previous section.

The analysis finds that the link between productivity growth and changes in employment and wages at industry level is weaker than at firm level (but tends to remain positive). This may be related to the fact that increasing employment among expanding firms tends to offset decreasing employment in shrinking or exiting firms. However, the analysis additionally finds that productivity gains at industry level contribute to stronger employment growth in downstream industries through domestic and global value chains, possibly linked to a decrease in prices of intermediate inputs associated with supplier productivity gains (see also Acemoglu, Akcigit and Kerr (2016)). This result points to the importance of considering the positive role that productivity improvements along the value chain can play, as they can spur employment growth at a more aggregate level.

Figure 10-4 A relative increase in multifactor productivity is positively associated with employment growth



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Source: Elaborations based on Calligaris et al. (2023).

Note: The Figure shows the estimated elasticity of 5-year employment growth to 1-year productivity growth at micro (firm) level i) on average, ii) in country-sector with high contestability (10th percentile, across country-industries, of the distribution of the mark-up difference between firms with high and median mark-ups) vs. low contestability (90th percentile of the mark-up difference distribution), iii) for different initial productivity groups defined according to the percentiles of the multifactor distribution. The estimated elasticity suggests that, on average, firms that initially experience stronger productivity growth by 10 % grow by around 1.3 % more in terms of employment over 5 years. This Figure illustrates the results of regressions based on a sample including 22 SNA A38 industries within manufacturing and non-financial market services across nine countries (Belgium, Croatia, Hungary, Italy, Japan, Latvia, the Netherlands, Portugal and Sweden). Observations are weighted by the number of firms represented in the full population, normalised at country level.

3.2 Productivity and labour share

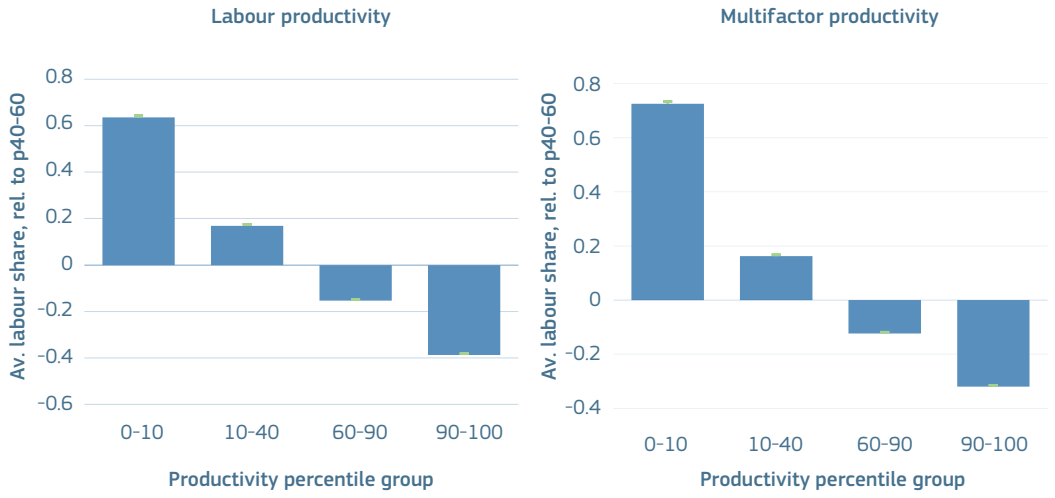
Beyond employment levels, the labour share of national income is an important indicator of the extent to which value added is shared with workers through the distribution of wages.

Existing evidence, mainly focused on the US, suggests that reallocation of resources towards high-productivity firms with low labour shares may have depressed the aggregated labour share in recent decades. This reallocation may be in favour of productivity superstars, i.e. the most productive firms in an industry (Autor et al., 2020), but there may also be a role for 'shooting stars', firms that benefit from a temporary boost in demand (Kehrig and Vincent, 2021).

Recent OECD work (Cho, Manaresi and Reinhard, forthcoming) extends the scope of the analysis of the nexus of productivity dynamics and labour share to cross-country level, providing novel evidence across 18 OECD countries based on the OECD MultiProd database.

The analysis provides several important insights that contribute to the existing literature. Firstly, there is a robust negative link between productivity and labour share, both at firm and industry levels. Figure 10-5 shows the difference in labour share across firms in different productivity quantiles relative to the median group and illustrates that more productive firms tend to have lower labour share (for both labour and multifactor productivity). This implies that firm-level rents from higher productivity are not fully passed on to the wage bill (see also Criscuolo et al. (2020)).

Figure 10-5 Firm productivity and labour share are negatively related



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Source: Cho, Manaresi and Reinhard (forthcoming).

Note: The Figure shows the difference in average firm-level labour share of each productivity group and the medium group of productivity. Based on regressions of average labour shares on an indicator variable for the productivity percentile group, controlling for fixed effects for the country-year and country-industry, and using the share of firms in the country-year as weight. Result is based on data for 18 countries: Austria, Belgium, Canada, Chile, Croatia, Estonia, Finland, France, Hungary, Indonesia, Italy, Japan, Latvia, Lithuania, Netherlands, Portugal, Slovenia and Sweden.

Secondly, some firms appear to have consistently low labour shares (they preserve a low labour share over at least 3 years). Firms with such a persistently low labour share are further found to be consistently among the most productive firms in their industry and can be considered 'superstar firms'. Despite previous evidence showing an overall positive wage-productivity link (e.g. Berlingieri, Calligaris and Criscuolo (2018); Criscuolo et al. (2020)), these firms tend to pay low wages relative to their high productivity (for similar results for developing countries and different data sources, see Saumik and Hironobu (2019)). This raises concerns regarding the extent to which increases of productivity at the top are shared with workers.

Thirdly, the analysis shows that value added has been reallocated to firms with a persistently low labour share status and this contributes to reducing the aggregate labour share[5]. Reallocation to firms with a more transiently low labour share status has also occurred, although to a lesser extent, and reallocation to these firms seems to carry less weight in explaining aggregate trends.

The study suggests that structural and policy factors do matter when explaining differences in labour share trends across countries over time. In particular, the labour share declines more against a background of rising productivity gaps and falling entry rates. Falling labour shares are also linked to globalisation, in particular rising export intensity, and the digital transition as declining labour shares respond negatively to rising AI patent activity and information and communication technology (ICT) investment shares. These phenomena are found to be negatively linked to labour shares as they contribute to promoting reallocation to high-productivity, low-labour-share firms.

In conclusion, the new OECD cross-country evidence supports the view, originally derived from US data, that labour shares may be driven down by the increasing weight (in terms of value added) of productivity superstars. Although this reallocation may be grounded in higher competitiveness, technological advantage and efficiency, and lead to higher overall productivity growth, a significant policy concern is how to ensure that productivity rents derived from globalisation and digitalisation are shared more broadly with workers. This pressing concern might be even more relevant given the deterioration of the relative productivity of small and micro firms that tend to have higher labour shares.

For this, it is important to think of labour share as being the ratio of wage bill, i.e. average wage in the firm multiplied by the number of workers, to value added. Declining labour share at the top firms might therefore reflect not only a lower increase in the number of workers, which might derive from automation, but also a less than proportional increase in wages (in line with the negative link between productivity and labour share presented in Figure 10-4). The latter might reflect externalisation of part of the employment increase through outsourcing of some tasks and/or a lower wage increase for workers relative to the increase in productivity. Evidence discussed in Criscuolo et al. (2022) suggests that this is more likely in less dynamic business environments where workers are less mobile, for instance because of non-compete clauses (see work by Marx (2011) and Starr (2019)) and in environments where labour market concentration is higher (for evidence on the potential role of monopsony see e.g. Manning (2003), Azar, Marinescu and Steinbaum (2020); Marinescu, Ouss and Pape (2021); and Marinescu and Posner (2020)etc).

5 On average across countries, detailed industries and time, over a 10-year horizon, the share of firms with a persistently low labour share in industrial value added has increased by 2.2 pp in manufacturing and 1.8 pp in non-financial business services, which corresponds roughly to a 25 % increase relative to the sample period average in both macro sectors. According to a back-of-the-envelope calculation based on labour share differentials between persistently low-labour-share firms and other firms, this reallocation has been associated with reductions in the labour share of 1.1 pp in manufacturing and 0.8 pp in services, or -1.8 % and -1.3 % relative to a typical labour share of 0.6.

3.3 Promoting economic well-being through an inclusive productivity revival

Evidence for the link between productivity and employment, as well as the link with wages, suggests that boosting productivity is not a standalone economic objective, but has further socioeconomic benefits, in particular through employment and wage growth. Several policy areas may be leveraged to support employment creation and wage rises through productivity and should focus on i) fostering business dynamism and productivity, ii) strengthening the link between productivity and employment and iii) strengthening the link between productivity and wages. These objectives may be achieved through a comprehensive policy mix. Policies should support innovation to continue pushing the frontier of technology and knowledge outward and unlock new sources of productivity gains, while simultaneously ensuring the diffusion of technology and knowledge through a combination of incentives and capabilities and allowing creative destruction and reallocation.

- Firstly, ensuring open and competitive markets and a large market size could incentivise firms to invest in innovation, as such conditions guarantee returns on investment. Thus, continued efforts to achieve a single market and global level playing field are crucial for innovation. In this respect, the OECD indicator on regulatory barriers affecting trade in services within the European Economic Area (the intra-EEA STRI), shows that there is still relevant heterogeneity across sectors and countries as regards restrictions on foreign entry, restrictions to movements of people, barriers to competition, regulatory transparency and other discriminatory measures (Benz and Gonzales, 2019). Given the role of digitalisation in productivity dynamics and firm heterogeneity, policies should also focus on challenges related to digital trade and market openness (see e.g. López Gonzalez and Ferencz (2018)).

- Secondly, policy action needs to focus on capabilities, with a crucial role not only for investments in managerial and workers' skills allowing technology development but also for technology adoption among laggards to ensure that they have the necessary absorptive capacities.

- Thirdly, policies should ensure the conditions for creative destruction, in order to maintain incentives for innovation and adoption, and to support productivity-enhancing reallocation. To this end, policies should ensure a level playing field and the contestability of markets and reduce barriers to entry and growth. Competition and regulations that ensure a level playing field are key to incentivising entry and scale-up of younger firms. They are also key to ensuring healthy dynamics at the top with competition in the market, as well as a smooth and efficient selection of firms at the bottom, e.g. thanks to efficient bankruptcy legislation. To ensure a level playing field, competition authorities may play a role in the enforcement of and advocacy for competition neutrality of state intervention in order to prevent distortions of the competition law framework, the regulatory framework, public procurements or public support measures[6]. This also implies revisiting concepts, measurement and competition policies in specific sectors such as digital markets (OECD, 2022) or energy markets[7].

6 See the OECD December 2021 roundtable on the promotion of competitive neutrality by competition authorities: https://www.oecd.org/daf/competition/the-promotion-of-competitive-neutrality-by-competition-authorities.htm

7 See the OECD webpage 'Competition policy in the digital age': https://www.oecd.org/daf/competition-policy-in-the-digital-age/ and the November 2022 roundtable on competition in energy markets: https://www.oecd.org/competition/competition-in-energy-markets.htm

- Fourthly, policies can promote spillovers both across firms and across sectors. Spillovers across firms can be spurred not only by increasing absorptive capacity through managerial quality and worker skill but also through fair and transparent design of intellectual property regimes. In particular, this requires setting pro-competitive licensing arrangements that strike a balance between protecting inventors' or creators' rights and fostering innovation diffusion and follow-on or cumulative developments, as well as close scrutiny by competition authorities of licensing practices that have been identified as having potentially anticompetitive effects, such as field-of-use restraints, grant backs, no-challenge clauses and patent hold-ups (see OECD (2019) and (2019), and also Haskel and Westlake (2022))[8]. Policies can also promote spillovers across sectors by supporting integration with resilient global and domestic value chains and facilitating connections to the most productive supplier industries via mobility of workers, open trade and foreign direct investment.

- Finally, policies should ensure that productivity gains and their benefits are shared widely across firms and workers. This requires strengthening education and training to increase the supply of skills, in particular those in high demand (e.g. STEM workers) and those that are complementary to technology adoption (e.g. digital and soft skills of employees, managerial capabilities) while improving labour market matching of jobseekers to vacancies, including through enhanced worker mobility and lower labour market concentration. While digital technologies may be associated with lower aggregate labour share due to reallocation of value added to low-labour-share firms, promoting reskilling, upskilling and job mobility could help displaced workers to find jobs at firms paying higher wages. Furthermore, while firm performance and workers' qualifications play a key role in wages, there is room for well-designed policies to encourage wage-setting practices that raise wages and reduce wage inequality without adverse effects on employment and output (Criscuolo et al., 2022). This could help to ensure that potential productivity improvements within firms are passed on to workers, including lower skilled workers, through the sharing of productivity-related rents. In this respect, while productive, high-paying firms may benefit from domestic outsourcing, this may cause concern as regards job quality and earnings in low-wage occupations due to reduced sharing of productivity-related rents. Appropriate collective agreements that consider inter-industry occupational wages may, for instance, contribute to preventing cases of outsourcing that exploit different wage levels for the same occupations in different industries without enhancing productivity (OECD, 2021).

8 See also the OECD June 2019 roundtable on the treatment of licensing by competition law and policy: https://www.oecd.org/daf/competition/licensing-of-ip-rights-and-competition-law.htm, and the 2014 roundtable on competition, intellectual property and standard setting: Competition, Intellectual Property and Standard Setting - OECD.

4. COVID-19 and the accelerating digital and green transitions for the business sector

A significant trend associated with the COVID-19 shock has been the surge in the use of telework as firms quickly adapted to remote work arrangements (Criscuolo et al., 2021). This surge was accompanied by an acceleration in the adoption of digital technologies across various sectors, reflecting a broader trend towards increased reliance on digital tools. The entrepreneurial landscape also witnessed a notable resilience, even marked by an increase in business formation across many countries, with individuals exploring innovative business ventures and solutions in response to the challenges posed by the pandemic.

Nevertheless, important challenges persist. The macroeconomic landscape continues to bear the imprint of inflation. While enduring repercussions of the crisis linger, policymakers face the imperative of addressing long-standing challenges tied to the digital and green transitions. The formulation and implementation of effective industrial policies also become paramount, given their pivotal role in navigating these multifaceted challenges.

4.1 Uneven adoption of digital technologies during the COVID-19 crisis

The COVID-19 crisis has spurred the adoption of digital technologies, albeit differently across firms. An upcoming analysis by the OECD (forthcoming) leverages a comprehensive commercial database from Spiceworks Ziff Davis to examine digitalisation at firm level during the pandemic across 20 European countries. Drawing on this unique cross-country data source on digital product installations by firms, which are linked to IT expenditures and information on firm financials, the analysis reveals that the integration of digital technologies experienced a rapid acceleration during the pandemic.

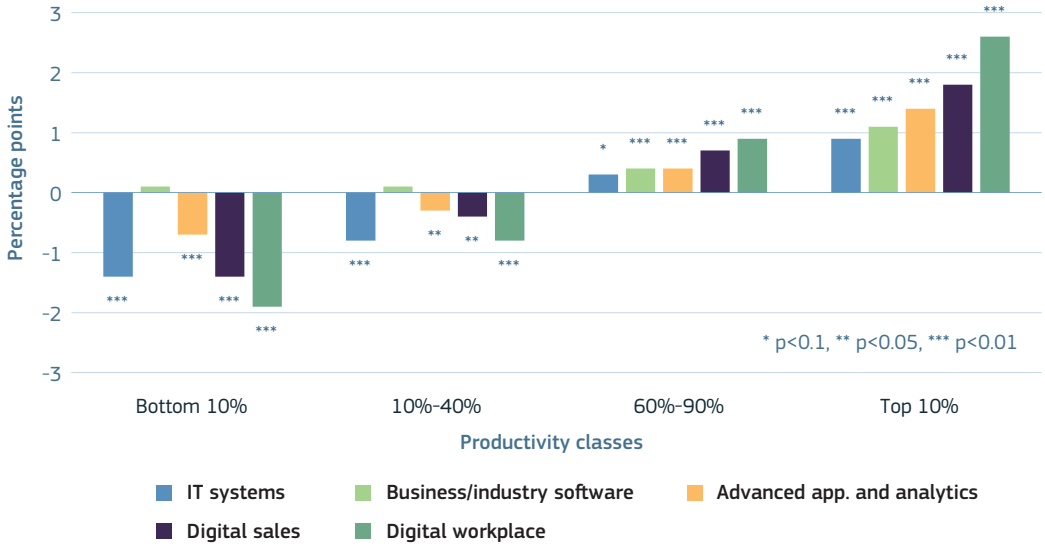
Focusing on detailed applications grouped into five technological classes, the analysis shows that a significant share of firms introduced new digital technologies during the pandemic, with the highest shares introducing 'IT systems', followed by 'digital sales' and 'digital workplace' (respectively around 80%, 50% and 45%)[9].

Nevertheless, existing disparities have played a crucial role in determining firms' capacity to respond to the crisis through digital adoption. Firms that exhibited higher levels of productivity, larger size and a greater emphasis on digitalisation prior to COVID-19 saw a more pronounced increase in their adoption of digital technologies in the aftermath of the pandemic shock. Notably, firms with elevated levels of digitalisation before the pandemic, as measured by a novel digitalisation index used in the analysis, and higher complementary factors (e.g. IT staff) were generally better positioned to introduce new digital products during the crisis. Furthermore, businesses that were already more productive before COVID-19 were also more inclined to embrace digital applications that gained traction during the pandemic, such as digital commerce, collaborative software, cloud services and analytics (Figure 10-6).

9 The five technological classes analysed are advanced applications and analytic, digital sales, digital workplace, industry/business software, and IT systems

These trends may amplify winner-takes-most dynamics and exacerbate the divides previously documented in this chapter, i.e. between the top-performing firms and the rest of the business population and between large and small and micro firms.

Figure 10-6 Firm productivity in 2019 and likelihood of introducing new digital products during the pandemic



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Source: Calvino, Criscuolo and Ughi (2024).

Note: The Figure displays the relationship between firm labour productivity (in 2019) and the probability of introducing new digital products in 2020 and/or 2021, for each digital technology class ('IT systems', 'digital sales', 'digital workplace', 'advanced applications and analytics', 'business/industry software'). For each technology class, the estimated regression model is a linear probability model that employs a dummy for digital technology class adoption as dependent variable and includes – in addition to the productivity group – size class, age class, and other complementary factors (IT staff and an ex-ante digitalisation index) as main independent variables. The technology class dummy is equal to 1 if the firm introduced a new digital product for the given technology class in 2020 and/or 2021. The labour productivity proxy is computed as (log) turnover over employment in 2019. Productivity groups are computed within country-sector (two-digit NACE sectors). Productivity coefficients are computed with respect to the 40 %-60 % productivity group. Each regression includes two-digit sector-country fixed effects and employs robust standard errors. Results for the 'missing productivity' group are not reported. Results are robust to the log of labour productivity in 2019, excluding plants at the top 1 % of the productivity distribution, employing a logit model as the main regression model, and to the use of a different proxy for digitalisation as control. In the figure, results are ordered with respect to the magnitude of coefficients of digital classes for the productivity group 'top 10 %'.

4.2 Navigating the AI landscape: AI adoption across firms

A notable change in the digital landscape that has characterised the last few years has been the acceleration in the diffusion of AI, which is already changing the demand for skills and may play an important role in tackling societal challenges, such as those related to health and climate change. AI has a strong potential to affect the economic landscape radically and widely, with relevant implications for several economic and social areas. Often considered a general-purpose technology, its applications can potentially bring significant improvements to adopters and users.

In this context, Calvino and Fontanelli (2023) depict a profile of AI adopters across countries, leveraging unique data for 11 countries collected from firm-level surveys in the framework of the AI Diffuse project, which gathers information on AI use by firms. While AI adoption is still largely incomplete, the analysis further emphasises the characteristics of adopters, the role of complementary assets such as intangibles or digital infrastructure and the links between AI utilisation and productivity and highlights key stylised facts.

The analysis of AI adoption unveils crucial patterns. Larger firms are more inclined to adopt AI technologies as they may benefit from scale advantages and are better equipped to leverage the full potential of AI through intangible and other complementary assets. Concurrently, young firms tend, to some extent, to exhibit higher rates of AI adoption, in line with their role for driving innovation particularly in the context of emerging technological paradigms such as AI.

In terms of sectoral patterns, Calvino and Fontanelli (2023) find that AI adoption is noticeably concentrated in the ICT and professional service sectors, underscoring a sectoral imbalance. This hints that, at the early stages of AI diffusion, its broader potential as a general-purpose technology is yet to be fully realised, especially beyond selected service sectors.

In a similar way to the findings for digital technologies previously discussed, significant links emerge between AI use and complementary assets. Intangibles, including ICT skills, digital capabilities and infrastructure, play a pivotal role in fostering AI adoption. Firms demonstrating general skills and engaging in innovative activities also exhibit positive associations with AI adoption, emphasising the importance of absorptive capacity.

Interestingly, more productive firms are also more inclined to adopt AI, yet the productivity advantage is intricately linked to complementary assets. When factoring in the role of these assets, the initially observed productivity premia are reduced. This underscores the critical contribution of complementary assets in influencing the productivity landscape associated with AI adoption.

The polarised adoption of AI, predominantly by industry leaders, raises concerns about potential future gaps in the business landscape. This trajectory, coupled with AI's reinforcement of existing advantages, has economic and societal implications and raises the question of interventions through industrial strategies, as discussed in the final section of this chapter.

4.3 Did COVID-19 help to accelerate the green transition?

The COVID-19 crisis and the associated lockdowns across the world led to a massive drop in economic output. Governments responded by implementing rescue and recovery packages and other fiscal measures to support economic activity, in addition to protecting public health. In the 2 years following the start of the pandemic, national governments dedicated up to USD 30 trillion (about EUR 28 trillion) to economic stimulus as a response to the crisis.

This massive intervention by public authorities around the world could give an important impulsion to the development and deployment of low-carbon technologies. Encouraging a low-carbon shift has been a priority in the aftermath of the COVID-19 pandemic. Consequently, many governments integrated a significant environmental dimension into their stimulus packages. The EU, for example, required that 37% of the Next Generation EU stimulus package be targeted at supporting the green transition.

Recent work conducted by the OECD (Aulie et al., 2023) shows that countries around the world – members of the OECD, the EU and the G20 – included in these fiscal packages USD 1.29 trillion (about EUR 1.2 trillion) worth of measures for the development and deployment of low-carbon technologies. This means that, on average, OECD countries committed to spending the equivalent of 2% of 1 year's GDP on low-carbon technologies. The sectors which received the largest share of funding were energy (39%) and transportation (35%). In contrast, only 4% of total funding was allocated to industry. The vast majority of spending supported the deployment and adoption of mature technologies, while development of early-stage and emerging technologies received less than 15% of spending.

Aulie et al. (2023) reported the results of a modelling exercise to analyse the impact of the post-COVID-19 low-carbon fiscal spending (green fiscal push scenario) on greenhouse gas emission (GHG) reductions towards 2050. GHG emissions in OECD and EU countries are projected to have decreased by 9% in 2030 and 11% in 2050 compared to a reference scenario in which no such spending occurred.

This reduction will be triggered by both support for adoption and support for research, development, and demonstration (RD&D), with the role of the latter increasing considerably over time. In 2030, only 5% of the emission reductions will have been triggered by RD&D support measures, but this proportion will increase to 26% in 2050. This is due to increases in the productivity of clean technology; significant cost reductions in, for example, batteries, hydrogen, wind power and solar photovoltaics; and the diffusion of knowledge spillovers across borders. By 2050, a dollar spent on RD&D will induce cumulative emission reductions six times higher than would the same dollar invested to support adoption. This illustrates the key role of R&D for the green transition, particularly in the context of high concentration of many critical raw materials necessary to produce renewable energy capital goods (wind turbines, solar panels, etc.). Innovation to develop leading-edge manufacturing capacities for the production of renewable energy goods can reduce dependencies on non-OECD economies, while avoiding or limiting the cost of reshoring production units currently located in low-wage economies. Innovation can also play a role in reducing dependencies thanks to the development of alternative materials or new recycling processes for critical raw materials.

The model also looks at the aggregate effects of the green fiscal push scenario on GDP and employment: although small, they will be positive across EU and OECD countries. This positive effect will mainly be driven by productivity improvements induced by R&D investments and learning-by-doing. The EU will benefit the most from the positive effects of low-carbon investments: GDP gains for the EU will reach +1.1% in 2035. In North America, the GDP effect will be positive at +0.4% in 2035, driven by the impact of the Inflation Reduction Act in the US. Employment projections mirror those for GDP and show employment increases of 0.85% for the EU and 0.2% in North America by 2035.

Recent OECD work (Dechezleprêtre and Vienne, forthcoming) also investigates the link between air pollution and productivity and further underlines the economic benefits of policies contributing to air pollution reduction through lower emissions. Existing studies have already shown that air pollution can negatively affect workers' productivity (Zivin and Neidell, 2012), but they consider particular settings (e.g. garment factories in India). Using a large-scale firm-level dataset spanning all European countries, combined with weather and air quality data based on firm location, the findings of this study present causal evidence for a negative effect of air pollution on labour productivity. The effect, driven by firms in the manufacturing sector and in some service industries, appears economically relevant, suggesting important co-benefits of the green transition in terms of higher worker productivity and, thus, economic growth. At the aggregate level, earlier OECD analysis suggests that these effects translate into a negative impact on regional-level GDP (Dechezleprêtre, Rivers and Stadler, 2019).

5. The importance of coherent industrial strategies for inclusive and sustainable growth

The increased attention to climate neutrality and sustainability is evident in the focus of industrial strategies beyond COVID-19 resilience packages, as shown in a recent study by the OECD that makes a novel attempt at quantifying industrial strategies (Criscuolo, Lalanne and Díaz, 2022). The QuIS project is indeed the first to quantify industrial strategies across nine OECD countries over the 2019-2021 period.

The development of this project reflects important recent developments in the economic policy arena, as industrial strategies can further complement the broad policy mix aimed at boosting productivity in an inclusive way discussed in section 3. Notwithstanding scepticism and the recognition of potentially important drawbacks of targeted industrial policies, many economists are reconsidering the role of targeted policies because of economic, technological and societal needs (Rodrik, 2008; Mazzucato, 2018; Bloom, Van Reenen and Williams, 2019). Three main reasons justify this renewed interest (see Criscuolo et al. (2022)).

- Firstly, the presence of market imperfections implies that policy interventions, even those that may introduce distortions, can in fact enhance public welfare when they help achieve a second-best allocation[10].

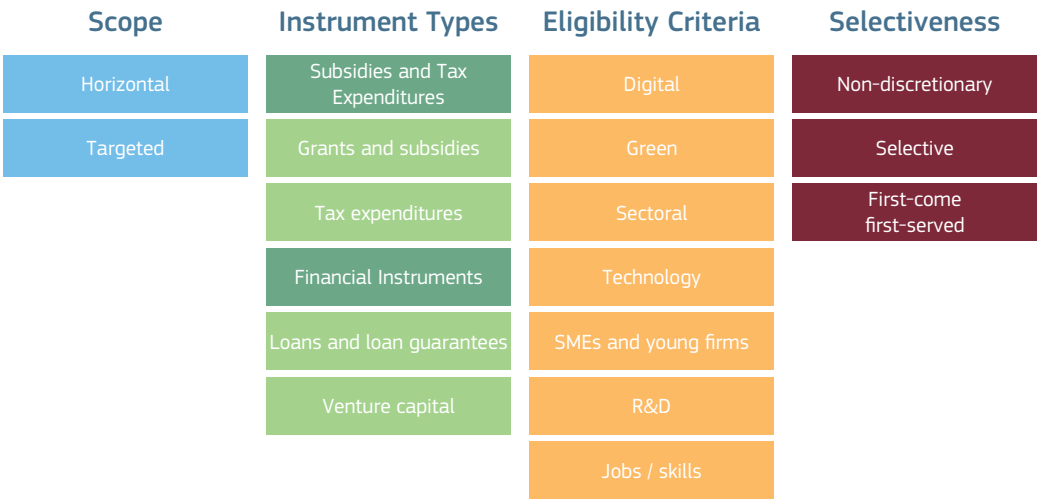
- Secondly, the rapid development and magnitude of technological opportunities and societal challenges necessitate both public impetus/guidance and large-scale private investment. In this respect and as mentioned above, AI is expected to become pervasive in the economy but may also need new rules and new governance frameworks. Governments can also play a role in preventing initial investment gaps in this rapidly evolving environment from leading to entrenchment of incumbent adopters, notably by promoting technology diffusion to improve the productivity of laggard sectors and firms and ensuring efficient allocation and competitive markets.

- Finally, the productivity slowdown, the accompanying increase in productivity dispersion and the decline in labour share presented earlier in the chapter, as well as the increase in wage inequality (Berlingieri, Blanchenay and Criscuolo, 2017; OECD, 2021) place special emphasis on the role of industrial policies in ensuring positive social outcomes. Industrial policies are often praised for reducing geographical and income inequalities and counteracting wage polarisation (Rodrik and Sabel, 2019). The COVID-19 crisis has reinforced these arguments in favour of industrial strategies and put additional emphasis on the importance of climate-neutrality targets, as discussed in the previous section. Furthermore, the risk of disruptions to global value chains, illustrated by the challenges related to the COVID-19 crisis and the heightened geopolitical tensions, have prompted the emergence of economic resilience (in particular of supply chains) and strategic autonomy as new objectives of industrial policy.

10 For instance, inefficient sectoral allocation revealed during crises may justify interventions to favour reallocations. In addition, in some cases, governments have resorted to industrial policies to compensate sectors or firms for the potential loss of competitiveness resulting from foreign policies, including tax, trade and foreign direct investment policies, that are perceived as unfair (see Criscuolo et al. (2022) and references therein).

The ongoing and expanding QuIS project provides a unique source of information on the amount spent on different policy instruments as it gathers and centralises information from publicly available data from many different and decentralised sources on industrial policy expenditures. But importantly, it also classifies them along four dimensions: scope (horizontal vs. targeted measures), instrument type (grants and tax expenditures vs. financial instruments), eligibility criteria areas (e.g. green, sectoral, technology, skills etc.) and selectiveness (see also Figure 10-7).

Figure 10-7 Classification of industrial policy expenditures in the OECD QuIS project



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Source: Criscuolo, Lalanne and Diaz (2022).

This quantification effort is a crucial first step in understanding the importance of developing a coherent non-distortionary industrial strategy to support economic growth that is both inclusive and sustainable.

With the same purpose, the OECD has also developed a framework that highlights the role of demand-oriented instruments (e.g. product regulation and public procurement) and different supply-oriented instruments that aim at increasing the productivity growth of heterogeneous firms (within-firm tool) and support the efficient allocation of resources across firms (between-firm instruments). The latter distinction is a key novelty of the framework that makes it possible to analyse how industrial strategy can foster or hinder the Schumpeterian creative destruction dynamics, a key concern in light of the evidence discussed in this chapter.

One important concern with industrial strategy, as highlighted in recent theoretical models (e.g. Acemoglu et al. (2018)), is that to be effective, it needs to remain competition enhancing and non-distortive. For this goal to be achieved, two key features of an industrial strategy need to be ensured.

The first is coherence and complementarity across the different policy instruments deployed within the industrial strategy and with other policy areas (e.g. competition). Firstly, complementarity is required between investment incentives and policies ensuring access to inputs, such as skill and transfer policies, as they enhance the effectiveness of investment incentives and contribute to increasing the absorptive capacities of the least productive firms, thereby fostering technological diffusion. Secondly, complementarity between instruments affecting firm performance (within) and instruments affecting the static and dynamic allocation of resources across firms (between) is also crucial. In the same vein, complementarity should be ensured with competition policy and framework instruments that enable the entry and exit of firms, allow the most productive firms to grow and incentivise innovation. For instance, state aid might end up favouring some firms over others, in particular incumbent large firms over new or young firms or supporting inefficient or failing firms. This may lead to the survival of less productive firms, impairing reallocation to more productive or new firms. Therefore, the design of such policies is also crucial in order to benefit firms more broadly (e.g. the design of R&D tax incentives with refund provisions which may also support young firms that initially do not generate profits). Theoretical evidence suggests that this complementarity is key for translating firm-level innovation into macroeconomic growth (Acemoglu et al., 2018).

The second relates to the role of sound governance of the strategy in limiting the risk of capture and attenuating information asymmetries (Romer, 1993) and thus avoiding hindering competition and innovation. In particular, it is necessary to favour inclusiveness, notably by ensuring that young firms, and other important stakeholders are invited to participate in the design of whole-of-government industrial strategies and that, to the extent possible, the specifications are technology neutral and do not discriminate between domestic and foreign firms and between incumbents and potential entrants. For this reason, potential general equilibrium effects (sometimes unintended) should also be considered. In addition, ex-ante provisions for ex-post evaluations and plans for regular refit of the instruments and the strategy should be an integral part of any industrial strategy and subsequent reorientations.

In this context, the QuIS project offers a conceptual framework and harmonised measurement of industrial policies, with detailed information on industrial policy expenditures, their composition, their mode of delivery and the characteristics of their beneficiaries. The project lays the ground for cross-country comparisons and evaluation of the effectiveness and efficiency of policies. As such, it is a key tool to promote international coordination, which is another key feature of well-designed industrial strategies.

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