

Egert, Balazs

Working Paper

Investment in OECD Countries: A Primer

CESifo Working Paper, No. 9136

Provided in Cooperation with:

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Egert, Balazs (2021) : Investment in OECD Countries: A Primer, CESifo Working Paper, No. 9136, Center for Economic Studies and Ifo Institute (CESifo), Munich

This Version is available at:

<https://hdl.handle.net/10419/236678>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Investment in OECD Countries: A Primer

Balázs Égert

Impressum:

CESifo Working Papers

ISSN 2364-1428 (electronic version)

Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH

The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute

Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de

Editor: Clemens Fuest

<https://www.cesifo.org/en/wp>

An electronic version of the paper may be downloaded

- from the SSRN website: www.SSRN.com
- from the RePEc website: www.RePEc.org
- from the CESifo website: <https://www.cesifo.org/en/wp>

Investment in OECD Countries: A Primer

Abstract

Aggregate business investment is a major driver of long-term economic growth. It has been weak in many advanced economies over the last decade, partly due to cyclical demand-side effects. Nevertheless, a number of structural factors and policies interact with and have an effect on business investment. This paper provides a survey of the literature on the main policy drivers of business investment such as finance (including bank and market finance, venture capital and the debt bias in corporate taxation), tax policies, foreign direct investment, product and labour market and environmental regulations, the importance of an efficient insolvency regime, the negative impact of (regulatory) uncertainty and the role of infrastructure investment as a support for business investment.

JEL-Codes: E240, C130, C230, C510, L430, L510.

Keywords: aggregate investment, capital deepening, structural policy, product market regulation, labour market regulation, OECD.

Balázs Égert
OECD Economics Department
Paris / France
balazs.egert@oecd.org

The author would like to thank an anonymous referee, Nauro Campos and colleagues at the OECD Economics Department for very useful comments and suggestions. The views expressed in the paper do not reflect the official view of the OECD and any other institution the author is affiliated with.

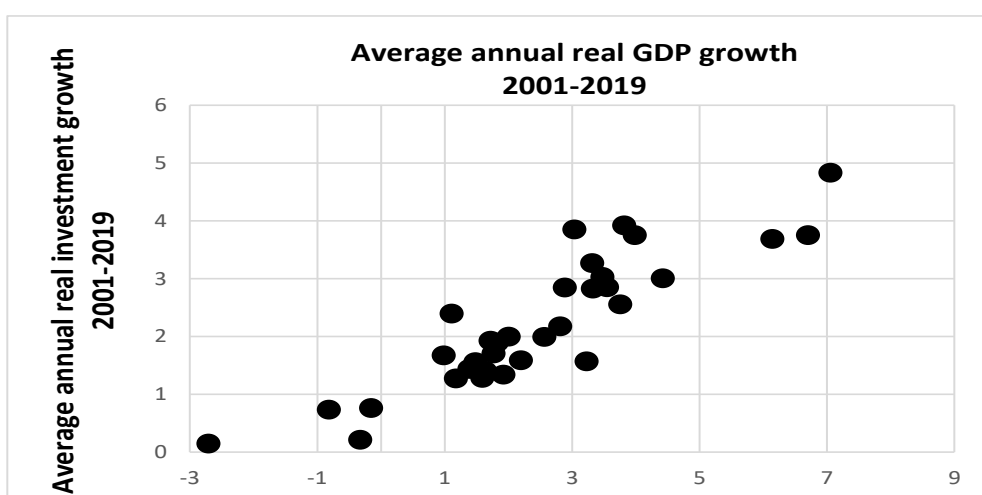
1. Introduction

Investment is an important driver of long-term economic growth (Panel A in Figure 1). Weak investment can lower economic growth and prolonged episodes of weak investment can have long-lasting effects on output. Empirical evidence shows that the trend slowdown in economic growth since the 2007/08 crisis has been driven by weak capital deepening. Countries with the largest economic contractions experienced the largest drop in the growth of their capital stock. In particular, countries with larger capital misallocation in the run-up to the crisis such as the Southern European countries had a larger downward adjustment in the capital stock. The deceleration of trend labour productivity growth after 2008 was to a large extent the result of persistently weak capital deepening (ECB, 2016; Ollivaud et al. 2016; see Panel B in Figure 1).

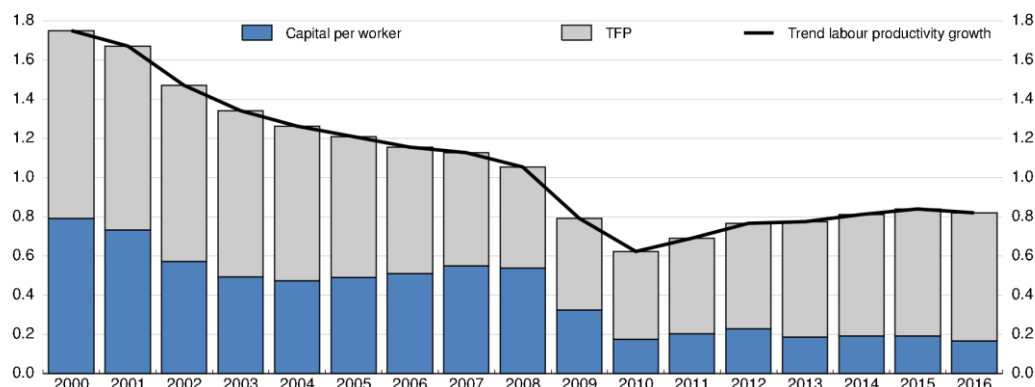
Investment in OECD countries has been weak in the immediate aftermath of the 2007/08 financial and economic crisis (Figure 2). Some argue that business investment evolved after the crisis similar with other post-crisis periods (Ademmer and Jansen, 2018; ECB, 2018) and that business investment recovered by 2016 to its pre-crisis level (EIB, 2017). Taking a longer perspective suggests that investment may not be that weak after all. Aggregate investment reached a low in 2010 comparable during other economic downturns (1983 and 1993) but recovered to its historical average by 2016 (Figure 3), though still well below its peak in 2007. Similarly, business investment exhibits a similar pattern of recovery. Contrary to aggregate investment, it shows a trend increase over time. But similarly to aggregate investment, it is very close to its trend (Figure 3). Looking at individual OECD countries shows that business investment is not particularly weak in comparison with the pre-crisis period, with the exceptions of a handful of countries (Panel A in Figure 4). The picture for aggregate investment is more balanced: investment is below its pre-crisis period for more countries (Panel B in Figure 4).

Figure 1. Investment in OECD countries

Panel A. Investment and GDP growth (% annual average, 2001-2019)



Panel B. Decomposition of growth in trend labour productivity across the OECD



Source: Panel A: Author's calculations using data drawn from the OECD Economic Outlook database; Panel B: Ollivaud et al. (2016)

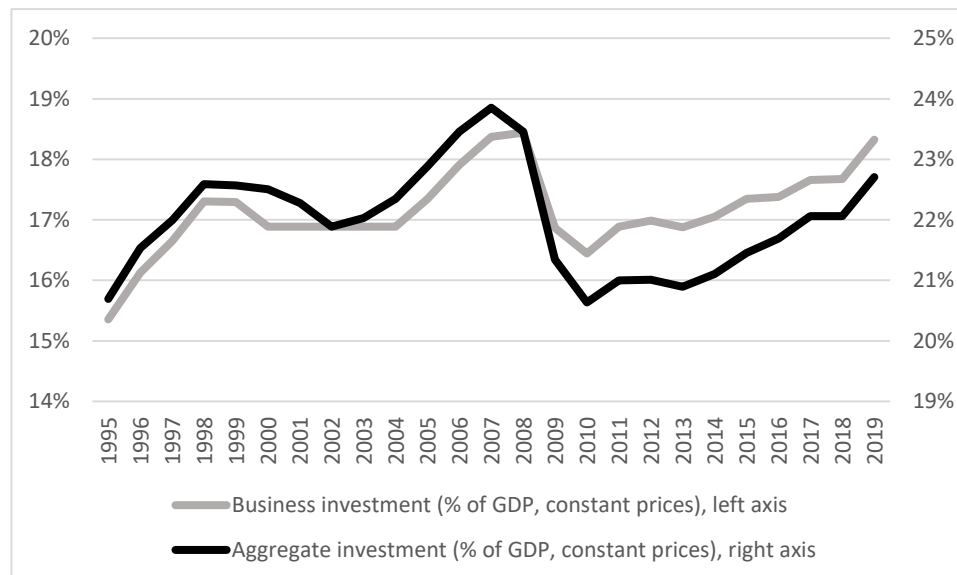
Weakness in investment can be due to a number of reasons related to the business cycle, including weak aggregate demand (Bond et al., 2015; Busetti et al, 2016; ECB, 2016).² Research suggests that weak domestic and foreign demand have been the main driver of the post-crisis weakness in business investment in many advanced countries including France, Germany and the United States (Lewis et al., 2014; OECD, 2015). The case of Germany shows that if weakness in investment is due to weak foreign demand in geographically close markets, business investment may go to faraway markets such as the US or China (Fuentes-Hutfilter et al., 2016).

Part of business investment could have gone 'abroad' to support outsourcing in other countries (Zwart, 2016). Recent studies documented that outsourcing in some advanced countries such as Germany and the Netherlands imply strong FDI outflows (Fuentes-Hutfilter et al., 2016; OECD, 2015; Zwart, 2016). Such capital outflows may have implications for the labour market of the home (originator) country. Empirical research indicates that the impact differs across countries and industries. For instance, FDI outflows are associated with aggregate employment growth in the United States but this relationship is negative in Japan, in particular for FDI going from Japan to China. At the sectoral level, employment reacts strongly to changes in labour costs, especially in manufacturing sectors, which have trade links to non-OECD countries (Molnár et al., 2008). It is, however, not always clear whether outward FDI is a substitute for or complementary to domestic business investment (OECD, 2015).

² There are several alternative models, which help better understand the drivers of aggregate investment. They include the accelerator model, standard neoclassical models of investment, Tobin's Q and the Euler equation. A systematic comparison of alternative models for the US economy indicates that the accelerator model tended to outperform other models until the early 1990s (Oliner et al., 1995).

Figure 2. Business and aggregate investment as a share of GDP (at constant prices)

Average of OECD countries



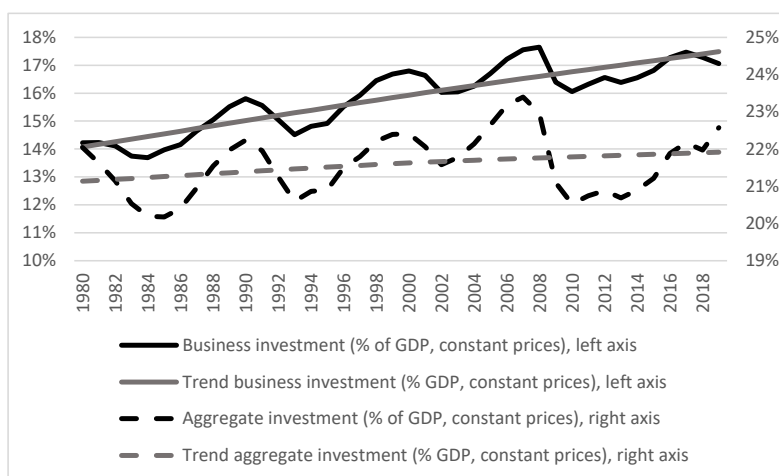
Source: Author's calculations based on data drawn from the OECD Economic Outlook database

Other related cyclical factors may have contributed to the decline in investment over the past years. First, deleveraging following the crisis amplified the decline in investment (Lewis et al., 2014). Second, access to finance has tightened for small and medium-sized businesses. Third, high global uncertainty and lower business confidence have been acting as a drag on business investment (Millar and Sutherland, 2016; ECB 2018; Kopp, 2018). Nevertheless, less uncertainty, reduced financing costs due to accommodating monetary policy and a decline in credit constraints helped the recovery in business investment after 2011 (ECB, 2016, 2018).

Weak investment can, however, become a more structural phenomenon. The cyclical downturn can exacerbate existing structural weaknesses. For instance, uncertainty related to policies and regulations can stabilise at high levels in the aftermath of an economic slowdown or existing uncertainty can become larger. Access to funding may become fundamentally difficult in some countries if an economic downturn hits the banking and financial sector hard. Existing barriers to funding may become unbearably high following an economic crisis.

Business investment recovered both in the USA and Europe, but it was quicker in the USA (ECB, 2016). Nevertheless, investment growth in European countries was one percentage point lower than in the USA. Also, Europe lags behind in terms of investment in machinery and equipment and there is a persistent gap in investment in R&D vis-à-vis the USA. US investment is also more pronounced in automation and digitalisation (EIB, 2019).

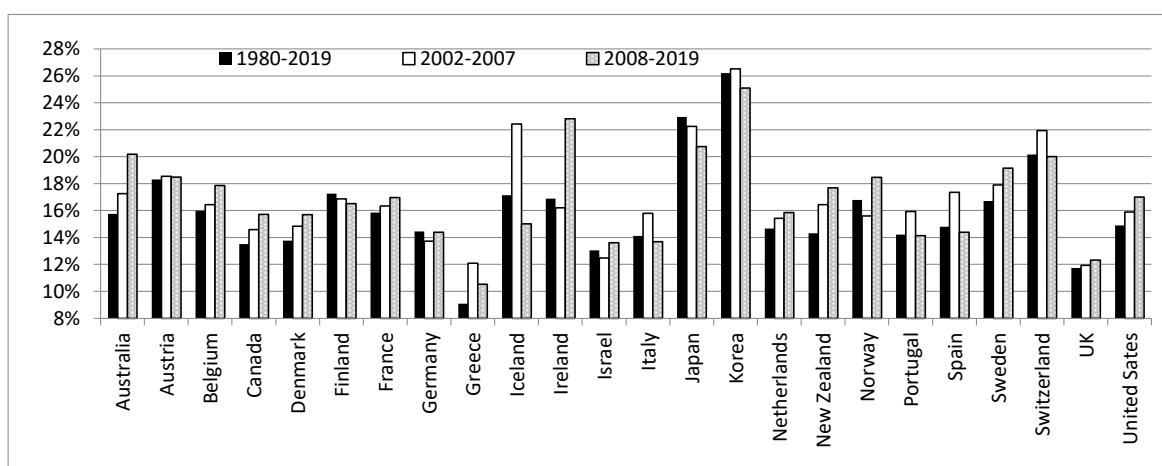
Figure 3. The investment rate in OECD countries, 1970-2016



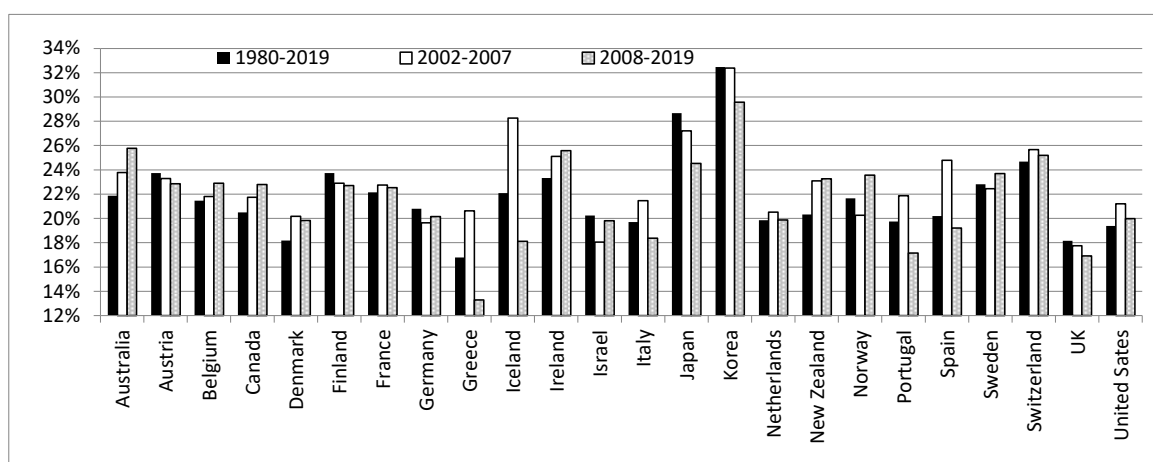
Source: Author's calculations based on data drawn from the OECD Economic Outlook database

Figure 4. Country-specific investment rates in OECD countries, 1970-2016

Panel A. Business investment (% of GDP, constant prices)



Panel B. Aggregate investment (% of GDP, constant prices)



Source: Author's calculations based on data drawn from the OECD Economic Outlook database

2. Structural factors and weak investment after the 2007/08 crisis

Structural policies can affect the level of investment. For instance, anti-competition product and labour market regulations may impede domestic and foreign investment in many OECD countries. Inefficient innovation policies may not give the maximum boost to investment in knowledge-based capital. Highly distortive tax systems may lower investment. Badly-designed insolvency regimes may hold back capital in unproductive sectors and firms. These policies can have a larger effect during downturns and can potentially protract economic recovery.

Other factors related to structural changes in an economy can also lead to low investment rates. First, most advanced OECD economies have experienced a secular de-industrialisation implying a shift from capital-intensive manufacturing sectors to the services sectors, which require less investment, and reducing aggregate investment (OECD, 2015). However, some argue that this effect is not very large in European countries (ECB, 2018). Second, part of business investment could have gone ‘abroad’ not because of demand effects but due to structural changes in the economy. Investing abroad can support outsourcing in other countries (Zwart, 2016). Third, the share of investment in ICT and intangible assets in total investment has been increasing over time. While part of this knowledge-based investment (such as R&D, software and entertainment) is registered in investment statistics, others such as investment in organisation capital, training, new financial products, design and marketing are not. This creates a downward and important bias in official investment statistics (OECD, 2015; ECB, 2018).

The following sections review the empirical evidence on the long-term effects of a range of public policies on investment including access to finance, the tax system and public support of innovation regulation and regulatory uncertainty and surveys country experiences in designing policies to boost investment.

3. Better access to finance is an important driver of investment

Empirical evidence suggests that the development of the financial sector raises (business) investment. For instance, Pelgrin et al. (2002) identify private credit to GDP and stock market capitalisation as important drivers of business investment in advanced OECD countries. These results are confirmed for a larger set of countries covering a more recent period (ECB, 2016; Égert, 2018). In a similar vein, financial constraints discourage investment in several OECD countries (Barkbu et al. 2015; Buseti et al, 2016). Financial constraints arise from the weakness of the banking sector, especially in the case of excessive reliance on bank finance and the lack of market finance and venture capital.

3.1. Access to bank lending

A good majority of OECD countries is dominated by bank finance. The role of corporate bonds and equity finance is negligible. The banking sector may not provide the necessary funding for firms (except for large businesses) because of weaknesses on the asset side and higher borrowing costs, which can be aggravated by high non-performing loans (NPL). Small businesses may face credit rationing as a result of asymmetric information problems. Asymmetric information can hit SMEs particularly hard, given that they have limited collateral. Part of the credit rationing may come from the fact that lending conditions could have been too lenient during the pre-crisis period (Millar and Sutherland, 2016). For instance, changes in bank lending is found to account for about 20% to 40% of changes in aggregate investment in Portugal, mostly through an impact on SMEs (Amador and Nagengast, 2016).

There are a number of ways how to improve the banking sector’s efficiency and hence to increase access to bank lending. In a number of countries including Hungary, Italy and Poland, non-performing loans (NPL)

act as a drag on bank lending. Regulatory incentives such as sanctions as additional provisioning, suspension of dividend payments and restructuring of banking operations could push banks to reduce NPLs through write-offs and sales. Developing the secondary market for NPLs and the creation of asset management companies would also help reduce NPL on the banks' balance sheets. Lending to SMEs could be boosted by encouraging more competition in the market for SME loans by creating a credit register for companies and by increasing publicly available information on lending terms. Standardising the securitisation of SME debt and the valuation of collateral could also boost lending to SMEs. Efficiency could be further enhanced by the reduction of public ownership in commercial banks. Lowering special taxes applied to banks would also decrease the cost of lending (OECD 2016; Zwart, 2016; Arnold, 2017; Pisu, 2017).

3.2. Eliminating the debt bias in corporate taxation

One important reason for the domination of bank (and debt) finance over equity finance is the favourable tax treatment of debt. In most OECD countries, interest payments on debt are generally deductible from taxable income, while dividends paid are not (de Mooij, 2012). Such a tax bias provides strong incentives to take up debt rather than to rely on equity funding. Taking up more debt in a low interest environment may lead to finance equity buybacks instead of financing investment (Blundell-Wignall and Roulet, 2013).

In fact, corporate debt is very high in European countries (ECB, 2016). Tax neutrality would be crucial for a rebalancing of different forms of funding. Debt bias may explain to some extent that many firms became highly leveraged before the crisis. They were then trying to deleverage later on, at the expense of investment. Overall, debt finance is less conducive to long-term innovative and hence risky investment. Against this background, there is scope for reducing the tax bias towards debt financing through tighter limits on interest deductibility and tax allowances for corporate equity in most OECD countries (Arnold, 2017).

3.3. Encouraging market finance and venture capital

Deeper equity markets would help channel capital to small and innovative new businesses as they are likely to help bring together high-risk firms with risk-lover investors. Securitisation of SME loans could boost lending to SMEs as banks would be able to better manage their credit risk (by offloading some the loans from their balance sheet). Such securitisation could be helped by government guarantees to SME bond funds (Haugh et al. 2017). The introduction of firms to stock markets (the so-called initial public offerings, IPOs) would help small businesses access equity capital. Yet, IPOs have been declining even before the 2007/08 crisis (Fuentes-Hutfilter et al. 2016). Simplifying equity listing would increase the attractiveness of stock markets (Pisu, 2017).

Empirical evidence suggests that IPOs backed by venture capital tend to be more successful than those supported by bank finance (Barry and Mihov, 2015). More generally, venture capital is found to have a considerable effect on the creation and growth of new small businesses (Cole et al., 2016). Many OECD countries have very little venture capital funding. One handicap for the development of venture capital is the tax regime including the ban to carry forward losses by start-ups.

Equity investment could be rendered more attractive fiscally, for both investors and companies, to strengthen firms' balance sheets and to support both start-ups and companies with high growth ambitions in a number of OECD countries. Investment would benefit from lifting limitations on the carrying forward of losses when a start-up firm is sold while taking measures to prevent tax evasion. Developing common rules and standards for accounting, corporate credit, insolvency and other capital market regulation could foster the development of regional stock exchanges. Shifting public funding for venture capital would help fund the initial stages of venture capital (Fuentes-Hutfilter et al. 2016; Zwart, 2016; Haugh et al., 2017; Pisu, 2017).

4. Complex corporate income tax systems coupled with high rates are likely to be detrimental to investment

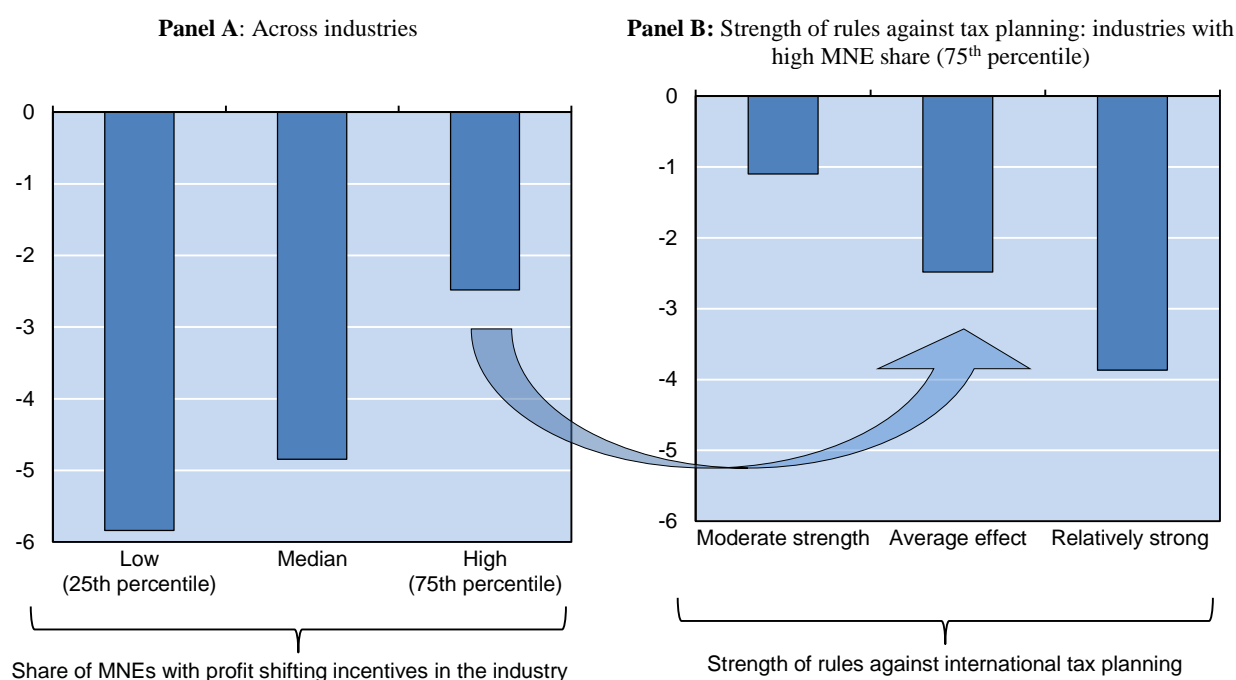
4.1. Tax policies and investment in physical capital

Tax policies play a crucial role on how attractive it is to start a business and to invest. There seems to be consensus that higher corporate tax rates have a detrimental effect on business investment (Sorbe and Johansson, 2016; Alves, 2019). Higher corporate income taxes deter investment through an increase in the cost of capital. This in turn weakens incentives to adopt new technologies and acts as a drag on productivity (Schwellnus and Arnold, 2008). These effects can be identified using both industry- and firm-level datasets. But the impact may differ across firms. Small and young firms are less affected than older firms since young firms are generally not very profitable and large firms can benefit more from tax reductions and exemptions (Arnold et al., 2011).

Yet the possibility of tax planning in an international context is likely to reduce the tax sensitivity of investment. For instance, Sorbe and Johansson (2016) show that regulations preventing profit-shifting opportunities increase the reactivity of investment to the corporate tax rate. In a similar vein, investment in sectors dominated by multinational enterprises (MNEs) reacts less to changes in corporate income taxes than in more closed sectors. A 5 percentage point increase in the effective marginal corporate tax rate is found to lower investment across industries by an average of about 5% in the long term (Figure 5, Panel A). But this effect would be by nearly 50% lower in industries with a high concentration of multinational firms (Figure 5, Panel B). Profit shifting appears to be partly operating through FDI flows. Such flows alter the cross-border allocation of investment and tax revenues (Skeie, 2016). Another dampening effect is increasing market power: business investment can become less sensitive to corporate taxes in the presence of increasing market concentration, such as observed recently in the USA (Kopp et al., 2019).

Figure 5. Tax planning reduces the effect of corporate taxes on investment

Estimated long-term change in investment after a 5 percentage point increase in the corporate tax rate¹



Source: Sorbe and Johansson (2016).

1. The corporate tax rate considered is the marginal forward-looking effective tax rate. All differences in the reaction of investment to tax rate changes are significant at a 5% level.

4.2. Tax policies and investment in intangibles assets

Investment in ICT and knowledge-based capital (KBC) is an important driver of productivity growth. Yet a number of OECD countries lag behind in investment in ICT and KBC. Framework conditions including product and labour market regulations, access to venture capital and bankruptcy laws determine the return on investment in KBC. These framework conditions should not penalise failure (and risk taking) excessively and should allow a rapid reallocation of traditional labour and physical capital to maximise returns on investment in KBC. Research shows that public support including R&D tax incentives and direct support can boost private investment in KBC (Andrews and de Serres, 2012; Andrews and Criscuolo, 2013; Westmore, 2013). Less directly, governments could support innovative activities by providing funds and guaranties to commercial banks to new and innovative companies. In the case of direct public help to R&D activities, the cost effectiveness of policy action is very important. Different programmes and actions need to be reviewed on a regular basis. Those with high returns should be extended and others winded down. R&D grants should be awarded to projects and researchers based on performance and international peer review. The system of innovation funding and actions should be streamlined and consolidated in a few government agencies.

Tax incentives provided to R&D avoid the pitfall of picking winners and are less costly to administer. But such a support impedes cooperation between the private sector and universities and highly favour existing businesses (Zwart, 2016). A special form of tax incentive is the patent or licence box: profits from patents and licences may be taxed at a lower rate. The protection of incumbents impedes or slows down innovation

and the deployment of new technologies. Basic research in sciences, carried out at universities and government research institutes has large positive externalities and would merit public support. Country experience suggests that refunds of R&D tax credits could be extended to loss-making firms and new firms. The effectiveness of recently introduced R&D tax credits and other fiscal incentives should be regularly evaluated in terms of innovation outcomes and forgone tax receipts. Relatedly, the quality of higher education institutions should be increased by linking funding to research performance (Haugh, 2013; Millar and Sutherland, 2016).

5. Factors driving foreign direct investment

The vast literature on foreign direct investment shows that large and more productive firms export more and they sometimes buy domestic firms in foreign countries rather than export (Greenaway and Kneller, 2007). Nevertheless, this kind of horizontal FDI aimed to avoid trade costs is dominated by vertical FDI driven by cross-border cost reduction. This is especially so for high-skill sectors in developed countries (Alfaro and Charlton, 2009). Empirical evidence suggests that letting in more FDI leads to a modernisation of the production structure and to an improvement of the quality of exports in the host country (Javorcik et al. 2017; Harding and Javorcik, 2011).

Most of FDI outflows come from OECD countries and these countries also receive 75% of worldwide FDI flows. It appears that geographical and cultural distance, human capital, trade agreements and the quality of infrastructure are important drivers of FDI flows (Agiomirgianakis et al. 2003). For instance, the UK's EU membership raised FDI inflows by about 30% (Bruno et al., 2016). The financial system is also an important driver: countries with similar financial system receive larger FDI inflows. Integrated banking and capital markets, such as long planned in the EU would promote FDI flows (Dellis, 2019). The European Investment Bank's enterprise surveys also confirm that a lack of financial integration in Europe, in particular the strong home bias with regard to the allocation of savings, acts as a drag on growth and investment (EIB, 2019). Institutions also matter. FDI activity is strong in countries with similar institutional framework even though firms from developed countries are able to adapt more easily to the institutional distance to developing countries than the other way around (Cezar and Escobar, 2015). Higher labour taxes paid by employees hamper FDI inflows (Egger and Radulescu, 2011) and greater union density resulting in higher wages boosts outward FDI (Mukherjee and Suetrong, 2012). FDI flows appear to flow to countries with favourable corporate taxation (Economou et al., 2017) and favour countries with stable political institutions (Wisniewski and Pathan, 2014).

Research indicates that foreign investment promotion by governments, especially if of good quality, works well in developing countries but much less in industrialized economies (Harding and Javorcik, 2010; Harding and Javorcik, 2012). There is also some evidence that institutions, financial development and human capital might be less important in the host emerging and developing countries (Bruno et al, 2017; Blonigen and Piger, 2014).

6. Investment and regulation

6.1. More stringent product market regulation as a drag on investment

Less stringent product market regulations are often viewed to boost aggregate investment in OECD countries. If the direct and indirect costs of starting a business are low, the number of business start-ups will increase. This in turn can translate into more investment. Similarly, pro-competitive product market regulation is likely to push firms to invest more to stay ahead of competitors or to allow the entry of new competitors willing to invest. Cutting red tape and administrative burden reduces the costs related to capital stock adjustment. This could boost investment (Nicoletti and Scarpetta, 2005). More competition, up to a point, gives incentives to

invest and to innovate to stay ahead of competitors. It pushes for the adoption of better management practices, encourages the investment in organisational, knowledge-based (KBC) and information and communication technology (ICT) capital (Fuentes Hutfilter et al. 2016).

There is some empirical evidence that supports this consensus view. First, the European Investment Bank's enterprise surveys have been pointing out that about two-third of firms, especially less efficient ones, perceive heavy business regulation as a drag on investment (EIB, 2018). Second, studies looking at the seven network sectors for which the OECD's Energy Transport and Communications Regulation (ETCR) indicator measuring product market regulation is available (electricity and gas, post and telecommunications, road freight, air and rail transport) find a strong negative correlation between barriers to entry and investment: higher barriers to entry are associated with lower investment in these sectors (Alesina et al., 2005; Égert, 2009). This strong negative correlation becomes weaker once all sectors of the economy are considered (Vartia, 2008). At the firm level covering network industries, a weak negative relationship can be identified between barriers to entry and investment (Araujo, 2011). At the same time, pinning down a relationship between overall regulation (and public ownership) and investment is difficult (Cambini and Rondo, 2011).

At the country level, less stringent product market regulation (covering state control, barriers to entrepreneurship and barriers to trade and investment) is associated with higher investment (Kerdrain et al., 2010). It appears that investment in ICT is particularly sensitive to economy-wide product market regulation (Conway et al., 2006). Recent research shows that more stringent product market regulations are associated with less investment (lower capital stock) (ECB, 2016; Égert, 2018). Figure 6 indicates the effects of product market reforms on investment: a typical reform in OECD countries would boost the investment rate by 4 percent in the long run. This corresponds to an increase of 0.4 percent in per capita income levels. Extending the analysis to emerging market economies confirms the role of policies for capital deepening. More competition-friendly regulations, in particular lower barriers to entry and less pervasive state control of the business sector are associated with higher capital stock and employment rate. Labour market regulations have a negative impact on capital deepening but these effects are small economically (Égert, 2020).

Country experiences provide insights on what policies could do to underpin business investment. First, the reduction of the cost and time of starting a business and facilitating the entry of new firms would increase investment, especially if accompanied by better enforcement. The positive effects of reforms may not materialise if pro-competition regulations are not properly implemented or are simply not enforced. Enforcement may be a problem in the less developed OECD countries of Southern and Eastern Europe, Turkey and Mexico. Second, the opening up for new entrants of the competitive segments of network industries and levelling the playing field between incumbents and new entrants can help investment. Therefore, market power of (mostly incumbents) should be limited. Third, easing entry barriers to professional services including notaries, lawyers, architects, building engineers, accounting and legal services, and a number of other craft professions could spur more competition in these sectors, in particular in Germany, Spain and the United States. Incumbents would invest more to keep their competitive advantage and new entrants would invest to increase market shares. Finally, easing entry regulations in the retail sector through a more transparent process of granting permissions and licences would help investment. Allowing promotions and discounts and reducing restrictions on shop opening hours in the retail sector would spur competition and investment (Miller and Sutherland, 2016; OECD 2016; Haugh et al., 2017).

6.2. Direct and indirect regulations matter for foreign direct investment

Inward FDI helps the diffusion of technology, which is of utmost importance for countries further away from the technological frontier. International trade can also foster technological spill-overs. An empirical study looked at the relative importance of FDI and trade for technology diffusion for the United Kingdom and found that FDI boosts technological progress in the UK much more than trade (Hubert and Pain, 2000).

Another strand of studies finds a negative link between foreign direct investment (FDI) and regulations aimed at FDI (Nicoletti et al, 2003; Fournier, 2015). In fact, barriers to FDI are often considered as barriers to entry

to local markets (Greenaway and Kneller, 2007). Regulations applying to overall/domestic investment have more ambiguous effects. First, entry barriers to specific sectors are likely to discourage greenfield investment but they would encourage foreign investment in already existing firms, which have some market power arising from the existing entry barriers. Second, domestic regulations increasing production costs can deter FDI in the export sector, as higher costs would make products less competitive internationally. But stringent regulations can boost the inflow of FDI in the production of goods and services for the domestic market. Less restrictive regulations abroad and the resulting more efficient production structure of firms can give rise to a competitive edge over incumbent domestic firms bogged down by domestic regulation. (Nicoletti and Scarpetta, 2005).

Reducing barriers to inward FDI can have second round effects on productivity. For instance, more FDI in the services sector increases the variety, quality and availability of services. If these services are used as intermediate inputs in manufacturing sectors, such changes boost productivity in manufacturing. Empirical studies using firm-level data confirm this hypothesis for the Czech Republic and India (Arnold et al., 2011 and 2014).

Recent research shows that cross-country differences in product market regulation affects FDI negatively. Cross-country differences play a more important role for specific regulations such as the protection of incumbents (antitrust exemptions and barriers in services) and to a lesser extent for command and control regulations and barriers to entry in network sectors. Reducing cross-country heterogeneity in regulation by 20% would boost FDI on average by about 15%. Labour market regulations and the complexity of regulation are also important. Stricter employment protection legislation (EPL) and more complex regulatory systems can have a substantial negative effect on FDI. Finally, being part of the EU's single market boosts FDI, whereas belonging to NAFTA reduces FDI flows. This latter finding may suggest that FDI and trade are substitutes in NAFTA (Fournier, 2015).

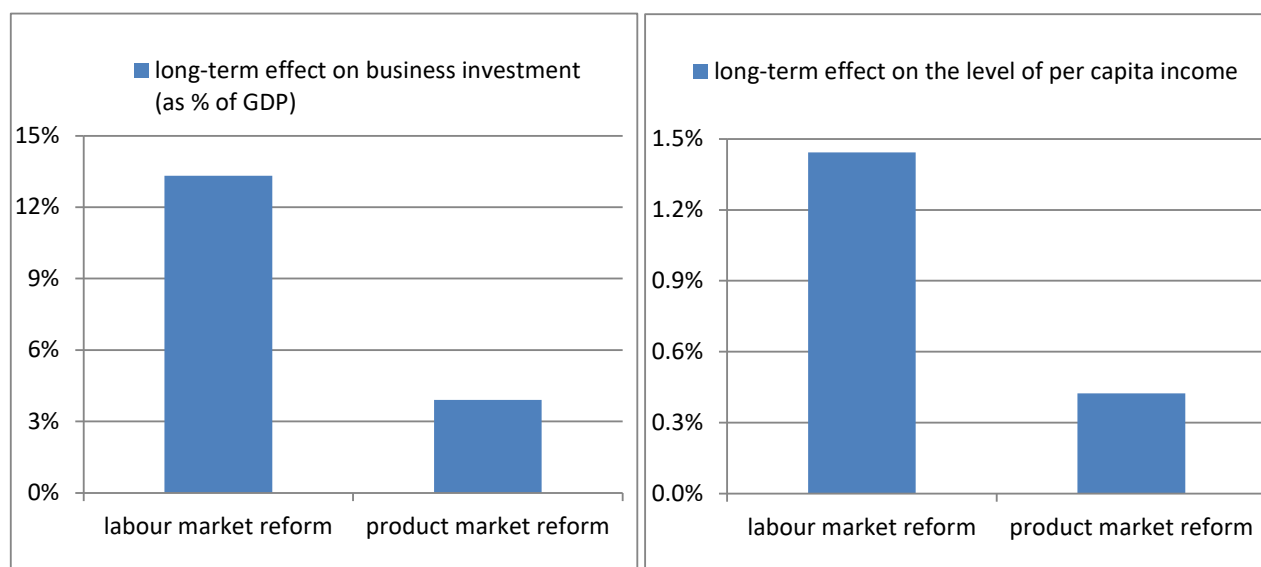
6.3. Stricter labour market regulations can hamper investment

Labour market regulation can have opposing effects on capital deepening. If capital and labour are complementary, more stringent labour market regulations, acting as a drag on employment, will also have a negative effect on investment and hence capital deepening. By contrast, if capital and labour are substitutes, stricter labour market regulations would boost investment as capital would substitute for labour. At the macroeconomic level, recent research suggests that more stringent employment protection legislation (EPL) has a negative effect on capital deepening, and the negative influence of EPL is considerably stronger at higher levels of EPL (Egert, 2017). Figure 6 shows the effects of EPL reforms on capital deepening: a typical reform would boost the investment rate by 12% in the long run. However, studies using sector- and firm-level datasets produce mixed results.³

Nevertheless, the empirical evidence is mixed regarding the relation between capital stock and labour market regulation especially at the firm and industry level. Autor et al. (2007) document for US firms that higher firing costs are linked to a higher capital stock and capital-to-labour ratios. But they show that the effect becomes negative for alternative specifications. Using a panel of European firms, Cingano et al. (2010) find that more stringent EPL reduces investment per worker and capital per worker. By contrast, focusing only on Italian firms, Cingano et al. (2015) show that the introduction of unjust-dismissal costs raises the capital-to-labour ratio in firms with less than 15 employees compared to larger firms. Finally, according to Cetto et al. (2016), at the sector level, more stringent EPL has a positive effect on non-ICT capital, a non-significant effect on ICT capital and impacts negatively R&D capital. It is worth mentioning here that according to the European Investment Bank's enterprise survey, two third of firms perceive labour market regulations as a

hurdle for further investment (EIB, 2018). The EIB survey also suggests that labour is complementary to capital: firms think that a shortage of skill is an obstacle for investment (EIB, 2018, 2019).

Figure 6. The effects of typical product and labour market reforms on investment and per capita income, 5 years after reform



Notes: Typically observed reforms are measured as the average improvements in the policy indicators over all two year windows that show improvements in both periods.

Source: Calculations based on Égert and Gal (2016).

6.4. The coordination of product and labour market policies and institutions matters for investment

The case of the Netherlands demonstrates the need to coordinate product and labour market regulations. Even though it is easy to start a business, business dynamics may suffer if labour market regulations are binding (Zwart, 2016). Strict labour market regulations implying costly labour reallocation provides little incentives to invest in and experiment with new and risky technologies (Fuentes-Hutfilter et al. 2016). Also, collective bargaining covering entire sectors can prohibit the entry of new firms as new entrants might pay lower wages than the incumbents (Arnold, 2017). The quality of general institutions reflected in the rule of law are an important factor for stronger investment (ECB, 2016).

Empirical research finds that product and labour market policies interact with each other: higher levels of product market regulations tend to amplify the negative relationships between EPL and the capital stock. Equally important is the finding that the rule of law and the quality of (legal) institutions alters the overall impact of regulations on capital deepening. Better institutions reduce the negative effect of more stringent product and labour market regulations on the capital stock, possibly through the reduction of uncertainty as regards the protection of property rights. This result also implies that the benefit from product and labour market reforms may be smaller in countries with weaker institutions (Égert and Gal, 2016; Égert, 2018).

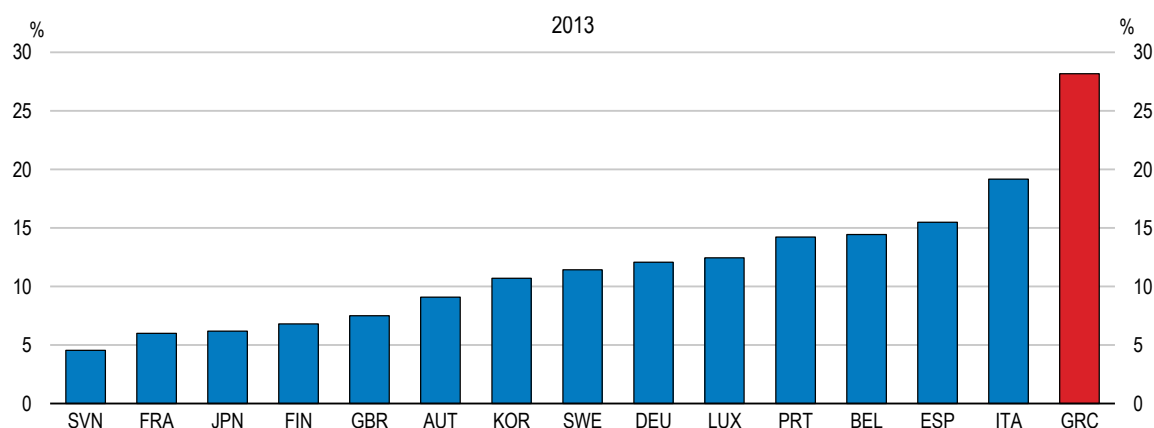
6.5. Environmental regulations have an ambiguous effect on investment

The influence of environmental policies on investment is ambiguous. More stringent environmental regulations can trigger investment in more energy-efficient assets. On the other hand, tighter environmental regulations can reduce business investment though raising the costs of capital. Tighter environmental regulations tend to have a robust but economically small negative effect on overall investment of listed firms in 30 OECD countries. The effect is, however, positive for firms, which operate in more energy-intensive sectors. For domestic investment, the negative impact is similar across firms, irrespective of their energy intensity. These results suggest that energy-intensive firms tend to offshore their activities to countries with less stringent environment regulations (so-called pollution havens) (Dlugosch and Kozluk, 2017). The reallocation effect can be further investigated by looking at firms' FDI decisions. A related paper finds that tighter environmental regulations increase to some extent outward FDI in energy-intensive manufacturing sectors (Garsous and Kozluk, 2017).

7. Efficient insolvency regimes free up capital and boost investment

Difficulties in restructuring inefficient and shutting down unviable businesses may trap capital and labour in low-productivity firms and can act as a drag on investment. The presence of non-viable, so-called zombie firms, also increases barriers to entry by raising the price of capital and labour. New entrants have indeed been more productive to compensate for higher input prices (Adalet McGowan et al., 2017; Arnold, 2017; Pisu, 2017). Zombie firms are identified to be particularly relevant in Italy, Spain and Finland (Figure 7). (Adalet McGowan et al., 2017). Insolvency regimes are identified to be key for the orderly exit of failing firms. The specific design matters for the efficient functioning of insolvency regimes. (Adalet McGowan and Andrews, 2016). Country experience indicates that bankruptcy legislation facilitating quick exit by reducing trial length and the backlog of pending court cases favours investment. Debt equity swaps could force creditors to share the burden of firm restructuring. Personal bankruptcy procedures should not reduce the incentives for entrepreneurship (Haugh et al, 2017).

Figure 7: Capital trapped in zombie firms



Source: Adalet McGowan and Andrews (2016).

8. High (regulatory) uncertainty is not helpful for investment

Investors, with some exceptions, are notorious to dislike uncertainty: the higher the uncertainty about the framework conditions, the higher the level of risk (and at any given level of risk tolerance), the lower the incentives to invest (Leahy and Whited, 1996; Carruth et al., 2000). In addition, during periods of weak demand, uncertainty can weigh even more on investment: if the risk of negative surprises is high, businesses tend to postpone or cancel their investment projects (Banerjee et al., 2015; Barkbu et al, 2015; Busetti et al, 2016). This exacerbates the impact of weak demand on investment (Fuentes-Hutfilter et al. 2016).

Regulatory uncertainty can have damaging effects on investment. Regulatory uncertainty arises if regulations are very complex and difficult to interpret. But regulatory uncertainty also arises if there are frequent and unexpected changes in overall business conditions including administrative procedures to start a business, taxation and product and labour market regulations (Epstein, 2011; Baker et al. 2013, 2016). The extent of broad regulatory uncertainty is mostly correlated with the quality of institutions and concerns young and small business in an over-proportionate manner (Davis, 2015).

Regulatory uncertainty, in a narrower sense, concerns sector-specific regulations and regulators. Regulated network sectors, such as electricity, gas or telecommunications, are vulnerable to regulatory uncertainty. Regulatory uncertainty is arguably higher under rate-of-return regulation (when utilities are allowed to increase prices if there costs are rising to maintain a given return on investment) because investment decisions (what can be included in the rate base) are usually evaluated on a case-by-case basis, while firms operating under incentive regulation (when price increases are unrelated to changes in firm-specific costs) are less affected by this behaviour. Empirical evidence suggests that incentive regulation encourages investment, most probably into cost-reducing technologies. In addition, a sector regulator not independent from the government translates into higher regulatory uncertainty, which in turn deters investment (Sutherland et al., 2011). Therefore, an independent sector regulator would strengthen the investment climate. A head of the sector regulator with a fixed-term non-renewable contract and who cannot be recalled without justification can withstand political pressures better and is more likely to make well-informed decisions. Regulatory uncertainty can arise if new regulations are implemented hastily, without stakeholder consultation and a regulatory impact assessment. Exemptions and exoneration from specific provisions also increases uncertainty (OECD, 2016).

Insights from country experiences indicate that improving the transparency, stability and formulation of regulatory policies and cutting red tape reduces regulatory uncertainty. In particular, a more extensive and better use of regulatory impact assessments (RIA) for sector-specific and economy-wide regulations by possibly engaging with stakeholders in *ex ante* consultative processes would go a long way towards reducing uncertainty in Italy. RIA would enhance transparency of major policy initiatives in many OECD countries including Germany. Establishing a regulatory impact assessment (RIA) commission and developing a common framework for measuring and evaluating policy and regulatory measures would increase the quality of RIAs. Also, improving the independence of the heads of sector regulators and the competition authorities would increase predictability. Fixed-term, non-renewable mandates during which the heads of regulatory bodies cannot be dismissed without fault would be instrumental in Poland as well as the prevention of revolving-door opportunities for ingoing and outgoing heads of regulatory bodies. Next, the transparency on the role of lobbies in the design of new legislation and regulation needs to be improved in many OECD countries. Furthermore, removing sector exemptions to apply the competition policy framework as widely as possible would increase the stability of the regulatory environment. Finally, pursuing the privatisation in competitive segments of the economy would reduce the rationale for discretionary government intervention to protect or consolidate State-owned enterprises in a number of OECD countries (Goujard, 2016, OECD, 2016, Pisu, 2017).

9. The role of infrastructure investment

Policy debate has focused on the use of public investment, in particular targeted at physical infrastructure to jump-start economic growth in OECD countries (Warner, 2014) and that targeted efficient infrastructure investment can support the recovery of business investment (Abiad et al., 2015; ECB, 2016; 2018). Nevertheless, an important share of infrastructure investment is carried out by sub-national governments, which face several fiscal constraints (EIB, 2018, 2019).

Countries with a relatively low capital stock such as Germany and the United Kingdom would benefit most. By contrast, the impact could be even negative for Japan given the country's high public capital stock and the low or negative rates of return on new public investment (Mourougane et al., 2016). Investment in infrastructure can boost directly and indirectly business investment, especially if such investment went hand in hand with product market reforms targeted at realising constraints holding back demand for investment (Mourougane et al., 2016). Some studies show that investment in healthcare and education infrastructure can have positive long-term effects (Fournier and Johansson, 2016).

Recent findings suggest that public investment has substantial growth dividends and that these gains may be lower at higher levels of public capital stock (Fournier, 2016). Relatedly, there is some evidence, from annual and multi-year growth regressions, that infrastructure investment has positive effects that go beyond the impact to be expected from a larger capital stock. Infrastructure investment appears to have a nonlinear effect with on average a stronger long-term effect on growth at lower levels of provision. At the same time, these effects can differ across OECD countries. There is indeed some evidence suggesting episodes of both under- and over-investment and of both efficient and inefficient use of investment (Sutherland et al., 2011).

Improving the design of policies aimed at infrastructure investment is one of the key policy challenges. A first observation is that policymakers should make sure that existing infrastructure is used efficiently. Well-designed user fees, congestion charges and the introduction of third-party access upon incumbent infrastructure operators can enforce an efficient use of existing infrastructure networks and could signal more accurately bottlenecks where undertaking investment in new capacity may be necessary (Sutherland et al., 2011).

Incentive regulation, including price caps and benchmarking for infrastructure services, can help ensure that investment is cost reducing and mimics a competitive environment. Independence and accountability of the sectoral regulators can help establish a stable and credible framework for infrastructure investment.

Empirically, there is evidence that regulatory independence boosts investment, especially in electricity and telecommunications (Cambini and Rondi, 2011). Incentive regulation might also help investment (Cullmann and Nieswand, 2016), especially when combined with an independent regulator (Égert, 2009). However, setting access prices for users of infrastructure is challenging for the regulator, with the possibility of too low a price leading to underinvestment and too high a price leading to inefficient bypass (Vogelsang, 2010).

Removing entry barriers including vertical separation of potentially competitive segments of network industries from the natural monopoly part and enforcing third party access to network bottlenecks (natural monopoly segments) is likely to boost investment in the network industries. Empirical results suggest that such barriers appear to be particularly harmful for investment in the energy and telecommunication sectors (Alesina et al, 2005).

Another important policy lesson is that boosting interconnections between regional and national energy markets play an important role in the efficient use of networks and help prevent setting up regional or national entry barriers by incumbent operators. Reviewing past experience sheds light on how public sector ownership and provision should be designed to secure efficient investment decisions. Public-private partnerships (PPPs), extensively relied on in the United Kingdom, Spain and Korea, can make it possible for the private sector to get involved in the provision of infrastructure. But the design of PPPs is crucial. First, transparent decision making about whether or not to use concessions and PPPs is important. Second, the risk-sharing scheme and investment incentives throughout the concession period should be clearly specified. Finally, it is important to follow investment decisions and assess performance during the contract period (Sutherland et al., 2011)

The quality of fiscal institutions is reflected in how efficiently public spending and in particular public investment projects are carried out. Regular spending reviews and objective cost-benefit analyses (CBA) can help separate the wheat from the chaff (Goujard, 2016). Many OECD countries rely to a very limited extent on Private Public Partnerships (PPP), including those financed by EU funds. Yet private sector involvement through PPPs can help fund and raise the quality of infrastructure projects. The success of PPPs hinges crucially on framework conditions. Bad policy design may result in shifting considerable risk from the private sector onto the government. More generally, well-designed public procurement is a cornerstone of high-return public investment projects. E-procurement is an efficient means to reduce costs and exploit economies of scale (Fuentes-Hutfilter et al. 2016). The lack of efficiency in public procurement is a major challenge in some OECD countries. If tenders are tailored to specific companies, if the probability of corruption concerning public procurement is high, if public procurement procedures lack competition, and if contractors are chosen based on price rather than quality considerations, public investment projects are likely to deliver suboptimal results (Goujard, 2016; OECD 2016)

10. Conclusion

This paper surveyed a good number of policies having a strong impact on business investment. It is now well understood that good access to finance raises business investment. Improving the banking sector's efficiency would go along to improve access to bank lending. In many OECD countries, non-performing loans act as a drag on bank lending. Regulators should help reduce non-performing loans in banks' balance sheets, increase the securitisation of SME debt and introduce credit registry to limit problems related to asymmetric information. Second, deeper equity markets would help channel capital to small and innovative new businesses as they may help bring together high-risk firms with risk-lover investors. For instance, simplifying equity listing would increase the attractiveness of stock markets. Venture capital funding plays a minor role in most OECD countries. One important reason for the domination of bank (and debt) finance over equity finance is the favourable tax treatment of debt. Reducing the tax bias towards debt financing through tighter limits on interest deductibility and tax allowances for corporate equity would help re-establish tax neutrality.

Another important area is the tax system. There is consensus that higher corporate tax rates have a negative impact on business investment via increasing the cost of capital. Large firms benefit more from tax reductions and exemptions whereas small and young firms are less concerned as they are generally not very profitable. Designing stable and not very complex tax systems with low rates and large tax bases would cut red tape and be beneficial for investment.

Many OECD countries have low levels of investment in intangibles and knowledge-based capital. Framework conditions including product and labour market regulations, access to venture capital and bankruptcy laws determine the return on such investment. These framework conditions should not penalise failure (and risk taking) excessively and should allow a rapid reallocation of traditional labour and physical capital to maximise returns on such investment. Public support including R&D tax incentives and direct support can also help unlock investment in such assets.

Stringent product market regulation can harm investment. If the direct and indirect costs of starting a business are low, the number of business start-ups will increase. This in turn can translate into more business investment. Similarly, pro-competitive product market regulation is likely to push firms to invest more to stay ahead of competitors or to allow the entry of new competitors willing to invest. Cutting red tape and administrative burden reduces the costs related to capital stock adjustment. This could boost investment. More competition gives incentives to invest and innovate to stay ahead of competitors. It pushes for the adoption of better management practices, encourages the investment in organisational, knowledge-based and information and communication technology capital. Therefore, public policies should strive to ease the regulatory burden on starting and running businesses.

Difficulties in restructuring inefficient businesses may keep capital and labour in low-productivity firms and hence penalise investment. Capital trapped in inefficient firms is particularly relevant in Italy, Spain and Finland. Insolvency regimes are very important for the orderly exit of failing firms. The specific design matters for the efficient functioning of insolvency regimes.

High regulatory uncertainty can have damaging effects on business investment. The higher the uncertainty about the framework conditions, the higher the level of risk, the lower the incentives to invest. Regulatory uncertainty arises if regulations are very complex and difficult to interpret. But regulatory uncertainty also arises if there are frequent and unexpected changes in overall business conditions including administrative procedures to start a business, taxation and product and labour market regulations. Designing and sticking to transparent regulations are key to boost business investment.

Needless to say that the policies surveyed in this paper vary substantially across countries. A careful and country-specific analysis would be needed to see how individual OECD countries would benefit most from policy reforms to underpin business investment. A potentially very interesting avenue for future research would be to assess quantitatively, in a unified framework, the effects of different policies on business investment and their relative contributions.

Bibliography

- Abiad, A., D. Furceri and P. Topalova (2015), The macroeconomic effects of public investment: Evidence from advanced economies, *IMF Working Papers* No. 15/95.
- Adalet McGowan, M. and D. Andrews (2016), Insolvency regimes and productivity growth: A framework for analysis, *OECD Economics Department Working Papers* No. 1309.
- Adalet McGowan, M., D. Andrews and V. Millot (2017), The walking dead? Zombie firms and productivity performance in OECD countries, *OECD Economics Department Working Papers* No. 1372.
- Ademmer M. and N. Jannsen (2018), Post-crisis business investment in the euro area and the role of monetary policy, *Applied Economics*, 50:34-35
- Agiomirgianakis, G. M., Asteriou, D. and Papathoma, K. (2003), The determinants of foreign direct investment: a panel data study for the OECD countries, (03/06). London, UK: Department of Economics, City University London.
- Alesina, A., S. Ardagna, G. Nicoletti, F. Schiantarelli, 2005, Regulation and investment, *Journal of the European Economic Association*, 3(4), 791-825.
- Alfaro, L. and A. Charlton (2009), Intra-Industry Foreign Direct Investment, *American Economic Review*, 99(5), 2096-2119.
- Alves, J. (2019). The Impact of tax structure on investment: An empirical assessment for OECD countries. *Public Sector Economics*, 43(3), 291-309.
- Amador, J. and A.J. Nagengast (2016), The effect of bank shocks on firm-level and aggregate investment, *Deutsche Bundesbank Discussion Papers* 20/2016.
- Andrews, D. and A. de Serres (2012), Intangible assets, resource allocation and growth: A framework for analysis, *OECD Economics Department Working Papers* No. 989.
- Andrews, D. and C. Criscuolo (2013), Knowledge-based capital, innovation and resource allocation, *OECD Economics Department Working Papers* No. 1046.
- Araujo, S., 2011, Has deregulation increased investment in infrastructure?: Firm-level evidence from OECD countries, *OECD Economics Department Working Paper* No. 892.
- Arnold, J. (2011), Raising investment in Brazil, *OECD Economics Department Working Paper* No. 990.
- Arnold, J. (2017), Raising business investment in Portugal, OECD mimeo.
- Arnold, J. M, B. Brys, C. Heady, A. Johanson, C. Schwellnus and L. Vartia (2011), Tax policy for economic recovery and growth, *Economic Journal*, 121(550), 59-80.
- Arnold, J.M., B.S. Javorcik and A. Mattoo (2011), Does services liberalisation benefit manufacturing firms? *Journal of International Economics*, 85(1), 136-146.
- Arnold, J.M., B.S. Javorcik, M. Lipscomb and A. Mattoo (2014), Services reform and manufacturing performance: Evidence from India, *Economic Journal*, 126(590), 1-39.
- Autor, D. H., W. R. Kerr and A. D. Kugler (2007), Does employment protection reduce productivity? Evidence from US States, *Economic Journal*, 117(521), 189-217.
- Baker, S. R., N. Bloom and S. J. Davis (2016), Measuring Economic Policy Uncertainty, *Quarterly Journal of Economics*, 131(4), 1593-1636.
- Baker, S. R., N. Bloom, B. Canes-Wrone, S. J. Davis and J. Rodden (2013), Why Has U. S. Policy Uncertainty Risen Since 1960? *American Economic Review, Papers & Proceedings*, 104(5), 56-60.

- Banerjee R. N., J. Kearns and M. J. Lombardi (2015), (Why) Is investment weak?, *BIS Quarterly Review*, Bank for International Settlements, March.
- Barkbu, B., S. P. Berkmen, P. Lukyantsau, S. Saksonovs and H. Schoelermann (2015), Investment in the euro area: why has it been weak? *IMF Working Papers* No. 15/832.
- Barry, C. B. and V.T. Mihov (2015), Debt financing, venture capital, and the performance of initial public offerings, *Journal of Banking & Finance*, 58, 144–165.
- Blonigen, B. A. and J. Piger (2014), Determinants of foreign direct investment, *Canadian Journal of Economics*, 47(3), 775-812.
- Blundell-Wignall, A. and C. Roulet (2013), Long-term investment, the cost of capital and the dividend and buy-back puzzle. *OECD Journal Financial Market Trends*, (1), 1–15.
- Bond S., G. Rodano and N. Serrano-Velarde (2015), Investment dynamics in Italy: Financing constraints, demand and uncertainty, *Bank of Italy Occasional Papers* No. 283.
- Bond S. and C. Meghir, 1994, Dynamic investment models and the firm's financial policy, *The Review of Economics Studies*, 61(2), 197-222.
- Bruno, R., N. Campos and S. Estrin (2017), The benefits from foreign direct investment in a cross-country context: A meta-analysis, *CEPR Discussion Paper* No. 11959.
- Bruno, R., N. Campos, S. Estrin and M. Tian (2016), Foreign direct investment and the relationship between the United Kingdom and the European Union, *CEP Discussion Paper* No. 1453.
- Busetti F., C. Giordano and G. Zevi (2016), The drivers of Italy's investment slump during the double recession, *Italian Economic Journal*, 2, 143-165.
- Cambini, C and L. Rondi (2011), Regulatory independence, investment and political inference: Evidence from the European Union, *RSCAC Working Paper* 2011/42, European University Institute.
- Carruth, A., A. Dickerson and A. Henley (2000), What do we know about investment under uncertainty?, *Journal of Economic Surveys*, 14(2), 119-153.
- Cette, G., J. Lopez and J. Mairesse (2016), Labour market regulations and capital intensity, *NBER Working Papers* No. 22603.
- Cezar, R. and O. R. Escobar (2015), Institutional distance and foreign direct investment, *Review of World Economics / Weltwirtschaftliches Archiv*, 151(4), 713-733.
- Chirinko, R. (1993), Business fixed investment spending: modelling strategies, empirical results, and policy implications, *Journal of Economic Literature*, Vol. 31(4), pp. 1875-1911.
- Cingano, F., M. Leonardi, J. Messina and G. Pica (2010), The effect of employment protection legislation and financial market imperfections on investment: evidence from a firm-level panel of EU countries, *Economic Policy*, 25(61), 117–63.
- Cingano, F., M. Leonardi, J. Messina and G. Pica (2015), Employment protection legislation, capital investment and access to credit: evidence from Italy, *Economic Journal*, 126(595), 1798-1822.
- Cole, R., D.J. Cumming and D. Li (2016), Do banks or vcs spur small firm growth? *Journal of International Financial Markets, Institutions, & Money*, 41, 60–72.
- Conway, P., D. de Rosa, G. Nicoletti and F. Steiner (2006), Productivity, competition and productivity convergence, *OECD Economics Department Working Papers* No. 509.
- Cullmann, A. and M. Nieswand (2016), Regulation and investment incentives in electricity distribution: An empirical assessment, *Energy Economics*, 57, 192-203.

- Davis, S.J. (2015), Regulatory Complexity and Policy Uncertainty: Headwinds of Our Own Making, *Stanford University Hoover Institution Working Paper* No. 15118.
- De Mooij, R. (2012), Tax Biases to Debt Finance: Assessing the Problem, Finding Solutions, *Fiscal Studies*, 33 (4), 489-512.
- Dlugosch, D. and T. Kozluk (2017), Energy prices, environmental policies and investment: Evidence from listed firms, *OECD Economics Department Working Papers* No. 1378.
- Economou, F, C. Hassapis, N. Philippas, C. Tsionas, N. Philippas and M. Tsionas (2017), “Foreign direct investment in OECD and developing countries”, *Review of Development Economics*, 21(3), 527-42.
- Égert, B. (2009), Infrastructure investment in network industries: The role of incentive regulation and regulatory independence, *CESifo Working Paper Series* No. 2642.
- Égert, B. (2018), Regulation, institutions and aggregate investment: new evidence from OECD countries, *Open Economies Review*, 29(2), 415-449.
- Égert, B. (2020), The quantification of structural reforms: Taking stock of the results for OECD and non-OECD countries, *CESifo Working Paper Series* No. 8778.
- Égert B and P. Gal (2016), The quantification of structural reforms in OECD countries: A new framework, *OECD Journal: Economic Studies*, 2016(1), 91-108.
- Egger, P. and d. M. Radulescu (2011), Labour taxation and foreign direct investment, *Scandinavian Journal of Economics*, 113(3), 603-636.
- Epstein, R. A. (2011), Design for Liberty: Private Property, Public Administration, and the Rule of Law, Harvard University Press.
- European Central Bank (2016), Business investment developments in the euro area since the crisis, *Economic Bulletin*, July.
- European Central Bank (2018), Business investment in EU countries, *ECB Occasional Paper Series* No. 215.
- European Investment Bank (2017), From recovery to sustainable growth, Investment Report 2017/2018
- European Investment Bank (2018), Retooling Europe’s economy, Investment Report 2018/2019
- European Investment Bank (2019), Accelerating Europe’s transformation, Investment Report 2019/2020
- Fournier, J. (2015), The negative effect of regulatory divergence on foreign direct investment, *OECD Economics Department Working Papers*, No. 1268.
- Fournier, J. (2016), The Positive Effect of Public Investment on Potential Growth, *OECD Economics Department Working Papers* 1347.
- Fournier, J. and Å. Johansson (2016), The Effect of the Size and the Mix of Public Spending on Growth and Inequality, *OECD Economics Department Working Papers*, No. 1344.
- Fuentes Hutfilter, A., A. Kappeler, D. Schneider, G.M. Semeraro (2016), Boosting investment performance in Germany, *OECD Economics Department Working Paper* No. 1326.
- Gal, P. and A. Hijzen (2016), The short-term impact of product market reforms: A cross-country firm-level analysis, *OECD Economics Department Working Papers* No. 1311.
- Garsous, G. and T. Kozluk (2017), Foreign direct investment and the pollution haven hypothesis: evidence from listed firms, *OECD Economics Department Working Paper* No. 1379.
- Giordano C., M. Marinucci and A. Silvestrini (2016), Investment and investment financing in Italy: some evidence at the macro level, *Bank of Italy Occasional Papers* No. 307.

- Goujard, A. (2016), Improving transport and energy infrastructure investment in Poland, *OECD Economics Department Working Papers* No. 1302.
- Greenaway, D. and R. Kneller (2007), Firm Heterogeneity, Exporting and Foreign Direct Investment, *Economic Journal*, 117(517), 134-161
- Harding T. and B. S. Javorcik (2010), Roll out the red carpet and they will come: Investment promotion and FDI inflows, *University of Warwick Working Paper Series* No. 18.
- Harding T. and B. S. Javorcik (2011), FDI and export upgrading, *University of Oxford Department of Economics Discussion Paper Series* No. 526.
- Harding T. and B. S. Javorcik (2012), Investment promotion and FDI flows: Quality matters, *University of Oxford Department of Economics Discussion Paper Series* No. 612.
- Haugh, D. (2013), From bricks to brains: Increasing the contribution of knowledge-based capital to growth in Ireland, *OECD Economics Department Working Papers* No. 1094.
- Haugh, D., M. Adalet McGowan, D. Andrews, A. Caldera Sánchez, G. Fülöp and P. Garia Perea (2017), Fostering innovative business investment in Spain, *OECD Economics Department Working Papers* No. 1387.
- Hubert, F. and N. Pain (2000), Inward investment and technical progress in the UK manufacturing sector, *OECD Economics Department Working Papers* No. 268.
- Javorcik, B. S., A. T. Turco and D. Maggioni (2017), New and improved: Does FDI boost production complexity in host countries? *Economic Journal*, 128, 2507-2537.
- Kerdrain, C., I. Koske and I. Wanner (2010), The impact of structural policies on saving, investment and current accounts, *OECD Economics Department Working Papers* No. 815.
- Kopp, E. (2018), Determinants of U.S. business investment, *IMF Working Paper* No. 18/139.
- Kopp, E., D. Leigh, S. Mursula and S. Tambunlertrchai (2019), U.S. investment since the Tax Cuts and Jobs Act of 2017, *IMF Working Paper* No. 19/119.
- Leahy, J. V. and T.M. Whited (1996), The effect of uncertainty on investment: Some stylized facts, *Journal of Money, Credit and Banking*, 28(1), 64-83.
- Lee, J. and P. Rabanal (2010), “Forecasting U.S. investment”, *IMF Working Papers* No. 10/246.
- Lewis, C., N. Pain, J. Stráský and F. Menkyna (2014), Investment gaps after the crisis, *OECD Economics Department Working Papers* No. 1168
- Millar, J. and D. Sutherland (2016), Unleashing private sector productivity in the United States, *OECD Economics Department Working Papers* 1328.
- Molnár, M., N. Pain, D. Taglioni (2008), Globalisation and employment in the OECD, *OECD Economic Studies* 34(3), 1-34.
- Mourougane, A., J. Botev, J. Fournier, N. Pain, E. Rusticelli (2016), Can an Increase in Public Investment Sustainably Lift Economic Growth?, *OECD Economics Department Working Papers*, No. 1351.
- Mukherjee A. and K. Suetrong (2012), Unionisation structure and outward foreign direct investment, *Journal of Institutional and Theoretical Economics*, 168(2), 266-279.
- Nicoletti, G. and S. Scarpetta (2005), Regulation and economic performance: product market reforms and productivity in the OECD, *OECD Economics Department Working Papers* No. 460
- Nicoletti, G., S. Golub, D. Hajkova, D. Mirza and K-Y Yoo (2003), Policies and international integration: influences on trade and foreign direct investment, *OECD Economics Department Working Papers* No. 359.

- OECD (2015), Lifting investment for higher sustainable growth, Chapter 3, OECD Economic Outlook 2015/1.
- OECD (2016), OECD Economic Survey of Hungary, Paris.
- Oliner, S., G. Rudebusch and D. Sichel (1995), New and old models of business investment: a comparison of forecasting performance, *Journal of Money, Credit and Banking*, Vol. 27(3), pp. 806-826.
- Ollivaud, P., Y. Guillemette and D. Turner (2016), Links between weak investment and the slowdown in productivity and potential output growth across the OECD, *OECD Economics Department Working Papers* No. 1304.
- Pelgrin, F., S. Schich, A. de Serres (2002), Increases in business investment rates in OECD countries in the 1990s: How much can be explained by fundamentals? *OECD Economics Department Working Papers* No. 327.
- Pisu, M. (2017), Promoting a private investment renaissance in Italy, *OECD Economics Department Working Papers* No. 1388.
- Schwellnus, C. and J. Arnold (2008), Do corporate taxes reduce productivity and investment at the firm level? Cross-country evidence from the Amadeus dataset, *OECD Economics Department Working Papers* No. 641.
- Simmons-Süer, B. (2016), Cost of capital and US investment: Does financing matter after all?, *The Quarterly Review of Economics and Finance*, 60(C), 86-93.
- Skeie, O. B. (2016), International differences in corporate taxation, foreign direct investment and tax revenue, *OECD Economics Department Working Papers* No. 1359.
- Sorbe, S. and A. Johansson (2016), International tax planning and fixed investment, *OECD Economics Department Working Papers* No. 1361.
- Sutherland, D., S. Araujo, B. Égert and T. Kozluk (2011), Infrastructure Investment: Links to Growth and the Role of Public Policies, *OECD Journal: Economic Studies*, 2011(1), 1-23.
- Tevlin, S. and K. Whelan (2003), Explaining the investment boom in the 1990s, *Journal of Money, Credit and Banking*, Vol. 35(1), pp. 1-22.
- Vartia, L. (2008), How do taxes affect investment and productivity? – An industry-level analysis of OECD countries, *OECD Economics Department Working Papers* No. 656.
- Vogelsang, I. (2010), Incentive regulation, investments and technological change, *CESifo Working Paper Series* No. 2964.
- Warner, A.M. (2014), Public investment as an engine of growth, *IMF Working Paper* No. 14/148/
- Westmore, B. (2013), R&D, patenting and growth: The role of public policy, *OECD Economics Department Working Papers* No. 1047.
- Wisniewski, T.P. and S.K. Pathan (2014), “Political environment and foreign direct investment: Evidence from OECD countries”, *European Journal of Political Economy*, 36, pp. 13-23.
- Zwart, S. (2016), Enhancing private investment in the Netherlands, *OECD Economics Department Working Papers* No. 1305.