

CONFRONTING THE ZOMBIES: POLICIES FOR PRODUCTIVITY REVIVAL

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CONFRONTING THE ZOMBIES: POLICIES FOR PRODUCTIVITY REVIVAL

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This paper integrates work conducted at the OECD Economics Department in the context of the WP1 project on Exit Policies and Productivity Growth. The full set of studies on which it is based is listed below and can be found online at: www.oecd.org/eco/growth/exitpoliciesandproductivitygrowth.htm.

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Andrews, D. and F. Petroulakis (2017), “Breaking the Shackles: Zombie Firms, Weak Banks and Depressed Restructuring in Europe”, *OECD Economics Department Working Papers*, No. 1433, OECD Publishing, Paris. <http://dx.doi.org/10.1787/0815ce0c-en>

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Adalet McGowan, M. and D. Andrews (2016), “Insolvency Regimes And Productivity Growth: A Framework For Analysis”, *OECD Economics Department Working Papers*, No. 1309, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5jlv2jqhxgq6-en>

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Abstract/Résumé

Confronting the zombies: policies for productivity revival

Policies that spur more efficient corporate restructuring can revive productivity growth by targeting three inter-related sources of labour productivity weakness: the survival of “zombie” firms (low productivity firms that would typically exit in a competitive market), capital misallocation and stalling technological diffusion. New OECD policy indicators show that there is much scope to improve the design of insolvency regimes in order to reduce the barriers to restructuring of weak firms and the personal costs associated with entrepreneurial failure. Insolvency regime reform can not only address the aforementioned sources of productivity weakness but also enhance the productivity impacts of reducing entry barriers in product markets. As the zombie firm problem may partly stem from bank forbearance, complementary reforms to insolvency regimes are essential to ensure that a more aggressive policy to resolve non-performing loans is effective. Distortions in the banking sector highlight the importance of market-based financing instruments for productivity growth with the inherent debt bias in corporate tax systems emerging as a key barrier to technological diffusion. Finally, well-designed job search and retraining policies are effective at returning workers displaced by firm exit to work, particularly in environments where barriers to firm entry are low.

JEL classification: D24, G21, G32, G33, G34, J63, J68, K35, L25, O16, O40, O43, O47.

Keywords: Productivity, insolvency, banks, zombie firms, capital misallocation, firm exit.

Affronter les zombies: politiques pour ranimer la productivité

Les politiques stimulant des restructurations d’entreprises plus efficaces peuvent relancer la croissance de la productivité en ciblant trois sources interdépendantes de faiblesse de la productivité: la survie des entreprises « zombies » (ces entreprises non viables qui normalement sortiraient du marché dans un environnement concurrentiel), la mauvaise répartition du capital et le blocage de la diffusion technologique. De nouveaux indicateurs sur les régimes d’insolvabilité des pays montrent qu’une marge de manœuvre importante existe pour réduire les barrières à la restructuration des entreprises en difficulté et les coûts personnels liés à l’échec entrepreneurial. Les réformes des régimes d’insolvabilité peuvent non seulement répondre aux sources de faiblesse de la productivité susmentionnées mais aussi augmenter les impacts sur la productivité de la réduction des barrières à l’entrée sur les marchés de produits. Le problème des entreprises zombies pouvant provenir en partie du laxisme du système bancaire, des réformes complémentaires des régimes d’insolvabilité sont essentielles pour assurer l’efficacité des politiques visant à alléger le fardeau des prêts non-performants. Les distorsions dans le secteur bancaire mettent en lumière l’importance du recours au marché pour le financement des entreprises afin d’assurer la croissance de la productivité. Dans ce contexte, le biais en faveur du financement par dette bancaire dans les systèmes d’impôts sur les sociétés apparaît comme un obstacle majeur à la diffusion technologique. Enfin, des politiques actives du marché du travail bien conçues sont efficaces pour le retour à l’emploi des travailleurs qui le perdent en raison d’une fermeture d’entreprise, particulièrement dans les environnements où il existe peu de barrières à l’entrée.

Classification JEL: D24, G21, G32, G33, G34, J63, J68, K35, L25, O16, O40, O43, O47.

Mots-clés : Productivité, insolvabilité, banques, entreprises zombies, mauvaise répartition du capital, sortie d’entreprise.

CONFRONTING THE ZOMBIES: POLICIES FOR PRODUCTIVITY REVIVAL

Main findings

- Policies that shape the scope for corporate restructuring are linked to three inter-related sources of labour productivity weakness: the survival of “zombie” firms (low productivity firms that would typically exit in a competitive market), capital misallocation and stalling technological diffusion. Reforming these policies is therefore a powerful tool for reviving productivity growth, especially in conjunction with reforms that facilitate firm entry, access to finance and worker mobility.
- New OECD policy indicators suggest that the inappropriate design of insolvency regimes may stymie productivity growth by delaying the liquidation (i.e. exit) or restructuring of weak firms. Reforms to insolvency regimes can:
 - Reduce the share of capital sunk in zombie firms, which in turn spurs the reallocation of capital to more productive firms.
 - Revive weak firms by raising the likelihood that zombie firms subsequently return to better financial health and the weakest non-zombie firms avoid turning into zombies. This implies lower social costs via job churn than if insolvency reforms only raised aggregate productivity via the exit of weak firms.
 - Facilitate technological diffusion by promoting experimentation and providing laggard firms with the scope to implement the necessary business changes to move closer to the technological frontier.
- Banking sector distortions emerge as a key barrier to corporate restructuring and productivity growth:
 - Analysis shows that zombie firms are more likely to be connected to weak banks, suggesting that the zombie firm problem may partly stem from bank forbearance.
 - Weak banks amplify capital misallocation by reducing the ability of productive firms to attract capital to underpin their growth.
- These problems in the banking sector underscore the urgency of initiatives to diversify the source of corporate financing away from bank lending towards market-based debt and equity financing:
 - Reducing the debt bias in corporate tax systems can not only foster the development of equity financing but is also found to support technological diffusion by fostering investments in knowledge-intensive activities that are typically more reliant on equity financing.
 - More developed venture capital (VC) markets can facilitate technological diffusion and the productivity catch-up of laggard firms to the global frontier.

-
- Insolvency reforms that accelerate the initiation and resolution of insolvency proceedings are complementary to the core venture capital business model, which relies on the aggressive reallocation of resources across the investment portfolio from failing to high-performing ventures.
 - Reforms that accelerate corporate restructuring can have powerful effects on productivity, but also carry social costs. Active labour market policies – e.g. job search and retraining – are particularly powerful in returning workers displaced by firm exit to work, thus helping to reconcile the productivity potential of creative destruction with social inclusion.
 - Reform packages should be designed to synergistically leverage three key policy complementarities:
 - By reducing market congestion and thus providing new entrants with sufficient space to grow, more effective insolvency regimes can enhance the productivity gains arising from reducing entry barriers in product markets.
 - Improvements in bank health are more likely to be associated with a reduction in the share of zombie firms when insolvency regimes do not unduly inhibit corporate restructuring. Thus, the productivity impact of policies to resolve non-performing loans will be boosted by reforms to insolvency regimes that make corporate restructuring easier.
 - Active labour market policies are more effective when regulatory barriers to firm entry are low, because job opportunities are more abundant in places where innovative new firms can enter the market and grow.

1. Introduction

Creative destruction is a key feature of well-functioning economies. Over the long-run, productivity growth is sustained by leading firms' experimentation with new ideas, the broad diffusion of advanced technologies and business practices and the reallocation of scarce resources to their most productive uses. There is growing recognition, however, that the productivity slowdown experienced over the past two decades is partly rooted in a rise of adjustment frictions that rein in the creative destruction process (Andrews et al., 2016; Gopinath, et al., 2017; Decker et al., 2016). One important dimension of this phenomenon is that firms that would typically exit or be forced to restructure in a competitive market – i.e. “zombie” firms – are increasingly lingering in a precarious state to the detriment of aggregate productivity. In this view, reviving productivity growth will partly depend on the policies that effectively facilitate the exit or restructuring of weak firms, while simultaneously coping with any social costs that arise from a heightened churning of firms and jobs. To this end, policies need to be reformed and packaged to enhance productivity growth in an inclusive fashion.

Against this background, this paper summarises the policy messages emerging from a large amount of cross-country research on Exit Policies and Productivity Growth (see Appendix A). Main findings are reported under two main headings. First, the paper provides evidence for the conjecture that weak firms are stifling productivity growth and highlights the considerable scope for raising growth by spurring the orderly exit or restructuring of such firms. Second, it explores the potential for insolvency, financial and other reforms to revive productivity growth by addressing three inter-related sources of structural weakness in labour productivity: the survival of “zombie” firms, capital misallocation and stalling technological diffusion.

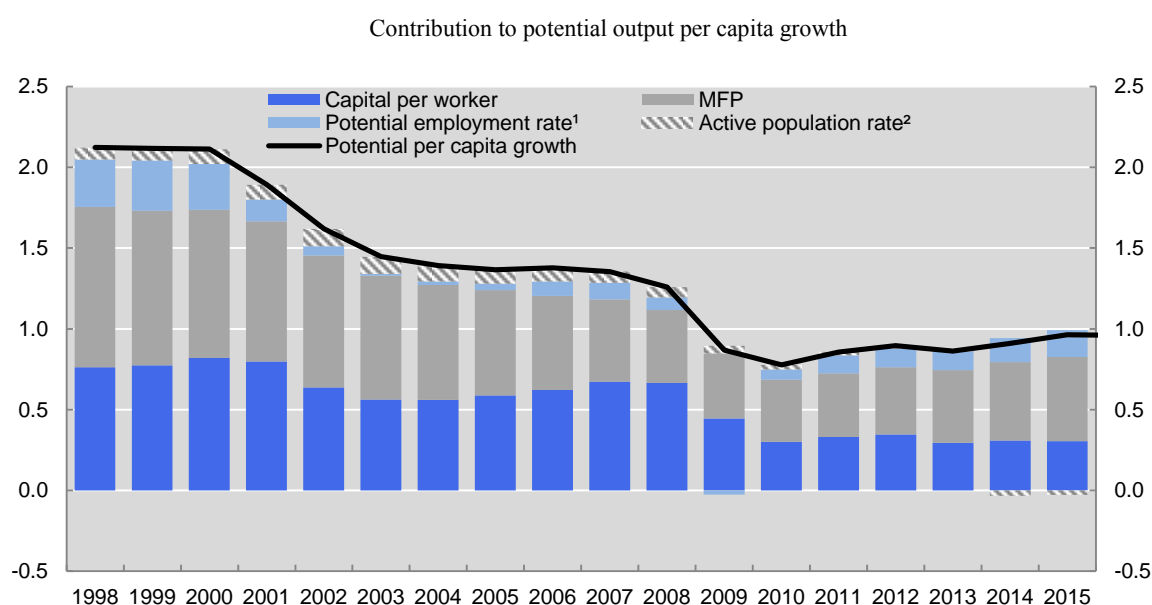
Overall, the results suggest that there is much scope to revive productivity growth via reforms focused on improving the design of insolvency regimes, financial sector health and other dimensions of policy that spur corporate restructuring. Lowering barriers to restructuring of weak firms and the personal costs incurred by failed entrepreneurs as well as addressing non-performing loans (NPLs) emerge as key elements in this respect. But maximising the productivity benefits of these reforms requires in parallel policies to ease barriers to firm entry, including by developing private equity markets, and to eliminate the debt bias in corporate tax systems. To make such reforms socially acceptable, they need to be flanked by policies that manage the costs of worker displacement, such as well-designed active labour market policies (ALMPs). Crucially, however, the “bang for the buck” of ALMPs is enhanced when regulatory barriers to firm entry are low, while well-designed insolvency regimes can boost the productivity impacts of reforms designed to reduce NPLs and barriers to firm entry. Thus, packaging reforms to exploit their synergies and complementarities can ensure that the full productivity benefits of reforms are realised, while also promoting greater inclusiveness.

2. Are weak firms stifling productivity growth?


Potential output growth has slowed by about one percentage point per annum across the OECD since the late 1990s, which is entirely accounted for by a pre-crisis slowing in multi-factor productivity (MFP) growth and more recent weakness in capital deepening (Figure 1; Ollivaud, et al., 2016). This aggregate slowdown is particularly concerning in light of micro-level evidence suggesting that the business dynamism of OECD economies – in terms of both entry and exit of firms – has been declining over the past two decades.

While much research has been devoted to the structural and policy factors stifling firm entry, much less is known about the policy determinants of the exit or restructuring of weak firms. Yet, as the evidence below demonstrates, firms whose performance is so weak that they would typically be expected to fail or be restructured in normal competitive conditions are increasingly lingering in markets in many countries. The experience of Japan in the 1990s suggests that the costs to aggregate productivity from the inability to dispose of or restore to health such ailing firms are large (Caballero et al, 2008; Peek and Rosengren, 2005). A closer focus is therefore needed on the efficacy of policies that potentially affect the exit and restructuring of weak firms.

Figure 1. Decomposition of the growth rate of OECD potential output per capita



Source: OECD, Economic Outlook 99 database.

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2.1. Micro dimension to the aggregate productivity slowdown

Looking behind the headline statistics, micro-level studies reveal three key inter-related sources of structural weakness in OECD productivity. First, the aggregate productivity slowdown masks a widening performance gap between more productive and less productive firms (Andrews, Criscuolo and Gal, 2016). This divergence is not just driven by frontier firms pushing the technological boundary outward, but by stagnating productivity at laggard firms related to the declining ability of or incentives for such firms to adopt best practices from the frontier – a breakdown of the diffusion machine.

Second, in well-functioning markets, rising productivity dispersion would be expected to yield strong incentives for productive firms to aggressively expand and drive out less productive firms. But, opposite to this expectation, the propensity for high productivity firms to expand and low productivity firms to downsize has declined over time. This pattern is evident not only in the United States (Decker et al., 2016), but it is particularly stark in Southern Europe, where scarce capital has been increasingly misallocated to low productivity firms (Gopinath et al., 2017).

Third, business dynamism has declined across OECD countries (Criscuolo, Gal and Menon, 2014). Not only is there a decline in the share of recent entrants, but also a rising survival probability of marginal firms that would typically exit or be restructured in a competitive market. At the same time, the average productivity of firms on the margin of exit has fallen. These three stylised facts – rising productivity dispersion, capital misallocation, and declining business dynamism – are consistent with a decline in the contestability of markets, implying that it has become relatively easier for weak firms that do not adopt frontier technologies to survive (Andrews et al., 2016).

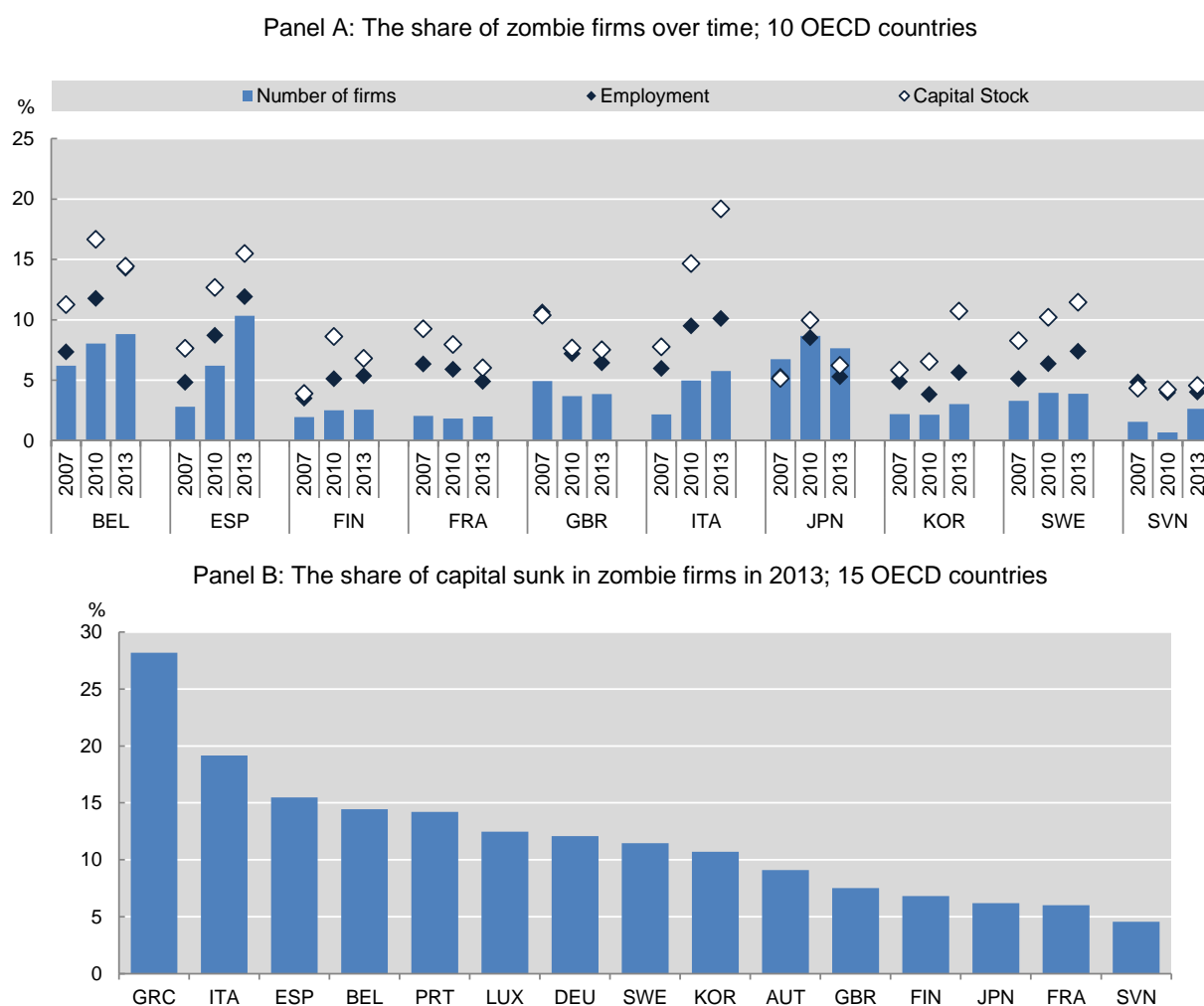
This phenomenon is studied in more depth by Adalet McGowan et al (2017a), who document the rise in zombie firms and their implications for aggregate productivity. In this analysis, zombies are defined as old firms (i.e. age 10 years or above) that cannot cover their interest payments with their profits for three consecutive years, but the key conclusions are not particularly sensitive to a range of other criteria used to identify zombie firms. On average across countries, the research shows that the prevalence of zombie firms – based on the above measure – has risen between 2003 and 2013, despite a decline in their labour productivity relative to non-zombie firms. These patterns are particularly salient in a number of countries, where the productive resources sunk in zombie firms have significantly risen since the mid-2000s (Figure 2, Panel A). In Italy, for example, the share of the industry capital stock sunk in zombie firms rose from 7% to 19% between 2007 and 2013. These post-crisis developments are particularly significant given that recessions typically provide opportunities for productivity-enhancing reallocation and firm restructuring (Caballero and Hammour, 1994).

2.2. Zombie firms as a barrier to productivity growth

While the increasing survival of weak firms weighs on average productivity, the consequences for aggregate growth are far worse. Since such firms capture scarce resources, their prolonged survival (or their delayed restructuring) constrains the growth opportunities of healthier firms. Econometric analysis – which controls for cyclical influences – shows that when more industry capital is sunk in zombie firms (henceforth zombie congestion), the average non-zombie firm undertakes less investment and hiring of workers than otherwise (Adalet McGowan et al., 2017a). But the story does not end there because the concept of the average firm is tenuous in the context of the widespread heterogeneity in firm productivity within narrowly-defined sectors. In fact, zombie congestion disproportionately crowds-out the growth in capital stock of more productive firms, thus slowing aggregate MFP growth via less efficient capital reallocation (Adalet McGowan et al., 2017a).

Intuitively, zombie congestion can adversely affect the growth opportunities of healthier firms via two possible channels. First, zombie congestion could reduce the return on potential investment projects and thus make expansion less attractive for healthy firms by inflating wages relative to productivity, depressing market prices and undermining profitability. Put differently, zombie congestion creates barriers to entry, whereby entrants must clear a higher productivity threshold in order to compensate for lower market profitability. This is reflected in the widening average MFP gap between zombie and young non-zombie firms as industries become more zombie-infected (Figure 3, Panel B). Similarly, zombie congestion constrains the ability of those particularly productive young firms to upscale, proxied by post-entry employment growth (Figure 3, Panel A).

Figure 2. The rise of zombie congestion



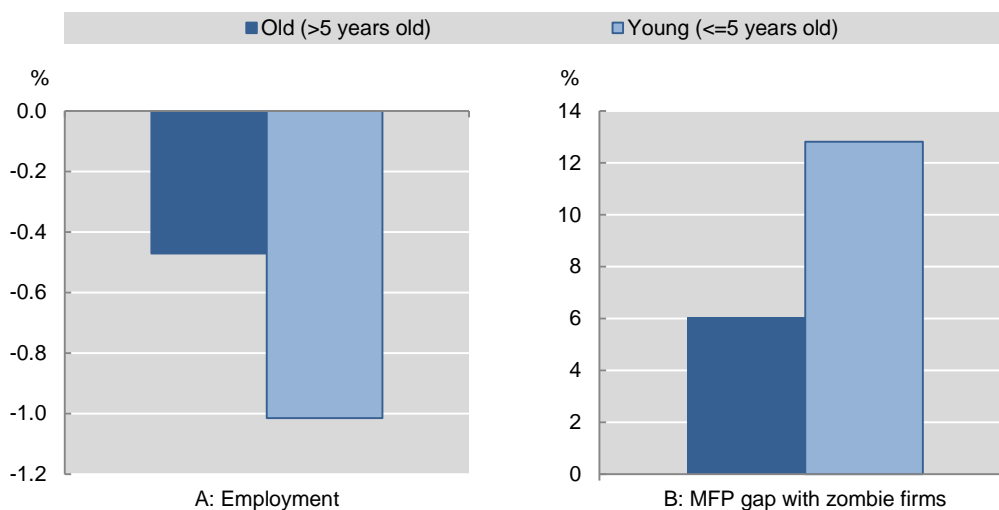
Note: Firms aged ≥ 10 years and with an interest coverage ratio < 1 over three consecutive years. Capital stock and employment refer to the share of capital and labour sunk in zombie firms. The sample excludes firms that are larger than 100 times the 99th percentile of the size distribution in terms of capital stock or number of employees.

Source: Adalet McGowan, Andrews and Millot (2017a), based on ORBIS data.

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Figure 3. Zombie congestion particularly penalises young firms

Impact of a one standard deviation increase in the zombie capital share on non-zombie firms according to their age



Note: This figure shows the ceteris paribus impact of an increase of a one standard deviation (15.6%) of the zombie share on employment and MFP of non-zombie firms, differentiating between old and young non-zombies. Zombie shares refer to the share of capital sunk in zombie firms, defined as firms aged ≥ 10 years and with an interest coverage ratio < 1 over three consecutive years. The estimates are based on nine OECD countries (BEL, ESP, FIN, FRA, GBR, ITA, KOR, SWE and SVN) over the period 2003-13. The effects on old non-zombie firms and the differential effects on young non-zombie firms are all significant at the 5% level.

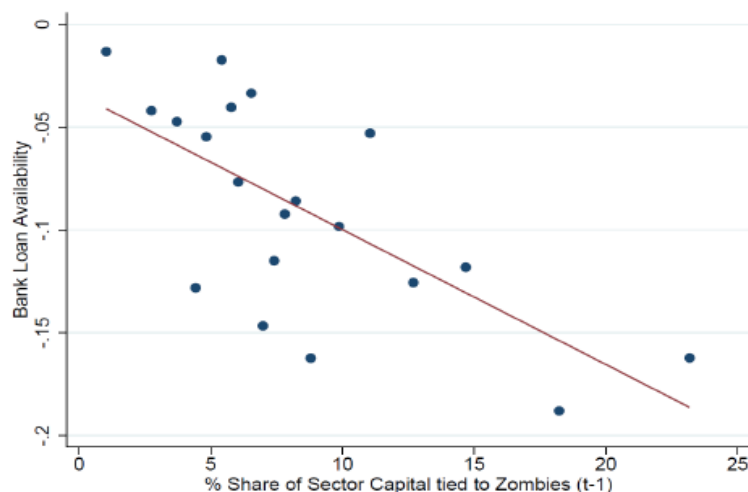
Source: Adalet McGowan, Andrews and Millot (2017a).

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Second, the economic consequences of zombie congestion could also materialise due to the crowding out of credit, whereby banks direct less credit to healthy firms than otherwise to the extent that their balance sheets are weakened due to zombie exposure. While evidence for this conjecture is scarce, new joint research by the OECD and European Central Bank (ECB) shows that healthy firms' access to bank loans tends to be more restricted in sectors where a higher share of industry capital is sunk in zombie firms (Figure 4; Andrews and Petroulakis, 2017). This in turn brings into closer focus the connection between policies affecting bank health, the prevalence of zombie firms and productivity.

Figure 4. Zombie firms crowd-out healthy firms' access to credit

Average bank loan availability to healthy firms for each bin of zombie congestion



Note: The figure shows the binned scatter plot of the sectoral average of the cumulated bank loan availability variable against the (lagged) share of zombie capital in the same sector, controlling for country-year fixed effects and firm size and age dummies. Bank loan availability is constructed from firms' responses to a survey question, which takes on three possible values: -1 if access to bank loan availability has worsened over the last six months; 0 if there is no change; and 1 if access to bank loans has improved over the corresponding period. Responses are then cumulated across time for the duration of the presence of the firm in the sample, to implicitly create a time-varying index of credit availability. For instance, if access improves for both semesters of 2012 and 2013, then the value for 2013 will be 4. The relationship is statistically significant at the 5% level and is based on 12,781 observations for 4 European countries (France, Germany, Italy and Spain) over the period 2009-2013.

Source: Andrews and Petroulakis (2017) based on combined data from ORBIS and SAFE.

Through these channels there is a risk that the increasing prevalence of zombie firms in some countries may depress creative destruction and contribute to a period of macroeconomic stagnation, just as in Japan during the 1990s. Indeed, although estimates of the aggregate impact of zombies vary across studies (see: Acharya et al., 2016; Schivardi et al., 2017), the rise of zombie congestion can be connected to the decline in OECD potential output via weaker business investment and MFP growth. For example, simulations in Adalet McGowan et al. (2017a) show that had the zombie capital share not risen from its pre-crisis levels:

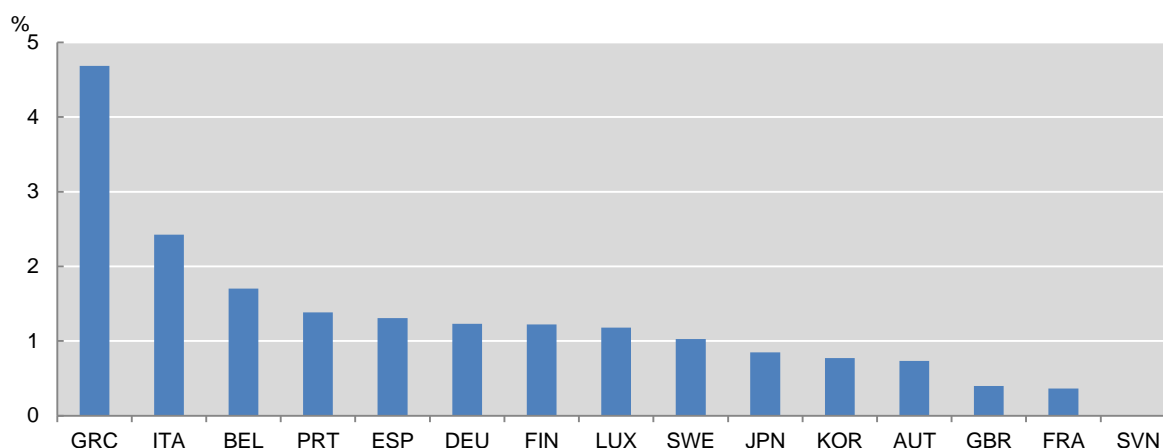
- Investment of a typical non-zombie firm in Italy could have been around 6% higher in 2013. This can perhaps account for one-quarter of the actual decline in aggregate private non-residential business investment in Italy between 2008 and 2013.
- Aggregate MFP could have been 0.7% to 1% higher in Italy and Spain respectively – owing to more efficient capital reallocation – which is significant given that stagnating MFP significantly constrained potential growth in these countries over the past decade.

Looking forward, cross-country differences in zombie congestion (Figure 2, Panel B) are also relevant for understanding the barriers to labour productivity growth in OECD countries. Simulations suggest that reducing zombie capital shares to the sample minimum could be associated with a gain in investment for a typical non-zombie firm of

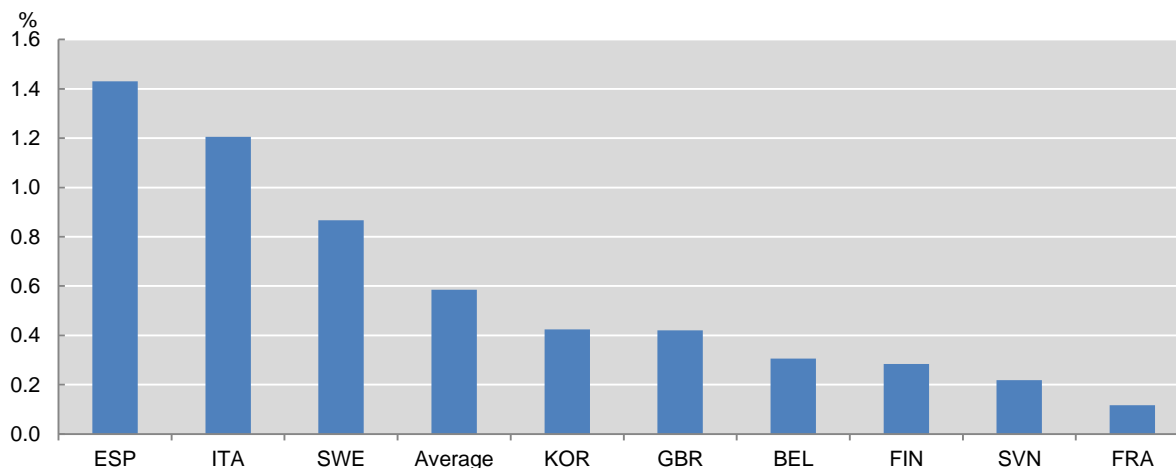
between 0.4% in France and 4.7% in Greece (Figure 5, Panel A), with potentially significant corresponding gains to aggregate MFP via more efficient capital reallocation (Figure 5, Panel B). Taken together, the estimates imply that there is considerable scope for policy reforms that affect the potential exit and restructuring of weak firms to boost aggregate labour productivity.

Figure 5. Much scope to boost aggregate labour productivity from reducing zombie congestion, 2013

Panel A: Gains to non-zombie investment from reducing zombie congestion to the country minimum




Panel B: Gains to aggregate MFP from reducing zombie congestion to industry minimum



Note: Panel A shows the counterfactual gains to investment of a typical non-zombie firm from reducing the share of zombies to the sample minimum level (i.e. Slovenia in 2013). Zombie shares refer to the share of capital sunk in zombie firms, defined as firms aged ≥ 10 years and with an interest coverage ratio < 1 over three consecutive years. Panel B shows the counterfactual gains to aggregate business sector MFP via more efficient capital reallocation from reducing the shares of zombies in each country to the sample minimum level in each industry and year. The country level numbers are an unweighted average of all industries (2-digit level detail according to NACE Rev. 2, covering the non-farm non-financial business sector). See Adalet McGowan et al. (2017a) for more details.

Source: Adalet McGowan, Andrews and Millot (2017a).

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3. Policy packages for productivity and inclusion

In light of the previous discussion, what is the potential for insolvency and financial sector reform to address the sources of structural weakness in OECD productivity growth? Are there synergies between reforms in these two areas and with respect to other public policies? And since such reforms are likely to trigger a greater churning of firms and jobs, what can labour market policies do to alleviate the social costs of this churn?

3.1. Can comprehensive insolvency regime reforms revive productivity growth?

Insolvency regimes are crucial for firm exit and restructuring. This is due to market imperfections – i.e. coordination problems, incomplete contracts and information asymmetries – which make it difficult in practice for the private market to facilitate the exit or downsizing of non-viable firms and the restructuring of viable firms that encounter temporary financial distress (Adalet McGowan and Andrews, 2016). When a debtor is suspected of being insolvent, creditors have an incentive to engage in a “rush to the exit”, rapidly enforcing their individual claims, even if it results in a reduction in the total value of recoverable assets. In practice, it is also difficult for debtors and creditors to write a complete private contract that ensures an optimal outcome *ex ante* due to the high number of contingencies and the fact that the debtor can acquire new assets and liabilities after the initial contract (Hart, 2000).

3.1.1. The design of insolvency regimes varies across countries

New cross-country indicators – based on countries’ responses to an OECD questionnaire – were assembled to explore how the design of insolvency regimes varies across countries. The data collection exercise focused on both corporate and personal insolvency regimes since the corporate vs non-corporate distinction in assets and liabilities is often blurred for small firms. This occurs to the extent that either lenders require personal guarantees or security – e.g. a second mortgage on the owner’s home – or because prior to incorporating and obtaining limited liability protection, entrepreneurs typically use personal finances (Berkowitz and White, 2004; Cumming, 2012). More specifically, this exercise identified thirteen key features, which – based on international best practice and existing research – may carry adverse consequences for productivity growth by delaying the initiation of and increasing the length of insolvency proceedings (Figure 6). In turn, these indicators were grouped into three key sub-components – discussed below – plus a miscellaneous component.

First, treatment of failed entrepreneurs will affect their ability to start new businesses in the future via the availability of a “fresh start” – i.e. the exemption of future earnings from obligations to repay past debt due to bankruptcy. For example, a high time to discharge – which increases with the number of years a bankrupt must wait until they are discharged from pre-bankruptcy indebtedness – is likely to raise the costs and stigma of failure. This could adversely affect productivity growth by reducing firm entry, experimentation with risky business strategies and the likelihood that non-viable firms exit the market in a timely fashion (Figure 6, Column A).

Second, the lack of design features that aid prevention and streamlining – i.e. enable the early detection and resolution of debt distress (e.g. preventative restructuring frameworks such as pre-insolvency regimes) – can push viable firms experiencing temporary financial distress into formal insolvency proceedings (Figure 6, Column B). Delays and higher costs associated with formal proceedings can erode the final value of the firm, prevent the

quick reallocation of assets and resources of distressed firms to more productive uses and limit the opportunity of entrepreneurs to start a new business, lowering business dynamism.

Finally, design features of insolvency regimes that inhibit corporate restructuring can curb productivity growth through a variety of channels (Figure 6, Column C). When only debtors can initiate restructuring and minority shareholders can block a restructuring plan (i.e. cram-down is absent), it is less likely that weak firms that encounter temporary distress are successfully restructured in a timely fashion, leading more resources to be trapped in low productivity firms. These frictions will be exacerbated when there is no priority given to new financing over unsecured creditors in the event of restructuring, since capital injections are typically required to facilitate internal reorganisation. Moreover, these design features could be expected to affect within-firm productivity growth to the extent that firms typically need to adopt new technologies as part of a “system” of mutually reinforcing organisational changes (Brynjolfsson et al., 1997), which requires internal restructuring. Finally, insolvency regimes that do not retain incumbent management during restructuring and lack a temporary stay on assets might lower business experimentation and lead to less efficient restructuring.

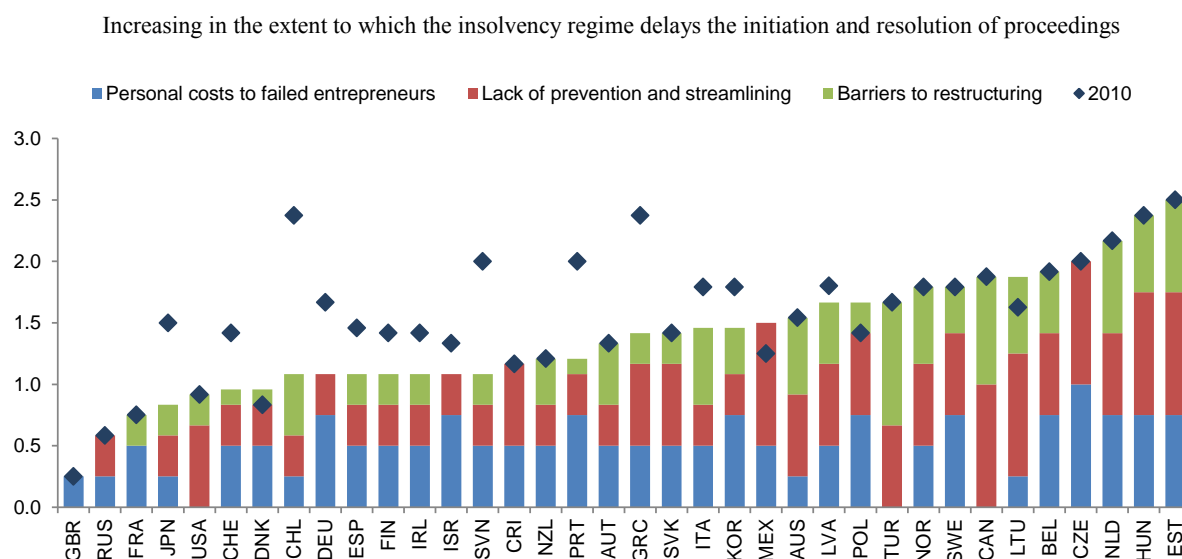
According to these indicators, the design of insolvency regimes varies significantly across countries (Figure 7 and Figure B1 of Appendix B). The insolvency regime in the United Kingdom for example, entails relatively low personal costs to failed entrepreneurs and barriers to restructuring, plus a number of provisions to aid prevention and streamlining. In Estonia and Hungary, however, the reverse is true and it is likely to result in an insolvency regime which delays the timely restructuring of weak firms and slows down the reallocation of resources to their most productive use and technology adoption within firms. For example, a high time to discharge in Estonia and Hungary means that failed entrepreneurs must wait five years before starting another business, compared to just one year in the United Kingdom. Similarly, an inability of creditors to initiate restructuring and a lack of priority given to new financing over unsecured creditors in both countries (plus an indefinite stay on assets in Estonia) translates into significant barriers to restructuring. Finally, a lack of early warning mechanisms, pre-insolvency regimes and special insolvency procedures for SMEs also imply that prevention and streamlining is weak.

Figure 6. The structure of the OECD insolvency indicator

Aggregate insolvency indicator (Insol-13)			
A. Treatment of failed entrepreneurs	B. Prevention and streamlining	C. Restructuring tools	D. Other factors
1. Time to discharge	3. Early warning mechanisms	6. Creditor ability to initiate restructuring	11. Degree of court involvement
2. Exemptions	4. Pre-insolvency regimes	7. Availability and length of stay on assets	12. Distinction between honest and fraudulent bankrupts
	5. Special insolvency procedures for SMEs	8. Possibility and priority of new financing	13. Rights of employees*
		9. Possibility to "cram-down" on dissenting creditors	
		10. Treatment of management during restructuring	

Note: (1) The number of years a bankrupt must wait until they are discharged from pre-bankruptcy indebtedness. (2) Exemptions relate to pre-bankruptcy assets that are not directly linked to the business (e.g. the family house) that are protected from the bankrupt estate. (3) Early-stage interventions such as training to firms or on-line tests to assess their financial position and financial and debt counselling to companies with financial difficulties. (4) Informal (i.e. out of court) negotiating procedures. (5) Specific fast-track or less expensive insolvency procedures for SMEs (e.g. simplified or pre-packaged in-court proceedings targeting SMEs). (6) Provisions that give similar rights to creditors as debtors to initiate restructuring proceedings. (7) A limited stay on assets (i.e. for a definite length of time) stops actions by creditors, with certain exceptions, to collect debts from a debtor, for a limited period. (8) Pertains to whether priority is given to new financing over unsecured creditors in terms of getting paid in the event of liquidation. (9) "Cram-down" occurs when it is possible to override the votes of a minority of creditors who vote against the restructuring plan. (10) Whether incumbent managers remain in charge of the day-to-day operations of a firm or are dismissed during restructuring proceedings. (11) The role of courts in different stages of both liquidation and restructuring processes. (12) The differential treatment of honest and fraudulent entrepreneurs (e.g. a fraudulent entrepreneur may be ineligible for debt write-off or discharge from debt). (13) Any restrictions on worker dismissals and the ability to renegotiate collective dismissals during proceedings.* denotes that data on Rights of Employees are missing for Denmark and Korea.

Source: See Adalet McGowan, Andrews and Millot (2017b) and Adalet McGowan and Andrews (2018) for more details.

Figure 7. The design of insolvency regimes across countries, 2016

Note: The stacked bars correspond to three subcomponents of the insolvency indicator in 2016. The diamond corresponds to the value of the aggregate insolvency indicator based on these three subcomponents in 2010. Only countries for which data are available for the three sub-components in 2016 are included. See Appendix B for data for additional countries and for 2010.

Source: Calculations based on the OECD questionnaire on insolvency regimes.

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A comparison of the 2010 and 2016 values suggests that recent reform efforts have been largest for prevention and streamlining, with reforms observable in 11 countries, especially European countries (e.g. Portugal; Figure B1). This may reflect the fact that such measures have been recently endorsed by the European Commission and the IMF, in response to the crisis (Carcea et al., 2015; Bergthaler et al., 2015). Barriers to restructuring have also declined in 10 out of 36 countries, while reform activity affecting the personal costs to failed entrepreneurs has been less ambitious, with only Chile, Greece and Spain undertaking reforms since 2010. There is some evidence that reform efforts in a number of European countries have led to lower incidence of liquidations, shorter insolvency proceedings and higher recovery rates (European Commission, 2014).

New OECD research demonstrates the considerable scope for insolvency regime reform to boost aggregate productivity growth via: i) the reduction of the resources sunk in zombie firms, which implies higher overall business investment, firm entry and MFP; ii) the reallocation of capital to more productive uses; and iii) greater technological diffusion, as measured by the productivity growth catch-up of laggard firms to the global frontier. This analysis is based on the identifying assumption that insolvency regimes should be more relevant in those industries that have naturally higher propensity for firm entry and exit (i.e. firm turnover) and a greater reliance on external creditors, which increases the likelihood of having to go through a formal insolvency process.

3.1.2. *Insolvency reform can promote the exit or restructuring of zombie firms*

Cross-country differences in zombie congestion are partly symptomatic of the inability of insolvency regimes to facilitate the exit or downsizing of non-viable firms and the restructuring of viable firms that encounter temporary financial distress. For instance, higher personal costs to failed entrepreneurs and barriers to restructuring are found to be associated with disproportionately higher zombie capital share in industries with naturally higher firm turnover than in other industries (Adalet McGowan et al., 2017b). While this could reflect the fact that zombie firms are less likely to exit, the analysis also shows that higher barriers to restructuring are associated with a lower likelihood that zombie firms subsequently return to better financial health and that the weakest among the non-zombie firms avoid turning into zombie firms as well.

From this perspective, cross-country differences in zombie congestion may also emerge because insolvency regimes in some countries are more successful at restructuring weak firms than in others. This finding is significant for two reasons. First, it implies lower social costs to job churn than if insolvency reforms only raised aggregate productivity by liquidating weak firms. Second, it holds out the prospect that insolvency reform can also deliver within-firm productivity gains (see below).

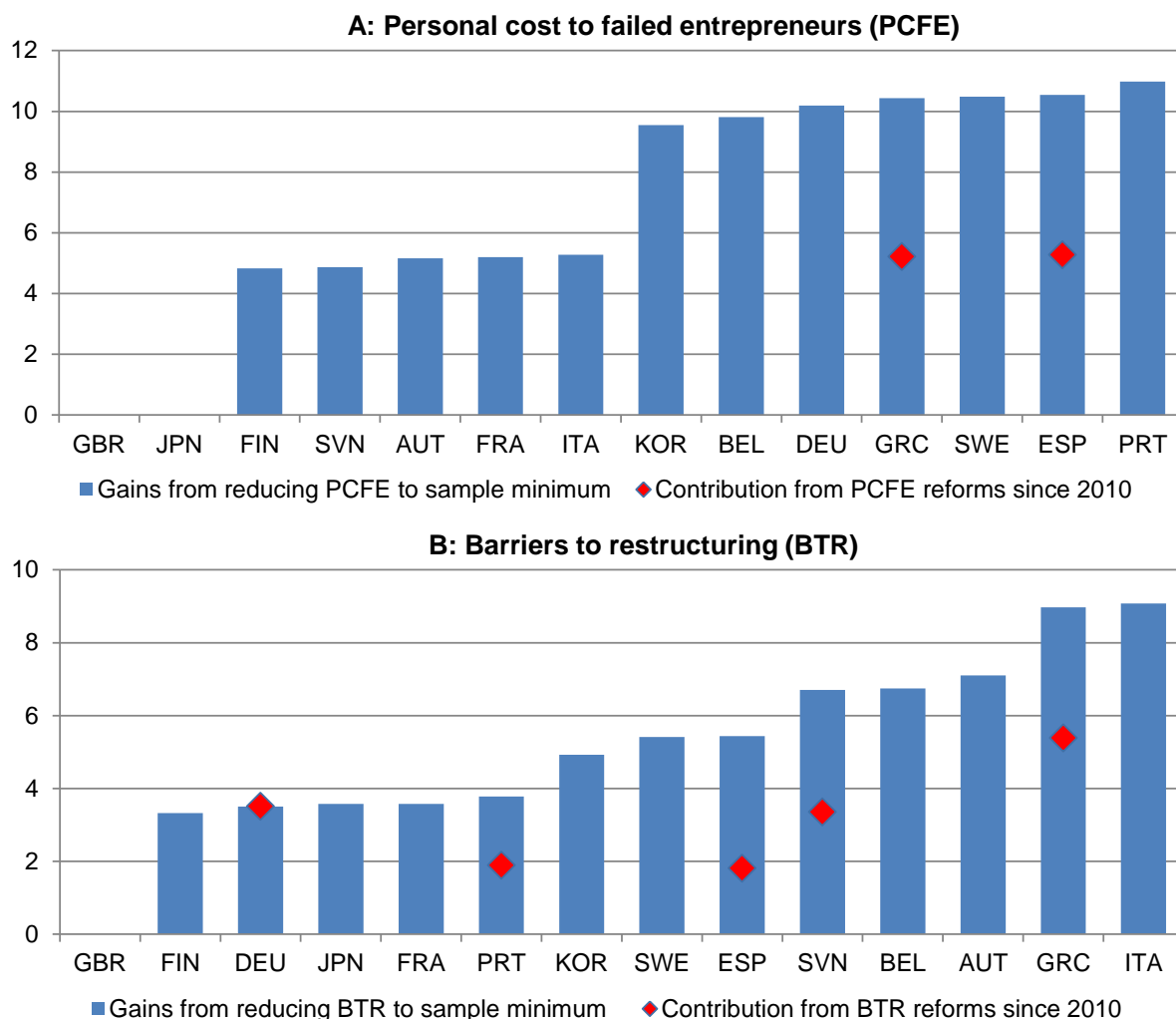
Insolvency reform can potentially deliver a sizeable reduction in zombie congestion. Consider Greece, Italy and Spain, for example, where the estimated share of capital sunk in zombie firms stood at 28%, 19% and 16% in 2013 respectively (Figure 2, Panel B). Assuming a causal relationship, reducing barriers to restructuring in Greece and Italy and the personal cost to failed entrepreneurs in Spain to the sample minimum in 2010 could translate into a decline in the zombie capital share of at least 9 percentage points in each country (Figure 8, blue bars). The good news, however, is that insolvency reforms since 2010 have likely gone some way to achieving these estimated gains, with reductions in barriers to restructuring in Greece and the personal cost to failed entrepreneurs in Spain for example carrying the potential to reduce the zombie capital share by at least 5 percentage points (Figure 8, red diamonds).

3.1.3 *Insolvency reform can also promote productivity-enhancing capital reallocation...*

If the design of insolvency regimes matters for the capital sunk in zombie firms, then one would expect them to also influence capital reallocation patterns, given evidence that the extent of productivity-enhancing capital reallocation is lower in industries with more zombie congestion (Adalet McGowan et al., 2017a). Indeed, cross-country analysis shows that insolvency regimes which raise barriers to restructuring reduce the efficiency of capital reallocation – as measured by the ability of more productive firms to attract capital – especially in high firm turnover industries (Adalet McGowan et al., 2017b). For example, reducing barriers to restructuring from the high level in Italy to the minimum level in the sample (i.e. the United Kingdom) would boost the efficiency of capital reallocation – as measured by the elasticity of capital growth to past firm productivity – by around 4 percentage points (Figure 9).

Figure 8. How much could insolvency reform reduce aggregate zombie congestion?

Reduction in zombie capital share associated with reforming insolvency regimes; percentage difference



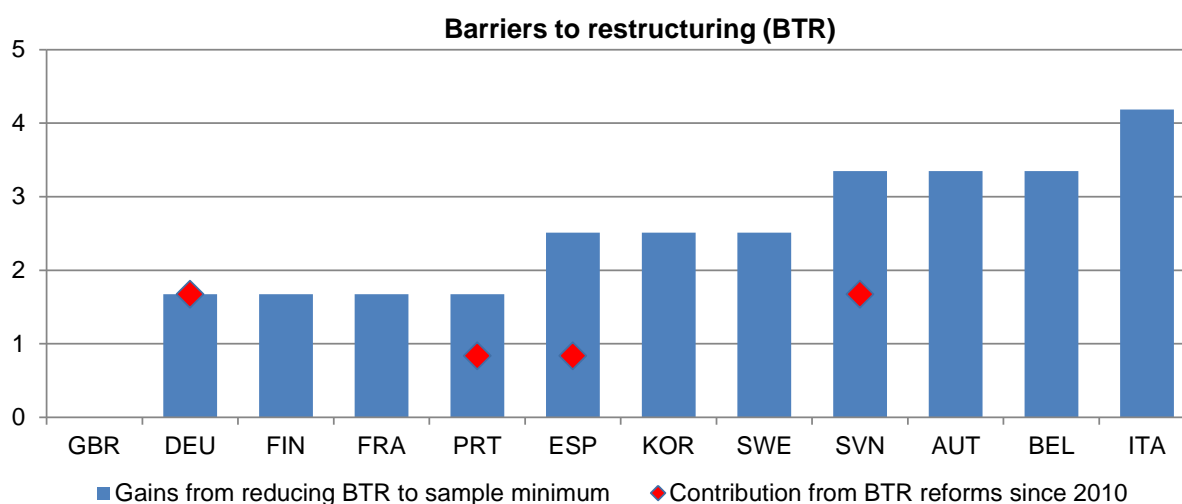
Note: Zombie shares refer to the share of industry capital sunk in zombie firms, defined as firms aged ≥ 10 years and with an interest coverage ratio < 1 over three consecutive years. The blue bars show the estimated average reduction in the zombie capital share (measured in 2013) associated with lowering the personal cost to failed entrepreneurs and barriers to restructuring from their 2010 levels to the sample minimum in 2010 (i.e. to the United Kingdom values). The red diamonds exist for countries which have reformed their insolvency regimes between 2010 and 2016 and quantify the potential reduction in the zombie capital share from these reforms. This is calculated as the blue bars (as defined above) minus the estimated reduction in the zombie capital share associated with reducing each insolvency indicator from their 2016 levels to the sample minimum in 2016.

Source: Adalet McGowan, Andrews and Millot (2017b).

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Figure 9. Insolvency reform can foster productivity-enhancing capital reallocation

Increase in the efficiency of capital reallocation associated with lowering barriers to restructuring: percentage difference between industries with high and low exposure to insolvency regimes



Note: The blue bars show the potential gains to productivity-enhancing capital reallocation – the elasticity of capital growth to past firm productivity – associated with lowering the level of barriers to restructuring observed in 2010 to the sample minimum in 2010. The red diamonds exist for countries which have reformed their insolvency regimes between 2010 and 2016 and quantify the potential gains to productivity-enhancing capital reallocation from these reforms. This is calculated as the blue bars (as defined above) minus the estimated gains to productivity-enhancing capital reallocation associated with reducing barriers to restructuring from their 2016 levels to the sample minimum in 2016.

Source: Adalet McGowan, Andrews and Millot (2017b).

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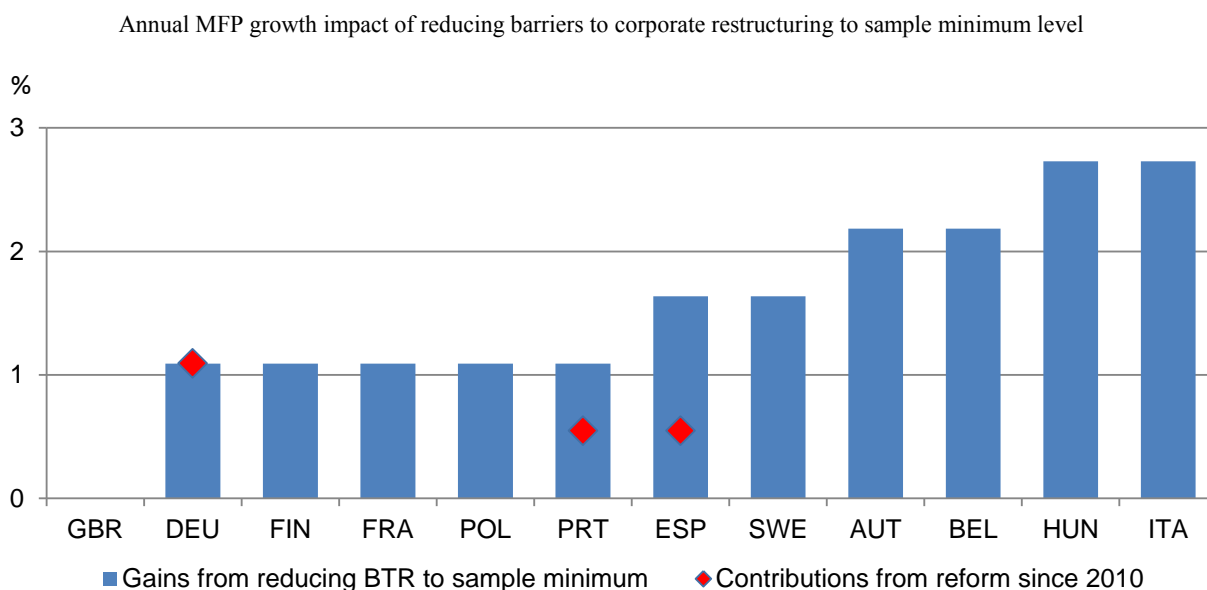
3.1.4 ... and productivity growth of laggard firms

Insolvency reform can also facilitate more rapid technological diffusion, which enables laggard firms to catch-up with the global technological frontier. This is particularly significant given the conjecture that stalling technological diffusion has contributed to the aggregate productivity slowdown (Andrews et al., 2016). New OECD research suggests that lower barriers to corporate restructuring are associated with higher MFP growth of laggard firms (Adalet McGowan et al., 2017c). For example, reducing barriers to restructuring in Hungary to the sample minimum (i.e. the United Kingdom) is associated with a 2.7 percentage point increase in laggard firm MFP growth in high turnover industries relative to other industries (Figure 10). At the same time, recent insolvency reforms in Portugal could account for around one-half of the estimated gains from reducing barriers to restructuring from their 2010 levels to the sample minimum. These results are consistent with the idea that insolvency regimes that do not unduly inhibit corporate restructuring and sanction business failure can incentivise experimentation and provide the scope to reconfigure production and organisational structures to fully exploit the productivity potential embodied in new technologies.

Insolvency regimes that entail lower barriers to corporate restructuring are also associated with disproportionately higher laggard firm MFP growth in industries that are more dependent on external finance, relative to other industries. These results are significant

given the conventional wisdom that insolvency reforms which incentivize firms to experiment with risky technologies may come at the cost of adverse credit supply effects (i.e. a lower availability and higher cost of credit). Moreover, they are consistent with earlier findings suggesting that lower zombie congestion is associated with wider access to bank loans (Figure 4), including for financing the necessary investment to catch up to best practice production methods. Thus, the financial sector can play a role in the links between insolvency regimes and productivity, an issue that is explored in detail below.

Figure 10. Insolvency reform can promote the productivity growth of laggard firms



Note: The blue bars show the potential gains to within-firm productivity growth associated with lowering the level of barriers to restructuring observed in 2010 to the sample minimum in 2010. The red diamonds exist for countries which have reformed their insolvency regimes between 2010 and 2016 and quantify the potential gains to within-firm productivity growth from these reforms. This is calculated as the blue bars (as defined above) minus the estimated gains to within-firm productivity growth associated with reducing barriers to restructuring from their 2016 levels to the sample minimum in 2016. The MFP growth impact shows the differential impact between industries with high and low firm turnover.

Source: Adalet McGowan et al. (2017c).

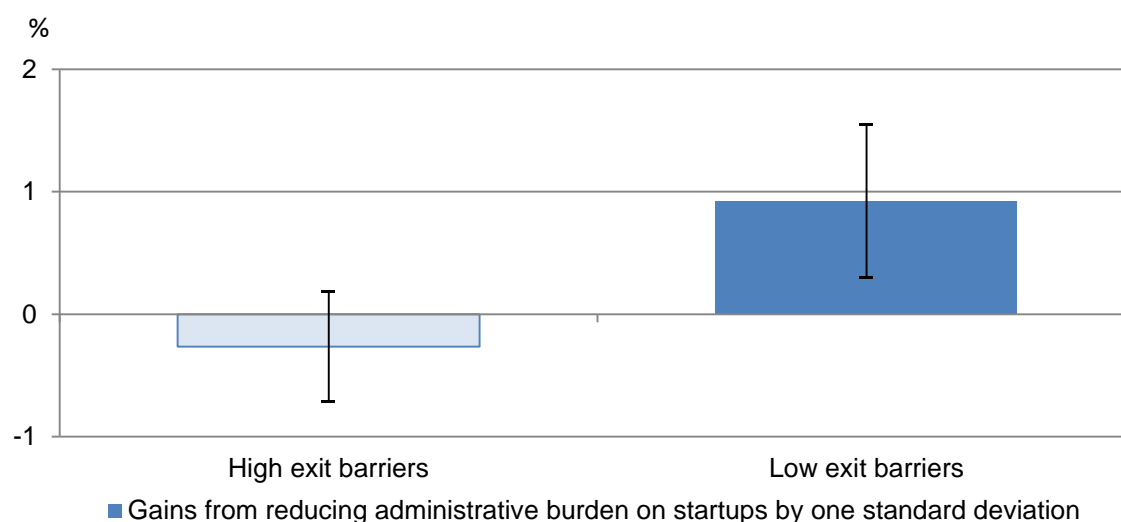
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Insolvency regimes may also shape the productivity impacts of other policies. For example, Acemoglu et al. (2013) show that R&D tax subsidies are only truly effective when policy settings can encourage the exit or downsizing of weak firms, because this frees up skilled labour for innovative firms. In a similar vein, one might expect a complementarity between insolvency regimes and policy-induced entry barriers. In this regard, reducing administrative burdens on start-up firms might only translate into significant MFP gains if young firms have sufficient space to experiment with new business strategies and attract the necessary resources to commercialise and implement new ideas – a process that is more likely if entrepreneurial failure is not overly sanctioned and scarce resources are not trapped in zombie firms. Consistent with this, OECD research finds that when insolvency regimes entail low exit barriers (as measured by the personal cost faced by failed entrepreneurs), a decrease in administrative burdens on start-

ups is associated with a significant increase in laggard firm MFP growth, especially in high firm turnover industries (Figure 11). Conversely, when insolvency regimes entail high exit barriers, the effects of easing these burdens on laggard firm MFP growth are negligible.


Figure 11. Entry-exit policy complementarities and the productivity growth of laggard firms

Annual MFP growth impact of reforming administrative burdens on start-ups according to stringency of exit costs



Note: The MFP growth impact shows the differential impact between industries with high and low firm turnover of a one standard deviation reform to the PMR administrative burdens on start-ups index for countries with high and low exit barriers. High (low) exit barriers refer to those countries that are above (below) the sample median of the personal costs to failed entrepreneurs. The estimates in the high exit barrier sample are not statistically significantly different than zero.

Source: Adalet McGowan et al. (2017c).

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3.2. Financial sector reform, corporate restructuring and productivity growth

By reducing zombie congestion, insolvency reform is associated with a wider availability of bank credit, potentially stimulating investment, efficient capital reallocation and, ultimately, productivity growth, notably in financially-dependent laggard firms. But the corporate restructuring path to higher productivity growth also hinges on improving the efficiency of the financial sector. There are general concerns that the legacy of the crisis has undermined the ability of the financial sector to channel credit to productive uses, while emerging evidence suggests that financial frictions have led some firms to cut-back on productivity-enhancing investments in intangible capital (Duval, Hong and Timmer, 2017). This section reviews new evidence on two issues: i) the impact of banking sector distortions on the efficiency of corporate restructuring; and ii) the scope for non-bank sources of financing – particularly equity financing – to revive technological diffusion.

3.2.1 Weak banking systems and zombie firms

The health of the banking sector incurred significant damage during the financial crisis (Figure 12, Panel A). While it has improved somewhat more recently, bank health remains below pre-crisis levels, reflecting the pressure on traditional business models of financial institutions (OECD, 2016a) and the fact that non-performing loans (NPLs) remain stubbornly high in some countries.

Against this backdrop, one concern is that the persistence of zombie firms may partly stem from banks' reluctance or lack of incentives to deal with NPLs and realise losses on their balance sheets that may arise from corporate insolvencies or loan foreclosure. This may lead to “evergreening” of the loans of weak firms (i.e. bank forbearance). One potential unintended consequence of the current low interest rate environment is that it may raise the incentives for banks to bet on the resurrection of failing firms via bank forbearance (White, 2012), though this does not necessarily imply that current monetary policy settings are inappropriate.

New research by the OECD and European Central Bank studies the zombie firm issue in more detail by linking firms to banks (Andrews and Petroulakis, 2017). Banks' health is measured along an index covering seven core balance sheet and financial statement variables of banks. After controlling for cyclical influences, the analysis shows that zombie firms have a higher likelihood of being connected to unhealthy banks (Figure 12, Panel B) and the causation appears to run from weak banks to zombie firms. The baseline estimates imply that such weak banks (i.e. those one standard deviation below the mean of the bank health distribution) are up to 24% more likely to be connected with a zombie firm compared to healthy banks (i.e. those one standard deviation above the mean).

Figure 12. Weak banks and zombie firms are connected



Note: Panel A shows the average level of bank health across 11 European countries (Austria, Denmark, Estonia, France, Germany, Greece, Latvia, Portugal, Slovenia Spain and the United Kingdom), weighted by the number of firms for which a bank is considered to be their main bank. Bank health is given by the first principal component (i.e. the one associated with the largest eigenvalue) of seven core balance sheet and financial statement variables of banks. These are tangible common equity, net income, net interest income, NPLs, Z-score (a measure of riskiness of assets), return on average assets, and retail funding, all as a share of total assets. The country coverage is restricted by the ability to build a bridge between firms in ORBIS and banks in Bankscope. Panel B shows the average zombie firm share for each bin of bank health, purged of country-industry-fixed effects. The relationship is statistically significant at the 1% level and is based on over 1.5 million firm-bank observations for 11 European countries over the period 2001-2014.

Source: Andrews and Petroulakis (2017).

Given this link between zombie firms and weak banks, what is the impact of bank health on capital reallocation? Recent analysis shows that the extent to which more productive firms are able to attract more capital depends on bank health, with capital flowing less readily to productive firms in industries where the share of weak banks is relatively high (Andrews and Petroulakis, 2017). The authors then demonstrate that around one-third of the adverse impact of zombie congestion on productivity-enhancing capital reallocation (see Section 2) can be accounted for by weak bank health. Taken together, these results imply that zombie congestion and its adverse consequences for aggregate productivity not only stem from weak insolvency regimes but also bank forbearance.

These results underscore the urgency to pursue a more aggressive policy to resolve NPLs. For example, countries could set gradual and bank-specific targets to reduce NPLs as a first step and consider setting up a public specialised asset management company to purchase NPLs at a price sufficiently high to ensure that banks sell their impaired assets, with due regard for state aid rules (OECD, 2017). More controversially, the latter could be aided by introducing more flexibility into EU rules, including state aid rules (OECD, 2016b). With sufficient policy action on this front, it is reasonable to expect that the share of zombie firms will gradually decline as the bank health improves.

There are, however, synergies between financial and insolvency reforms as regards their impact on zombie congestion and its implications for capital reallocation and productivity. Insolvency regimes that entail impediments to corporate restructuring and reduce recovery rates for creditors may weaken the economic incentives for banks to commence insolvency proceeding in the first place. Recent research suggests that improvements in bank health are more likely to be associated with a decline in zombie congestion in countries where insolvency regimes do not unduly inhibit corporate restructuring (Andrews and Petroulakis, 2017). For example, if Estonia – where barriers to corporate restructuring are high – reformed its insolvency regime to the sample minimum (i.e. the United Kingdom), then the reduction in the zombie firm share associated with a one standard deviation improvement in bank health could be around 1.3 percentage points higher than otherwise. These gains are significant, given that the zombie firm share averaged around 5% across OECD countries in 2013 (Figure 2, Panel A). Taken together, these findings demonstrate the important complementarities between financial sector and insolvency reform.

3.2.2 Over-banked economies and alternative sources of finance

Synergies between reforms also occur in other areas. For instance, problems in the banking sector and a more general recognition of an over-reliance on bank finance in some OECD countries (Langfield and Pagano, 2015) underscore the urgency of parallel initiatives to diversify the source of corporate finance away from bank lending towards market-based debt and equity financing. Primarily due to data availability, this section focuses on the potential of venture capital (VC) financing and the reduction of debt bias in corporate taxation to foster more efficient technological diffusion. Policy reforms in other areas, however, are also likely to be complementary to reform in these areas. For example, the development of equity markets – e.g. via the simplification of equity listing rules to encourage initial public offerings– and liquid and deep corporate bond markets could also be used as policy levers to foster the diversification of the source of corporate finance away from bank lending (OECD, 2015; OECD, 2017). Similarly, initial and secondary public offerings (IPOs and SPOs) in the stock market and mergers and acquisitions in medium-sized firms could not only serve as an alternative source of finance but also monitor the performance of firms. Finally, well-developed stock and

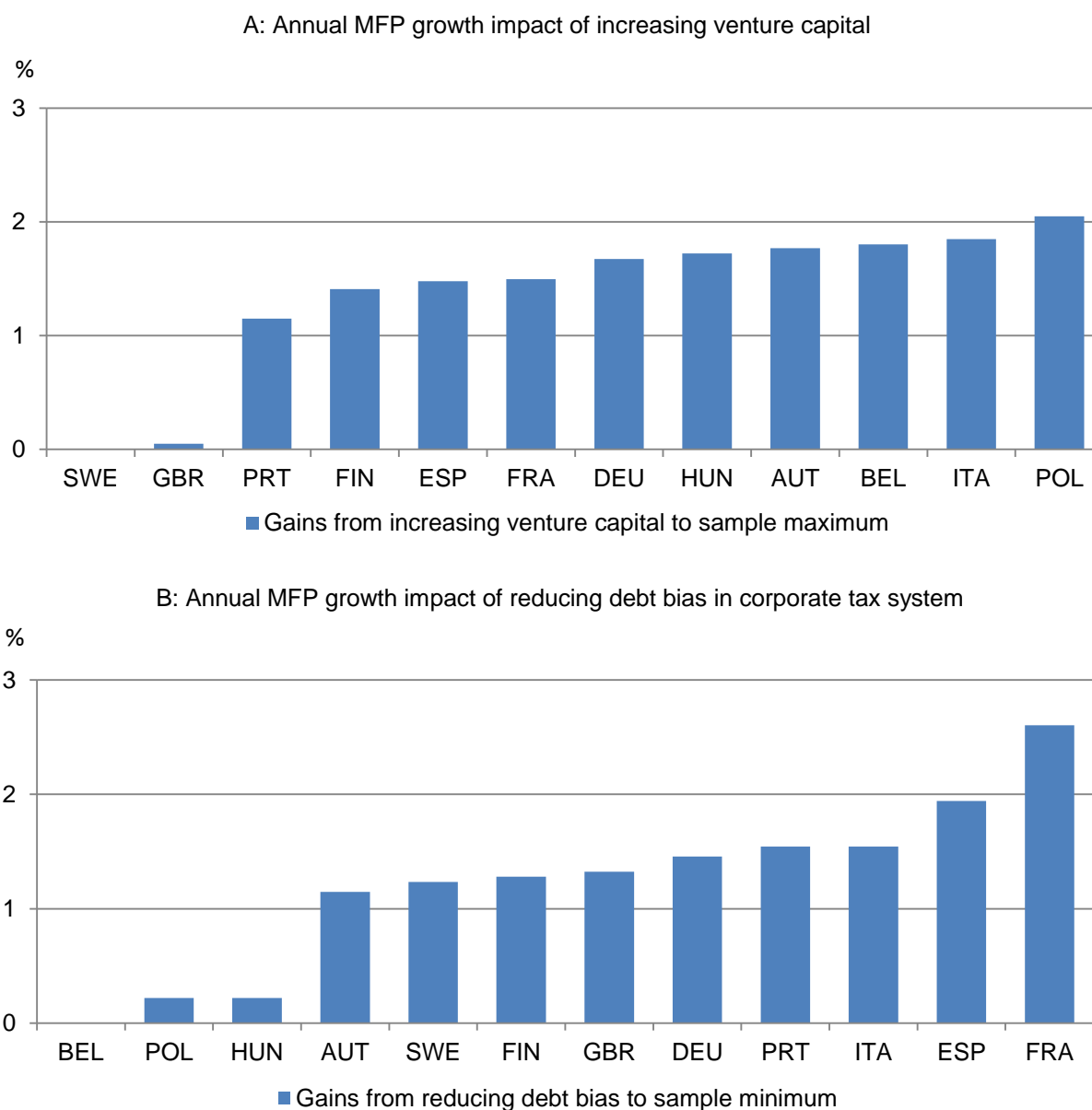
private equity markets are crucial to provide venture capitalists with a way to exit and monetise their investments (OECD, 2017).

Private equity buyouts can improve operating margins at target firms by raising productivity (Davis et al., 2014). This is likely to be particularly relevant for older SMEs that operate in traditional industries, which require new equity injections and better managers to improve their performance. At the same time, young knowledge-intensive firms may face acute financing constraints since knowledge-based assets are difficult to collateralise – as they are less easy to define and transfer than tangible assets – which makes them less conducive to traditional debt financing. Since these firms lack both internal funds and a track record to signal their “ability” to investors, they may benefit from more developed VC markets, which can address informational asymmetries by intensively scrutinising firms before providing capital and monitoring them afterwards (Hall and Lerner, 2009).

Evidence from the United States shows a causal positive impact of VC financing on innovation and growth (Samila and Sorenson, 2011). Similarly, cross-country studies find that more developed VC markets help channel investment to innovative firms (Andrews et al, 2014), increase the productivity and size of national frontier firms (Andrews et al, 2015) and foster productivity diffusion from the global frontier (Saia et al., 2015). Moreover, new OECD evidence finds that higher VC investment promotes the productivity catch-up of laggard firms to the global frontier. For example, increasing VC financing in Poland to the sample maximum (i.e. Sweden) is associated with a 2 percentage point increase in the annual MFP growth of laggard firms operating in industries with high reliance on external financing (Figure 13, Panel A), relative to firms in other industries.

Of course, the question of why VC financing is higher in some countries than others remains. Clearly, a policy framework that does not inhibit the core VC business model – which relies on the aggressive reallocation of resources across the investment portfolio from failing to high-performing ventures – will be important. In this regard, Bozkaya and Kerr (2013) show that less stringent employment protection legislation stimulates the development of VC financing in highly volatile industries in Europe. But the same is likely to be true for insolvency regimes that foster the timely initiation and resolution of insolvency proceedings. Indeed, VC financing (relative to GDP) tends to be higher in countries with insolvency regimes that promote the timely initiation and resolution of proceedings (Figure 14), while insolvency regimes that do not unduly penalise entrepreneurial failure have been shown to stimulate entrepreneurship and foster the development of VC markets (Armour and Cumming, 2006).

Figure 13. Equity financing can promote productivity growth of laggard firms



Note: The chart shows the potential gains to within-firm productivity growth associated with increasing VC financing to the sample maximum (Panel A) and reducing debt bias to the sample minimum (Panel B). The MFP growth impact shows the differential impact between industries with high and low reliance on external financing.

Source: Adalet McGowan et al. (2017c).


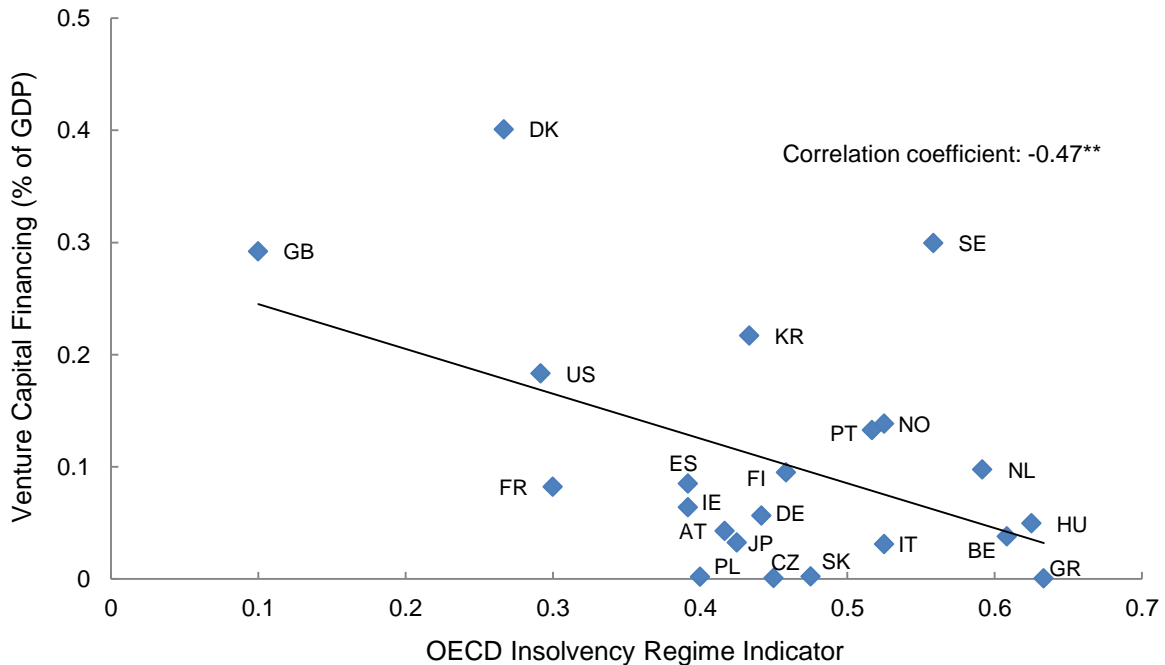

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Figure 14. Well-designed insolvency regimes can foster venture capital financing

Note: The insolvency regime indicator refers to a composite index based on 12 components of the OECD questionnaire on insolvency regimes (see Adalet McGowan et al. 2017b). Venture Capital Financing refers to total (early and expansion stages) venture capital investment as a percentage of GDP.

Source: OECD calculations based on the OECD questionnaire on insolvency regimes and OECD, Venture Capital database.

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High rates of taxation on corporate incomes and capital gains, on the other hand, have negative effects on VC (Da Rin et al., 2006). But these problems are likely to be compounded by the fact that the effective average tax rates on stock market finance generally exceed that on debt finance, primarily because interest expenses are cost-deductible. This debt bias in the corporate tax system has been found to be associated with a higher share of debt in external financing and may undermine productivity growth by discriminating against knowledge-intensive firms that are more reliant on equity financing. Consistent with this, higher debt bias in corporate tax systems disproportionately undermines the productivity catch-up of laggard firms to the global frontier (Adalet McGowan et al., 2017c). For example, reducing debt bias in the corporate tax system from the high level in France to the sample minimum (i.e. Belgium) is associated with an increase in the annual MFP growth of laggard firms operating in industries with high reliance on external financing by 2.6 percentage points, relative to firms in other industries. (Figure 13, Panel B).

3.3. Containing the social costs of firm exit

An inevitable outcome of insolvency and financial sector reforms intended to spur corporate restructuring is a more intense churning of firms and jobs, as successful market activities are sorted from unsuccessful ones. This churning process implies benefits for

workers via improved job-worker matching and higher non-zombie employment growth (Section 2.2) but also costs through heightened job destruction and unemployment spells. Job loss due to firm exit is especially politically salient since it is typically viewed as an exogenous event that is not specifically due to the actions of the worker (Kletzer, 1998). One implication is that for every worker who is laid out due to firm exit, many more may fear a similar fate, which may create resistance to reforms that intensify the churning of firms and jobs. Thus, Andrews and Saia (2016) explore what happens to workers who lose their jobs due to firm exit – how quickly are they re-employed and what are the policies that can aid this process?

The research shows the probability that workers displaced by firm exit are re-employed one year later ranges from at least 70% in Denmark and Switzerland to around 50% in Greece and Spain. These estimates suggest that some countries are more effective at coping with creative destruction than others. What explains these differences?

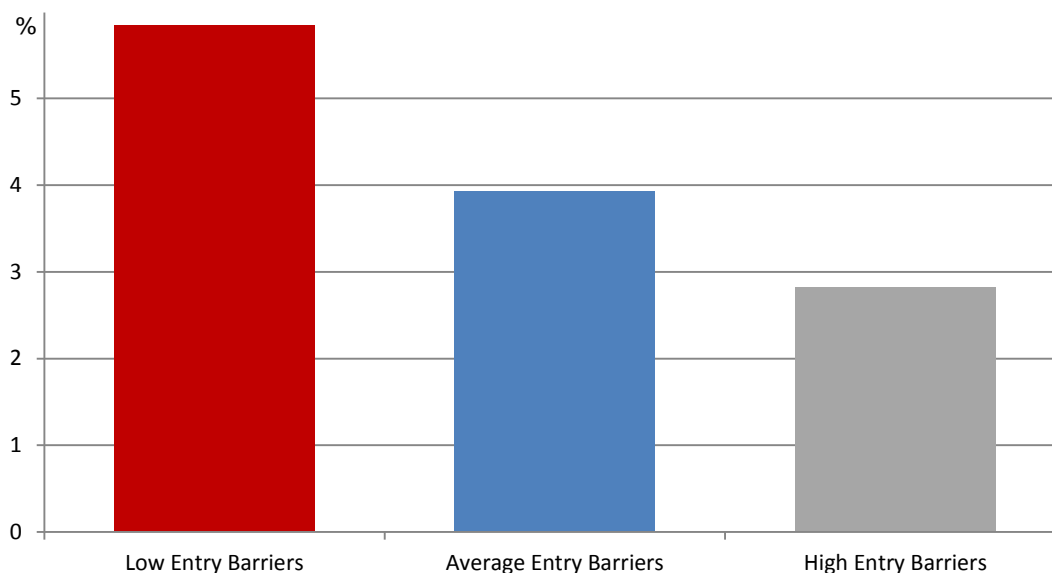
As it turns out, higher spending on active labour market policies (ALMPs) – e.g. retraining and job placement services – tends to boost the re-employment probability of displaced workers, while the reverse is true for spending on passive measures (e.g. generous and long-lasting unemployment benefits). Thus, a (revenue-neutral) reform that partially switches the composition of labour market spending towards effective ALMPs could be desirable in countries where spending is overly tilted toward passive measures, such as Belgium and Spain. Of course, an appropriate degree of spending on passive measures balanced by a mutual obligations system (OECD, 2005) is necessary from a consumption smoothing and job matching perspective.

Crucially, ALMPs are more powerful at raising the re-employment prospects of workers displaced by firm exit than other displaced workers. This is significant given that the former are considerably older and have been tenured at the firm for longer – characteristics which ordinarily make transitioning to other jobs more difficult. Thus, it is crucial that structural reforms which unleash corporate restructuring are flanked by well-designed ALMPs. But labour market policies alone are insufficient to cope with creative destruction. In this regard:

- The effectiveness of ALMPs in returning displaced workers to work is significantly enhanced by reductions in administrative entry barriers in product markets, which tend to stimulate job creation, particularly by young firms. For example, a 0.25% of GDP increase in ALMP spending is associated with a 6 percentage point increase in the re-employment probability of displaced workers when entry barriers in product markets are low, compared to a gain of less than 3 percentage points when entry barriers are high (Figure 15). These findings demonstrate an important policy complementarity between ALMP spending and regulatory barriers to firm entry.
- There is also some evidence that expenditures on ALMPs are more effective in countries with more efficient public sectors, reinforcing the idea that the quality of spending matters, as opposed to just the sheer quantity of spending on ALMPs.
- Finally, making residential mobility easier (e.g. by reducing transaction costs in housing policies) and reducing the tax wedge between labour cost and take-home pay is also found to increase the re-employment probabilities for workers displaced by firm exit.

Figure 15. Low regulatory barriers to firm entry enhance the impact of ALMP spending

Impact of a 0.25% of GDP increase in ALMP spending on the re-employment probability of workers displaced due to firm exit



Impact of ALMPs on re-employment according to the level of entry barriers

Note: The bars show the percentage point impact on the re-employment probability of a 0.25% increase in spending on ALMPs (as a share of GDP) for three levels of entry barriers: i) the level corresponding to the average of the two best performing countries over the sample period (red bar); ii) the average level observed over the sample period (blue bar); and iii) the level corresponding to the average of the two worst performing countries over the sample period (grey bar).

Source: Andrews and Saia (2016).

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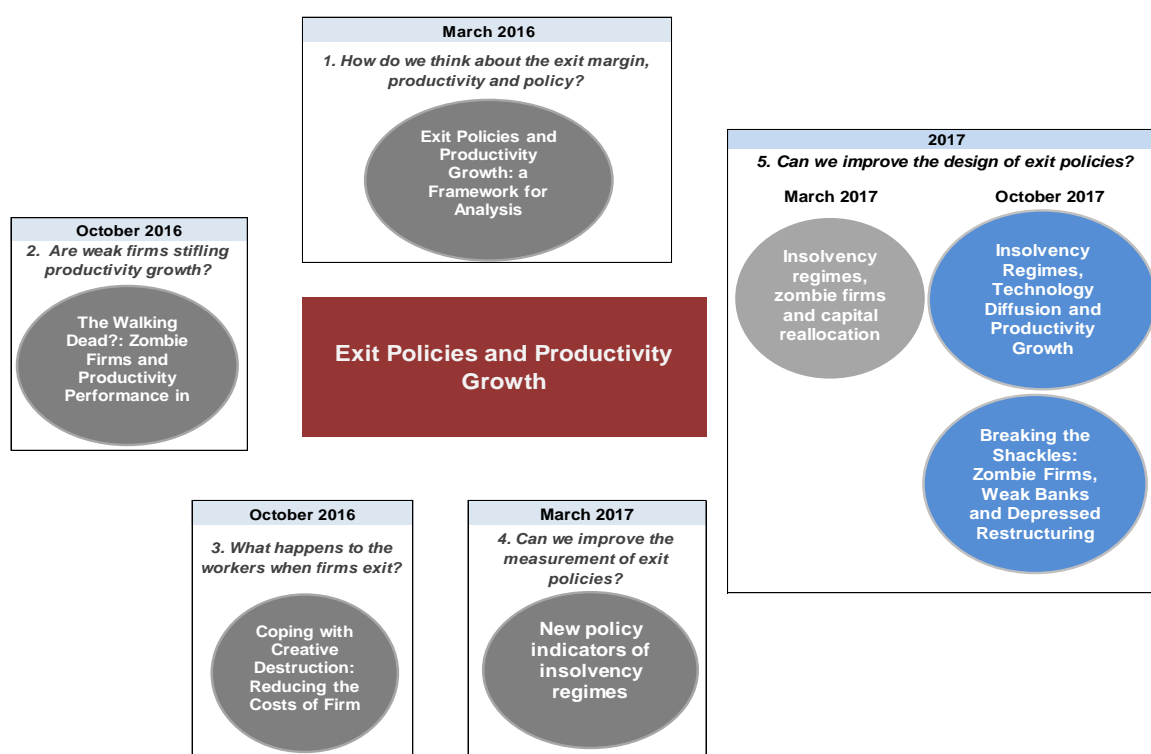
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Appendix A: Exit policies and productivity growth

The project on Exit Policies and Productivity Growth takes a modular approach, arranged around five key questions that explore the relevance of the exit margin for productivity and policy (Figure A1).

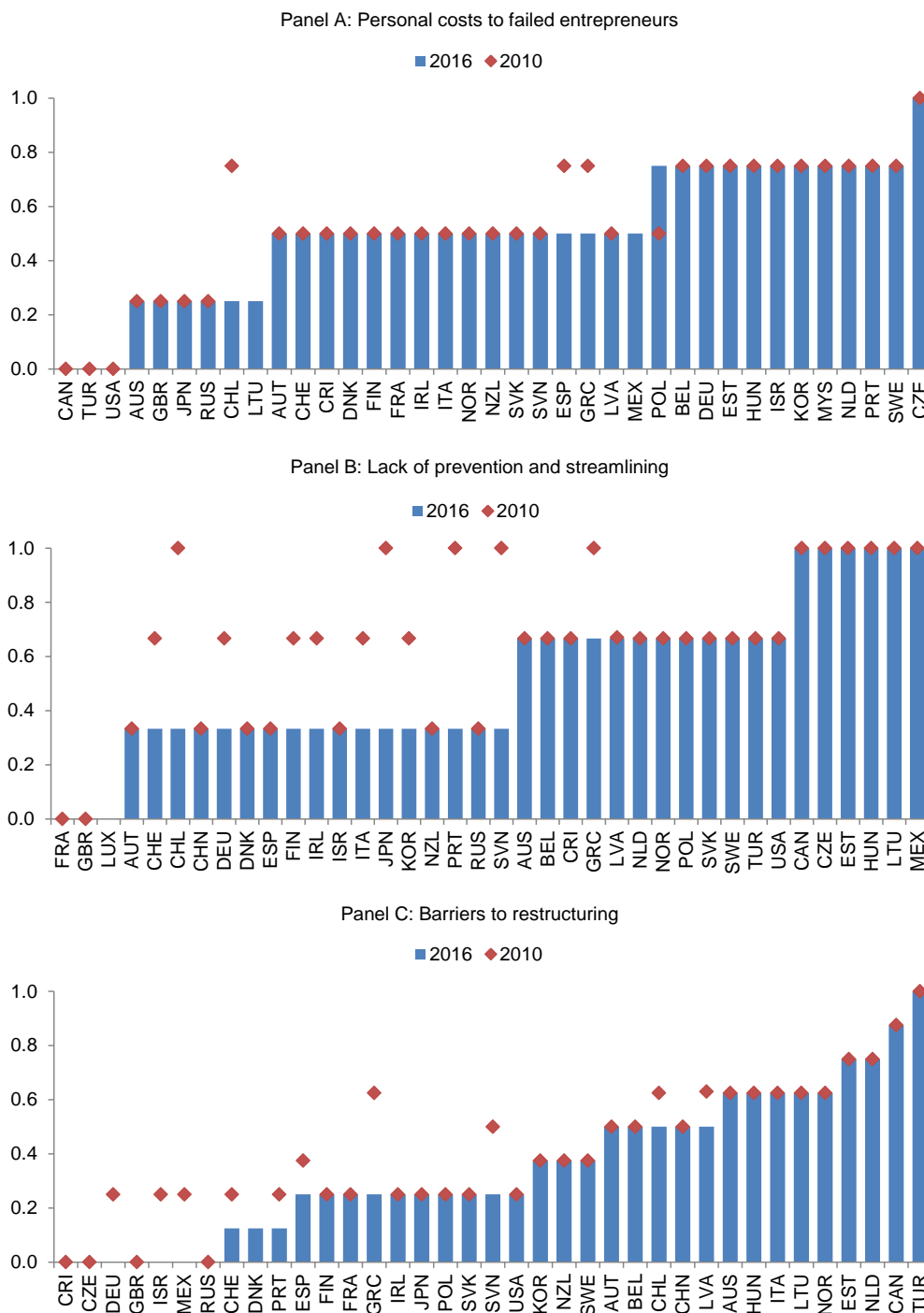
- Module 1 outlines the conceptual links between the exit margin, aggregate productivity and public policy.
- The two subsequent modules explore: *i*) the extent to which weak firms that would typically exit in a competitive market are stifling aggregate productivity growth (Module 2); and *ii*) the role that policy can play in reducing the costs for workers displaced by firm exit (Module 3).
- Module 1 also identified a need to generate new cross-country policy indicators of insolvency regimes via a policy questionnaire. The results of this data collection exercise are summarised in detail in Module 4.
- Armed with these new indicators, Module 5 explores the link between insolvency regimes and: *i*) zombie firms and capital misallocation; and *ii*) technology diffusion and productivity growth within firms. This module also draws on the key findings of a joint ECB-OECD paper on the link between weak banks, zombie firms and insolvency regimes.

Figure A1. Exit policies and productivity growth: five key questions




Appendix B: The design of insolvency regimes across countries

Figure B1. Sub-components of OECD indicator of insolvency regimes



Source: Calculations based on the OECD questionnaire on insolvency regimes.

StatLink  <http://dx.doi.org/10.1787/888933626839>