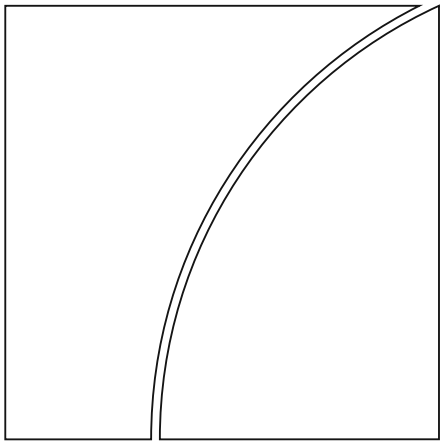

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by Enisse Kharroubi

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Growth Expectations and the Dynamics of Firm Entry*

Enisse Kharroubi†

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Abstract

How do aggregate conditions affect the dynamics of firm entry? Do recessions force more firms out, allowing for more firms to enter subsequently? Or does this process require other circumstances to thrive? I look into these questions using sectoral data on firm entry and exit for the main economies of the Euro Area over 2009-2019. My main finding is that expected, rather than current, GDP growth shapes the dynamics of firm entry. Specifically, I find that entry increases with past exits at the sector-level, but only when aggregate GDP growth is forecasted to be strong. Also, with strong growth forecasts, past entry developments weight less on the subsequent sectoral entry dynamics. Periods of low entry and high exit, can therefore be followed by strong entry subsequently, when the economy is expected to grow strongly. These findings are robust to the inclusion of several controls. This includes the quality of insolvency proceedings, firms' ability to obtain credit or the presence of barriers to entry. Finally, I show that expectations of private and public investment drive the impact of growth expectations on the dynamics of firm entry.

JEL codes: D25, D84, E32, E62, H32, M13.

Keywords: Firm entry, exit, growth expectations, private and public investment.

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1 Introduction

Following the outbreak of the covid-19 pandemic, governments around the globe took extraordinary measures to shield firms and households from the economic consequences of the recession that the world was about to face (IMF 2020). To do so, public authorities devoted unprecedented amounts to support the corporate sector in their respective jurisdictions, deploying a wide array of policy measures, from job retention schemes to credit guarantees or even outright direct credit to businesses.[1]

At the time, the rationale for such widespread support was simple: the pandemic created an unprecedented negative shock that could prove deadly, even to the most healthy and well-managed firms. More specifically, while a firm's current cash flow during a recession tends to be a good predictor of its long-run viability, this relationship broke apart following the pandemic-induced shock, making government support necessary (Hanson et al. 2020). In addition, the Covid-19 pandemic ushered in much higher uncertainty (Coeuré 2021), leaving firms with the difficult task of navigating a recession with unknown length and depth.[2] Another peculiar aspect of the Covid-19 recession is that it was primarily the outcome of government-imposed lockdowns and other restriction measures on businesses.[3] As a result, supporting the most affected sectors was seen as necessary, not least to ensure public acceptance for policies that prioritised public health.

Notwithstanding these qualitative arguments, a debate grew as to the appropriate scope, size and length of this support. On the one hand, some suggested that stimulus policies should be relatively light, and phased out swiftly as to let severely affected firms exit (see Freeman et al. 2021 or Hodbod et al. 2020). This would make room for new firms – more productive and better suited to navigate the new economic landscape – to emerge and jump-start growth across different sectors of the economy. On the other hand, proponents of strong policy support highlighted aggregate demand externalities (Gobbi et al. 2020). Letting firms go bust could trigger adverse spirals and produce a broad-based contraction in demand, as well as large

[1] According to the IMF database on Fiscal Policy responses to Covid 19, governments in Advanced Economies spent on average about 12% of their respective GDP in 2020 for financial assistance to firms in the form of equity injections, loans extensions and credit guarantees.

[2] Barnes et al. (2021) provide complementary evidence for high uncertainty and the difficulty for governments to design appropriately targeted support.

[3] This peculiarity is another reason why firms facing difficulties during the pandemic may still be very much viable in the long-run.

scale employment destructions. These would further depress prospects, thereby leading to additional waves of firm exits. At the same time, the scale of public support needed to avoid these adverse spirals was such that policy interventions needed to be targeted to distressed firms and sectors. Otherwise, the pecuniary cost to public accounts could prove very significant (Gourinchas et al. 2020).[4]

Assessing which of these two views is more likely to hold empirically however requires a proper understanding of the dynamics of firm entry. If firm entry is indeed very responsive to past exit, even in the absence of specific support or during deep recessions, then the first option consisting in relatively light stimulus policies, would seem appropriate. If however, entry needs specific conditions or support to thrive, then the second option seems more suitable.

To shed light on these questions, I conduct an empirical investigation of the dynamics of firm entry at the sector level focusing on the main economies of the Euro Area. Specifically I ask two set of questions. First, how does a change in firm entry or exit affect subsequent firm entry? And how tight and durable are these relationships, if any? Second, are there factors that can affect these relationships? Are there conditions or policies, under which more entry or exit at a point in time lead to stronger entry down the road?

To address these questions, I focus on a key determinant of firm entry. Namely, firms' decision to enter largely depends on expectations of future profits, which in turn tightly depend on expectations of future economic activity. In this regard, potential new entrants are likely to take past entry and exit realisations as (imperfect) signals about future prospects, and set their entry/exit decisions accordingly. For instance, a large wave of entry may signal strong prospects, leading potential new entrants to accelerate entry subsequently. Conversely, a large wave of exits may be interpreted as a signal for depressed prospects, thereby deterring potential new entrants further down the road.

In addition to past entry and exit developments, firms considering entry may also take into account the general economic outlook. When economic activity is expected to expand strongly, potential new entrants are likely to discard strong exits as a signal for weak prospects and rush to pick up the slack left by exiting

[4]It is important to note here that the few available studies in the specific context of the Covid-19 recession, rather suggest that blanket support, which arguably reduced reallocation, still benefited higher productivity firms (see Andrews et al. 2021 and Cros et al. 2021)

firms. Similarly weak entry is less likely to carry over when the outlook looks bright. By contrast, when economic activity is expected to stay depressed, fewer firms may be willing to replace exiting ones, as running a business in such an environment would be significantly more challenging. In the same vein, low entry and weak growth expectations, are likely, taken together, to be interpreted as evidence of bad prospects, thereby negatively affecting subsequent firm entry.

Considering the experience of the main Euro Area countries over the period running from 2009 to 2019, my empirical analysis confirms these intuitions. Specifically, I obtain three main findings. First, entry is only weakly related to past exits, especially in the short-run, while it exhibits significant time persistence, as higher entry in the past is followed by higher entry subsequently. A decrease in gross entry coupled with an increase in gross exit is therefore typically followed by a statistically significant lower number of new entrants one year later, both in gross and net terms (i.e. entry net of exits). However, this effect tends to be small in magnitude —about 10% of the initial drop— and relatively short-lived —it does not extend beyond a one-year horizon. My second result is that growth expectations matter for the dynamics of entry. More firms tend to enter, both in gross and net terms, in response to more exits, but only when forecasts for GDP growth are strong. Similarly, a drop in current entry weighs on subsequent entry but less so when GDP is expected to grow strongly. In addition, I find the impact of growth expectations on the dynamics of entry to be robust to the inclusion of a number of controls. For example, I do not find evidence of a similar effect for *current* GDP growth. Empirically, *current* GDP growth makes little difference to the forward path of entry, once GDP growth *forecasts* have been taken into account. In addition, I investigate structural factors that likely affect the dynamics of entry, e.g. regulations that capture barriers to entry, or those affecting the quality of insolvency proceedings or those influencing firms' ability to obtain credit. Here, I find evidence that such regulations all affect —to varying degrees— the dynamics of entry. Their impact remains however marginal, relative to that of GDP growth expectations. Third and last, I decompose GDP growth expectations and show that expectations of private and public investment seem to matter most for the dynamics of entry.

1.1 Literature review

This article builds on a large body of literature investigating the dynamics of entry and the possible impact of aggregate conditions on these dynamics. A first strand of literature has looked into the two-way interaction between entry and exit on the one hand and the business cycle on the other hand. In their seminal paper, Cabellero and Hammour (1994) argue that firm exit plays a key role in improving overall productivity, as it allows resources to be reallocated more easily, from exiting firms to entering and surviving ones that, in theory, are more productive. In this respect, recessions play a key role, as periods of disproportionate exits. Pe'er and Vertinsky (2008) empirically confirm these intuitions, showing that exits of old firms tend to lift entry, new entrants being usually more productive. Looking at different business cycle phases, Asturias et al. (2022) argue that aggregate productivity growth depends more on firm entry and exit during high growth periods, while entry and exit have been shown to account for a sizeable part —almost 20%— of the output response to productivity shocks. (Clementi and Palazzo 2016). Consistent with these findings, Gourio et al. (2016) show that a fall in the number of new-born firms has long-lasting detrimental effects on output and productivity. That said, the literature has also stressed that many factors, not least the presence of financial frictions and financial shocks, may hamper the cleansing effect that comes with firm exit (see Barlevy 2003, Aghion et al. 2007 or Osotimehin and Pappadà 2015).

Turning to business cycle properties, entry and exit have been shown to be respectively pro- and counter-cyclical (see Cook (2001) or Crane (2020) for instance), a property we also uncover in our data (see below). Looking at lead-lag correlations, Tian (2018) finds that entry indicators tend to lead the business cycle while exit indicators tend to lag it. Closer to this study, competition and market size considerations have been shown to matter for entry, through their impact on profits of new entrants (Campbell and Hopenhayn 2005). Similarly, Sedláček and Sterk (2017) and Moreira (2017) argue that recessions are not simply times of low entry but also that new firms tend to be smaller. Conversely, Cavallaria et al. (2021) show, using employer-employee matched data for Italy, that recessions induce fewer but better businesses to enter the market, the authors relating the latter finding to the presence of rigidities on the labour and the goods markets in Italy. Closest to this study, Bilbiie et al (2012) is one of the few papers that gives a central role to expectations

of future profits in driving firm entry. Yet, none draws an explicit link between the dynamics of entry and expectations of future economic activity.

The rest of the article goes as follows. The next section provides an overview of the data used in this paper. Section 3 presents the empirical strategy as well as the first evidence on the dynamics of entry. Section 4 introduces growth expectations and looks at how they shape the dynamics of entry, in addition to running a number of robustness checks and extensions. Conclusions are finally drawn in section 5.

2 Entry, exit and business turnover: an overview

2.1 Data sources

To investigate the relationship between entry, exit and the economic outlook, I draw on several datasets. First, the Eurostat database on Business demography indicators provides sectoral data on firm entry, exit and the overall number of active firms at the sectoral level for a number of European countries, starting from the mid-2000's. It also provides information on employment creation and destruction by entering and exiting firms, as well as overall employment, also at the sectoral level.[5] The sample covers the seven largest economies of the Euro Area, namely, Austria, Belgium, Germany, Spain, France, Italy and the Netherlands, which taken together account for more than 80% of Euro Area GDP. For the sake of balancedness, the analysis starts in 2009 and ends in 2019, even if data for Belgium and Germany only starts half-way through (in 2013). The dataset covers all sectors of the economy. I however exclude "Agriculture" and "Financial and Insurance Activities" and focus on all available 2-digit sectors in "Mining and Quarrying", "Manufacturing", "Electricity, Gas, Steam and air conditioning supply"," Water supply; Sewerage, Waste management and remediation activities", "Construction", "Wholesale and retail trade; Repair of motor vehicles and motorcycles", "Transportation and storage", "Accommodation and food activities", "Information and communication", "Real estate activities", "Professional, Scientific and Technical activities", "Administrative and support service activities", "Education", "Human health and social work activities", "Arts, Entertainment and recreation"

[5] For the sake of brevity, I focus the presentation of the empirical results on the dynamics of firm entry. Results pertaining to the dynamics of firm employment creations by new entrants, are qualitatively similar, and available upon request.

and "Other service activities" Second, I collect vintages of the OECD economic Outlook and IMF World Economic Outlook databases, with a view to measure growth forecasts for different macroeconomic variables (GDP, private and public consumption, private and public investment, and net exports). I also use these databases to build real-time estimates of current growth (see below for more details). Third, the OECD Structural Policy Indicators Database for Economic Research (SPIDER) database provides country-level data for regulatory indicators, focusing on three set of regulations: (i) those affecting the quality of insolvency proceedings, (ii) those affecting firms' ability to obtain credit, and (iii) those governing firm entry. Last, I draw on the Euro Area Bank Lending Survey (BLS) and the BIS Macroeconomic dataset for data on lending standards, funding costs and credit to the corporate sector.

2.2 A bird's-eye view of entry and exit

I start the analysis by computing for each country, simple statistics for gross entry and exit rates. I define the gross entry rate e_{ist} (the gross exit rate x_{ist}) in countriy i in sector s in year t as the ratio of the number of firms entering E_{ist} (the number of firms exiting X_{ist}) to the total number of active firms N_{ist} in country i in sector s in year t:

$$e_{ist} = \frac{E_{ist}}{N_{ist}} \text{ and } x_{ist} = \frac{X_{ist}}{N_{ist}} \tag{1}$$

Summary statistics in Table 1 show that on average, the gross entry rate exceeds in most countries the gross exit rate, suggesting that firm entry has been on net, positive over the period considered (2009-2019). Consistent with this observation, median gross entry rates (aggregated by country) also exceed corresponding median gross exit rates in all countries, but Spain, where exits slightly exceed entries. Table 1 also shows that gross entry rates display a larger dispersion than gross exit rates in all countries, as is visible from the respective standard deviations. Interestingly, this larger dispersion of entry rates typically comes from the upper part of the distribution (3rd quartile), which is more skewed towards high values in the case of entry than in the case of exit.

[insert Table 1 here]

Turning now to the cyclical properties of entry and exit, a simple average of exit and entry rates by country and year shows that exit is countercyclical while entry is mildly pro-cyclical. Many firms exit when GDP growth is low while few firms exit when GDP growth is high (Graph 1, left-hand panel).

[insert Graph 1 here]

Conversely, the correlation of entry with GDP growth is only weakly positive (right-hand panel).[6] High-growth periods therefore display more firm entry than low-growth periods, but the difference in this sample, is barely significant. Consistent with previous results, a simple analysis of lead-lag correlations between entry and exit shows that more exits tend to be followed by significantly less entry and more exits at the country-level (Graph 2). On the contrary, the data provides no evidence of a significant correlation between entry and subsequent entry or exit at the country-level.

[insert Graph 2 here]

3 The dynamics of entry at the sector-level

3.1 The empirical strategy

Absent a clear pattern for aggregate entry over the business cycle or in relation to subsequent entry and exit, disaggregated sector-level information can provide useful insights into the dynamics of entry, thanks to sectoral variations in entry across countries and time. I therefore estimate a set of regressions where the dependent variable is the cumulative gross entry rate in country i in sector s, h years ahead, denoted as c^g_{ist+h}, and defined as the cumulative sum of gross entries taken as a ratio of the current number of active firms. Similarly, I define the cumulative net entry rate in country i in sector s, h years ahead, denoted as

[6] Interestingly, the Covid-19 recession also suggests only a weak link between entry and GDP growth. Based on business registration and bankruptcy data, it appears that countries like Spain and Italy experienced deep falls in new business registrations in 2020 as they suffered major output contraction. Conversely, countries like Belgium and France also suffered significant output losses but new business registrations only faced minor falls, if not outright increases as was the case in France. Finally in Germany, output losses were very much contained but new business registrations fell dramatically.

c^n_{ist+h}, and defined as the cumulative sum of gross entries net of exits, taken as a ratio of the current number of active firms:

$$c^g_{ist+h} = \frac{E_{ist+1} + ... + E_{ist+h}}{N_{ist}} \text{ and } c^n_{ist+h} = \frac{E_{ist+1} - X_{ist+1} + ... + E_{ist+h} - X_{ist+h}}{N_{ist}} \text{ for } h = 1; 2... \quad (2)$$

As explanatory variables, I include the current gross entry and exit rates in country i in sector s, in year t, e_{ist} and x_{ist}. In addition, I saturate the specification with fixed effects. Denoting λ_{it} the country-year dummies; μ_{is} the country-sector dummies, ν_{st} the sector-year dummies, and ε the residuals, the baseline specification estimating the cumulative gross entry rate writes as:[7]

$$\ln\left(\frac{c^g_{ist+h}}{1 - c^g_{ist+h}}\right) = \beta^{(h)}_e \ln\left(\frac{e_{ist}}{1 - e_{ist}}\right) + \beta^{(h)}_x \ln\left(\frac{x_{ist}}{1 - x_{ist}}\right) + \lambda^{(h)}_{it} + \mu^{(h)}_{is} + \nu^{(h)}_{st} + \varepsilon^{(h)}_{ist} \quad (3)$$

Because entry and exit rates are bounded between 0 and 1, I apply logistic transformations to all variables in specifications (3) so that variables included in the regression are unbounded, making linear inference licit. Moreover, defining the dependent variables as a ratio of the *current* number of active firms ensures that they share the same denominator with the independent variables, thereby avoiding risks of spurious correlations.[8] Complementing the analysis of gross entry, I also estimate a similar type of specification for net entry as follows:

$$\ln\left(\frac{1 + c^n_{ist+h}}{1 - c^n_{ist+h}}\right) = \beta^{(h)}_e \ln\left(\frac{e_{ist}}{1 - e_{ist}}\right) + \beta^{(h)}_x \ln\left(\frac{x_{ist}}{1 - x_{ist}}\right) + \lambda^{(h)}_{it} + \mu^{(h)}_{is} + \nu^{(h)}_{st} + \varepsilon^{(h)}_{ist} \quad (4)$$

Here, a similar type of (logistic) transformation is applied, considering in this specific case, that net entry ranges between -1 to $+1$.

The rationale for specifications (3) and (4) is as follows. New firms base their decisions to enter essentially on prospects for future profitability. In a stylised framework and besides considerations relating to

[7] The country-time dummies in particular purge dependent and independent variables from the impact of macroeconomic variables. The cyclical properties of entry and exit therefore play no role in this empirical study.

[8] Spurious correlations can arise if cumulative entry rate is simply computed as the cumulative sum of entry rates. In this case, a large number of exits, for instance, reduces the subsequent number of active firms, which would artificially raise subsequent entry rates.

competition, such prospects depend on the size of the market and how fast it is expected to grow in the near future. While assessing such forward path is likely to be difficult, particularly for potential new entrants, actual entry and exit movements can provide valuable information through the so-called demonstration effect (Johnson and Parker 1994). According to this view, a large number of exits would be interpreted by potential new entrants as a signal for depressed prospects and thereby discourage entry down the road. Conversely, a larger number of firm entry could be considered as a vote of confidence in future prospects, thereby leading additional firms to enter subsequently. Following this logic, entry should therefore depend positively on past entry and negatively on past exits.[9]

The parameters of interest in specifications (3) and (4) are $\beta_e^{(h)}$ and $\beta_x^{(h)}$. They capture the change in cumulative (gross or net) entry at different horizons following a increase in past entry and exit. Because specifications (3) and (4) use non-linear transformations of entry and exit rates, I evaluate the change in (gross or net) entry at different horizons following a given increase/decrease in entry or exit at the median. Denoting m_e and m_x the respective sample medians for gross entry and exit rates, and m_g^h and m_n^h, the respective sample medians for cumulative gross and net entry rates, h years ahead, these changes respectively write as:

$$\frac{\mathrm{d}c_{ist+h}^g}{\mathrm{d}z_{ist}} = \frac{m_g^h}{m_z}\frac{1-m_g^h}{1-m_z}\beta_z^{(h)} \text{ and } \frac{\mathrm{d}c_{ist+h}^n}{\mathrm{d}z_{ist}} = \frac{1}{m_z}\frac{1-\left(m_n^h\right)^2}{1-m_z}\frac{\beta_z^{(h)}}{2} \text{ for } z = \{e; x\} \tag{5}$$

3.2 The empirical results

3.2.1 The baseline regressions

Table 2 provides the empirical results for estimating the baseline specifications (3) and (4).[10] Two main takeaways emerge from these regressions. First, gross firm entry displays significant time persistence (first row): Higher entry is associated with significantly higher subsequent cumulative entry up to 2 years ahead. Similarly, when entry drops —say during a recession—, then it remains subsequently depressed, even as

[9] It is still worth noting that these relationships could be reversed because of the competition effect: With more firms exiting, competition for inputs as well as competition on the market for final output both fall, leading to higher profits for potential new entrants. In addition, based on similar considerations, the competition effect would imply a negative relationship between current and past entry Dunne et al. (1988) finds evidence of such negative correlation for US manufacturing industries.

[10] All empirical results are based on regressions where standard errors are clustered at the country-sector level.

the economy may already be recovering. Net entry shows a similar pattern although the magnitude and significance of estimated coefficients drops more quickly, suggesting that shocks affecting net entry have less persistent effects than those affecting gross entry. The second take-away is that exits do not seem to affect the forward path of *gross* entry. If estimated coefficients turn from negative to positive starting from the second year onward, none is statistically significant. Current exits do however seem to correlate positively with subsequent *net* entry, likely reflecting the subsequent impact on gross exits.

[insert Table 2 here]

To get a sense of the magnitudes implied from these estimates, I consider the implications of a one percentage drop in the gross entry rate coupled with a one percentage increase in the gross exit rate, on subsequent cumulative gross and net entry rates. Using expressions for marginal impacts in (5), Graph 3 shows that both gross and net entry fall significantly after one year in response to a drop in entry and increase in exit. The fall is however small, and amounts in both cases, to about 0.2 percentage point, which represents roughly 10% of the initial combined impulse in entry and exit.

[insert Graph 3 here]

In addition, the impact on gross entry fades away after one year and is statistically insignificant from two years ahead onwards. Net entry shows a similar pattern although the cumulative response becomes positive and significant, but only after four years.

3.2.2 The dynamics of entry across sectors, countries and time.

Industry vs. service sectors Previous estimates for the dynamics of entry are likely to hide significant differences across sectors, countries and time. I below explore each of them separately, starting with possible differences between industry and service sectors. For this I re-estimate specifications (3) and (4), allowing the coefficients of interest —$\beta_e^{(h)}$ and $\beta_x^{(h)}$ that link entry and exit to subsequent cumulative entry— to differ

between industry and service sectors. Labelling sectors in mining, manufacturing, utilities and construction as industry sectors and the other ones as service sectors, Table 3 shows two main differences.

[insert Table 3 here]

On the one hand, time persistence in gross entry is stronger for service than for industry sectors. Entry in services therefore comes in waves that extend over many years. Conversely, changes in entry in industry sectors carry over only for a short period and to a much lesser extent than those in service sectors. On the other hand, the relationship between exit and subsequent cumulative entry also seems to differ markedly between industry and service sectors. In industry sectors, more exits are associated with less entry down the road, while in services, exits seem to be followed subsequently with higher entry. In the case of net entry, this difference is even starker as the relationship between exits and subsequent net entry is positive and significant for service sectors but insignificant in the case of industry services. New entrants are therefore more willing to pick up the slack left by exiting firms in service sectors, where arguably factors limiting entry, like high capital intensity, are not as pronounced as they can be in industry sectors.

Before and after financial crises Changes over time in the relationship between entry and exit on the one hand and subsequent entry is another important difference that may be blurred by estimating single coefficients over the full sample. In the specific case of Euro Area countries, this is likely to be particularly relevant as economies faced two major shocks in the period up to 2013 —the Global Financial Crisis and the European Sovereign Debt Crisis—, while the period that followed was much smoother. Large economic fluctuations being arguably more likely to come with large and long-lasting changes in entry and exit, I re-estimate the baseline specifications (3) and (4) allowing the coefficients of interest to differ for the period up to 2013 and the period starting after 2013.

[insert Table 4 here]

Empirical results in Table 4 show that the dynamics of entry differs significant over the two time periods.

In the period running up to 2013, gross entry displays very strong persistence that runs up to 4 years ahead. Lower entry during the financial crises therefore kept weighing on subsequent entry up to 4 years later. The relationship with past exit is also interesting. While estimated coefficients for the period up to 2013 are only marginally significant, they are consistently negative, meaning that increases in firm exits were followed by weaker entry throughout this period. These two pieces of evidence confirm the views developed above: At times of heightened uncertainty and depressed prospects, past entry developments are likely to weigh more on subsequent entry while large waves of exits are more likely to be interpreted as signals for negative prospects and hence be associated with falling entry. The period after 2013, which as noted above, was arguably smoother, also shows some interesting patterns. First, gross entry is much less persistent than in the period running up to 2013, confirming that in a smoother environment, past developments matter less for subsequent entry.[11] Second, the sensitivity of cumulative entry to exit turns positive, particularly at longer horizons, suggesting that firms changed their interpretation relative to the previous period, for what exits mean for future prospects.

Core vs. periphery countries Last, I split the sample between core and periphery countries, exploiting the unique feature of the Euro Area in which countries face similar shocks but differ markedly in their vulnerabilities to these shocks. In periphery countries, the recession that came with the European Sovereign Debt Crisis was much deeper. As a result, entry likely followed a very different dynamics than in core economies where the economic fallout of the crisis was much more limited, if any. Following on previous analysis, I therefore re-estimate the baseline specifications (3) and (4), allowing the coefficients of interest to differ for core (Austria, Belgium, Germany, France and the Netherlands) and periphery countries (Spain and Italy).

The empirical results in Table 5 show that the dynamics of entry in core and periphery countries markedly differ from one another. First, entry is two to three times more persistent in the periphery than in the core. When entry falls, the legacy is therefore felt for a longer time and to a larger extent in the periphery. Second,

[11] It is true that this conclusion holds only for gross entry as the correlation between current gross entry and subsequent net entry actually increases in the period post-2013, especially at longer horizons, the difference reflecting the impact on subsequent exits.

the impact of past exits on the subsequent dynamics of entry represents another striking difference between the core and the periphery. In the core, more exits are followed by significantly more entry, suggesting that potential new entrants see other firms' exits as an opportunity to start a profitable business. On the contrary, in the periphery, the correlation is opposite; more exits lead to lower subsequent entry. In this case, exits seem to be interpreted mainly as signalling weak future prospects.

Altogether, differences in the dynamics of entry between core and periphery countries suggest that differences in the economic outlook are likely playing a significant role in how potential new entrants relate current realisations of entry and exit to future prospects. Investigating further this intuition and the specific role of growth forecasts is therefore the focus of the next section.

[insert Table 5 here]

4 The role of growth forecasts

4.1 The empirical specification

To explore how the economic outlook affects the dynamics of the entry, I extend the baseline specifications (3) and (4) to include the interactions between the explanatory variables and measures of expected future economic conditions. Denoting $\alpha_{ist}^{(h)}$ the sum of fixed effects, i.e. $\alpha_{ist}^{(h)} = \lambda_{it}^{(h)} + \mu_{is}^{(h)} + \nu_{st}^{(h)}$, the specification estimating cumulative gross entry then writes as:

$$\ln\left(\frac{c_{ist+h}^{g}}{1-c_{ist+h}^{g}}\right) = \left[\beta_{e,0}^{(h)} + \beta_{e,1}^{(h)} E_t g_{it+j}\right] \ln\left(\frac{e_{ist}}{1-e_{ist}}\right) + \left[\beta_{x,0}^{(h)} + \beta_{x,1}^{(h)} E_t g_{it+j}\right] \ln\left(\frac{x_{ist}}{1-x_{ist}}\right) + \alpha_{ist}^{(h)} + \varepsilon_{ist}^{(h)} \quad (6)$$

while the specification estimating cumulative net entry extends to:

$$\ln\left(\frac{1+c_{ist+h}^{n}}{1-c_{ist+h}^{n}}\right) = \left[\beta_{e,0}^{(h)} + \beta_{e,1}^{(h)} E_t g_{it+j}\right] \ln\left(\frac{e_{ist}}{1-e_{ist}}\right) + \left[\beta_{x,0}^{(h)} + \beta_{x,1}^{(h)} E_t g_{ct+j}\right] \ln\left(\frac{x_{ist}}{1-x_{ist}}\right) + \alpha_{ist}^{(h)} + \varepsilon_{ist}^{(h)} \quad (7)$$

Here $E_t g_{it+j}$ denotes the expectation for GDP growth in country i between $t+j-1$ and $t+j$, conditional

on the information set available in year t, while $\left\{\beta_{e,0}^{(h)};\beta_{e,1}^{(h)};\beta_{x,0}^{(h)};\beta_{x,1}^{(h)}\right\}$ are parameters to be estimated for different horizons h. The OECD economic outlook and the IMF World Economic Outlook databases provide conditional expectations for growth for three different horizons j. The first —$j = 0$— is the OECD or IMF real-time evaluation of current GDP growth. The second and the third —$j = 1$ and $j = 2$— are respectively the one and two years ahead OECD or IMF forecasts for GDP growth.[12,13] It is also important to note that the presence of country-time fixed effects $\lambda_{it}^{(h)}$ ensures that any direct impact of the economic outlook or any other macroeconomic variable on subsequent entry (gross or net) is typically filtered. Specifications (6) and (7) therefore allow to measure how the response of subsequent entry to changes in past entry or exit differs for different growth forecasts.

Before diving into the summary statistics for growth forecasts and the impact of growth forecasts on the dynamics of entry, a few words are in order on the pros and cons of using aggregate GDP growth forecasts. On the negative side, aggregate GDP growth forecasts are only an imperfect proxy for sectoral prospects. While an economy cannot be expected to grow if at least some or the main sectors are also growing, sectors can differ considerably in how they co-move with the overall economy. In some sectors, growth may be independent of aggregate GDP growth, in some others, growth may over-react to aggregate GDP growth while there may be sectors whose growth correlates negatively with aggregate GDP growth.[14] On the positive side however, relying on aggregate GDP growth —to investigate the impact of expectations on the dynamics of entry— provides a clear advantage: Reverse causality, that would run from entry in a specific sector to GDP growth expectations, can confidently be ruled out as sectors are all individually too small to affect the aggregate economy.

[12] Both the OECD Economic outlook (OECD EO) and the IMF World Economic Outlook (IMF WEO) are published twice a year (June and December for the OECD EO and April and October for the IMF WEO). I use for each year the December issue of the OECD EO and the October issue of the IMF WEO to compute the corresponding real-time estimate and forecasts for GDP growth.

[13] The forecast horizon in the IMF WEO goes up to 5 years ahead, but only up to 2 years ahead in the OECD EO. I stick to the latter horizon to ensure comparability across both publications.

[14] Note that sectoral heterogeneity in the relationship to GDP growth implies that estimated coefficients for variables using aggregate GDP growth are biased towards zero.

4.2 Forecasts and realisations: some statistics on growth.

Table 6 and 7 provide summary statistics as well correlations for different measures of GDP growth, considering real-time estimates, forecasts at different horizons and final estimations. Table 6 is based on the OECD Economic Outlook while Table 7 reports corresponding figures for the IMF World Economic Outlook.

[insert Table 6 and Table 7 here]

Both tables show that the distributions of GDP growth real-time and final estimates are very close to each other. The only visible difference is that real-time estimates display a slightly lower average and dispersion than final estimates for GDP growth. Such a similarity does not however extend to GDP growth forecasts. GDP growth forecasts are on average more optimistic than corresponding real-time and final estimates, especially the 1- to 2-year ahead forecast. Moreover their distribution is also significantly less dispersed, this mainly reflecting higher values for lower distribution quantiles. Interestingly the correlation of GDP growth forecasts with either real-time or final GDP growth estimates is rather low and ranges between 0.3 and 0.5. GDP growth forecasts and GDP growth realisations therefore provide different information.

4.3 The empirical results

I first estimate specifications (6) and (7) considering forecasts for real GDP growth, over the 1- to 2-year ahead horizon, i.e. the expectation in year t of real GDP growth between $t+1$ and $t+2$.[15] Importantly, as notations in (6) and (7) show, growth forecasts correspond to the assessment of future GDP growth made at the time of the realisations of the explanatory entry and exit variables. As such, forecasts do not embed any forward information that could reflect the dependent variable.[16]

Table 8 provides the empirical results for the estimation of specifications (6) and (7) using GDP growth forecasts from the OECD Economic Outlook. Two main takeaways emerge from these estimations. First,

[15] Using instead the expectation in year t of real GDP growth between t and $t+1$ provides very similar results, available upon request.

[16] In this regard, the date-t expectation for real GDP growth between $t+1$ and $t+2$ ensures that the expectation variable is forward-looking relative to the dependent variable up to $t+2$. However from $t+3$ onwards, the forecast variable becomes partly backward-looking relative to the dependent variable, which embeds information that comes after $t+2$.

growth forecasts affect the persistence of entry. Past entry realisations affect subsequent entry but to a lesser extent when the economy is expected to grow faster. To give a sense of the magnitudes involved, a one percentage point drop in entry cuts cumulative gross entry after 2 years by 0.7 percentage point when GDP is expected to remain flat. Conversely, the same reduction in past entry has virtually no impact on subsequent cumulative gross entry after two years when GDP growth is expected to grow at 2%.

Second, growth forecasts affect the relationship between exit and subsequent entry: when GDP is expected to grow slowly or to contract, an increase in past exit is associated with a significant drop in subsequent cumulative entry (both in gross and net terms). By contrast, when GDP is expected to grow strongly, an increase in past exit is followed by an increase in subsequent cumulative entry (again, both in gross and net terms). Based on the parameters estimates, the threshold for GDP growth forecast above which the impact of past exit on subsequent gross entry turns from negative to positive ranges between 1.40 and 1.65. Comparing these figures with those for the median value of GDP growth forecasts —about 1.62%— suggests that in more than half the sample observations, the relationship between current exit and subsequent entry was actually positive.

[insert Table 8 here]

Using instead of growth forecasts from the IMF World Economic Outlook, provides very consistent results (Table 9). Cumulative gross and net entry both depend positively on past entry but less so when the economy is expected to grow more strongly. Conversely, more firm exits are followed by less entry subsequently when the economy is expected to grow weakly, while strong growth expectations lead more firms to enter in response to an increase in past exits. There are otherwise two minor differences between regression results based on OECD forecasts and those based on IMF forecasts. One is that the impact of IMF forecasts on the dynamics of gross entry seems stable over time, as the horizon lengthens, while that of OECD forecasts, seem to be growing over time. Another difference is that the threshold level for GDP growth forecasts above which the relationship between exit and subsequent entry turns positive, is slightly higher for OECD than for IMF forecasts.

[insert Table 9 here]

To get a sense of the impact of growth forecasts on the forward path of entry, I simulate the effect of a combined one percentage point decrease in entry and a one percentage point increase in exit, on the subsequent dynamics of gross and net entry, considering two scenarios (Graph 4).[17] In the first scenario, GDP growth forecasts are set at 2.1%, which corresponds to the 90th percentile of the sample distribution (blue lines) while in the second scenario, GDP growth forecasts are set at 0.9%, which corresponds to the 10th percentile of the sample distribution (red lines).

In the short-run, when growth forecasts are low, gross and net entry both fall significantly in response to higher exit and lower entry. Conversely, when growth forecasts are high, both gross and net entry are subsequently flat. Then, as the horizon lengthens, differences in growth forecasts make a larger difference to subsequent entry. For instance after two years, strong growth forecasts are associated with significantly higher gross and net entry, while weak growth forecasts are followed by significantly lower gross and net entry. Further into the future, cumulative entry (in gross and in net terms) keep increasing over time, with strong growth forecasts. Conversely, with weak growth forecasts, cumulative entry is either flat (in the case of net entry) or keeps falling (in the case of gross entry). After four years, the difference in cumulative entry between the two growth scenarios is sizeable and amounts to about 1.5 percentage points in the case of gross entry and more than 1 percentage point in the case on net entry.

[insert Graph 4 here]

Another way to assess the importance of growth expectations for the dynamics of entry is to compute the level of growth expectations needed for subsequent cumulative entry to increase by the same amount as a combined increase in exit and decrease in entry. Graph 5 shows that growth forecasts need to be unrealistically large (above 8%) for subsequent entry (either in gross or in net terms) to match a combined

[17] Such simulations and the next are based on regression results using OECD Economic Outlook GDP growth forecasts.

increase in exit and decrease in entry, after just one year. However, this figure drops significantly after 2 years, almost by half. And after 4 years, the increase in cumulative entry matches the combined initial increase in exit and drop in entry for GDP growth forecasts of about 3%.

The conclusion is therefore twofold. On the one hand, expected growth makes a significant difference to the dynamics of entry, both in gross and net terms, with stronger growth expectations making subsequent entry less sensitive to current entry but more sensitive to current exit. On the other hand, it still takes very strong growth expectations for changes in subsequent entry to match an initial increase in exit and decrease in entry, especially over the short-run.

[insert Graph 5 here]

4.4 How robust is the impact of growth forecasts on the dynamics of entry?

In this section, I investigate potential alternative mechanisms that could account for the impact of growth forecasts on the dynamics of entry. I do so in three steps. First, I study the impact of current as opposed to expected economic conditions. After all, the outlook may look strong when the economy is already doing well. The impact of growth expectations on the dynamics of entry may therefore simply reflect that of current growth conditions. Second, I study the impact of regulations. Business regulations are a primary driver of firm entry and exit. As such, they can affect the dynamics of entry, either through the existence of different types of barriers to entry, or through the quality of insolvency proceedings that affect the exit margin. In each case, they are likely to have a significant impact on how entry responds to past developments in entry and exit. Last, firm entry is likely to depend on firms' ability to raise funding. Hence the impact of growth forecasts may simply reflect changes in firms' (in)ability to raise funds to fund entry.

4.4.1 Current vs. expected growth

To determine which of current or expected growth matters for the dynamics of entry, I focus the analysis on one- and two-year ahead cumulative entry —as dependent variables—, in either gross or net terms. Given

that I use the 1- to 2-year ahead GDP growth forecast, focusing the analysis on these dependent variables ensures that the relationship between entry decisions and growth forecasts is purely forward-looking, i.e. entry relates to future expected growth that is yet to come. Conversely, the relationship, if any, between entry decisions and current GDP growth would be purely backward-looking, i.e. entry would relate to past, realised GDP growth. Moreover, for the sake of comprehensiveness, I run the horse race between current and expected GDP growth, taken from the OECD Economic Outlook and the IMF World Economic Outlook.

[insert Table 10 here]

In a nutshell, the empirical evidence in Table 10 shows that current GDP growth can affect the dynamics of subsequent entry, but this impact is usually superseded by that of GDP growth forecasts. For instance, regressions in the two first columns, which use OECD estimates for current for future GDP growth, show that GDP growth, both current and forecast, reduce the impact of current entry on subsequent gross entry, even if estimated coefficients show that the quantitative importance of current GDP growth is roughly about one third that of GDP growth forecasts.

The relationship between exit and subsequent entry shows a more striking difference in the respective impacts of current and forecasted GDP growth. Growth expectations do affect in a meaningful way the response of gross entry to past exits. Conversely, current GDP growth has no impact whatsoever. There is no evidence that firms enter in significantly greater numbers in response to past exits in times of high vs. low growth. The estimated coefficients are both qualitatively insignificant and quantitatively close to zero. The third and fourth columns in Table 10 which make use of IMF instead of OECD estimates for current and future GDP growth, provide very similar results. With high current GDP growth or high GDP growth forecasts, past entry developments weigh less on subsequent gross entry, even if again, the impact of growth forecasts is one order of magnitude larger than the impact of current GDP growth. Conversely, the response of entry to past exit depends positively and significantly on GDP growth forecasts, while current GDP growth plays again no role.

The four last columns in Table 10 provide estimations results when the dependent variable is cumulative

net entry. The difference between growth forecasts and current growth also appears very strikingly. If growth forecasts affect the dynamics of net entry as previously, by making it less responsive to past entry but more responsive to past exits, none of the four different regressions provides any evidence that current GDP growth has any discernible effect of the same type. Neither the sensitivity of net entry to past entry nor the sensitivity of net entry to past exit, seem to depend on current GDP growth. This result about net entry suggests that gross entry *and* gross exit respond to changes in growth expectations rather changes in current growth, in their relationship to past entry and exit, this explaining why the results for *net* entry are even more striking than those for *gross* entry.

4.4.2 The quality of insolvency frameworks

Having established that the dynamics of entry depends on growth expectations, while current growth only plays a marginal role, I now extend the investigation to study the possible impact of structural factors. I list three sets of structural factors that could potentially play out: first regulations that govern firm exit, second, indicators capturing firms' ability to raise funding and last, regulations that may limit firm entry.

First regulations that govern firm exit, in particular insolvency proceedings are likely to affect the dynamics of entry. This is most obvious as laws regulating firm exit are likely to shape how entry responds to past exits. For instance, when insolvency is costly, potential new firms may hesitate to replace exiting ones, fearing that failure may in turn be very costly. But such regulations could also affect how current entry affects subsequent entry. A drop in past entry would for example weigh less on new entry subsequently if potential new entrants expect exit to be easier or more fluid. To test for these intuitions, I focus the analysis on four different indicators for the quality of insolvency procedures (Table 11).

[insert Table 11 here]

First, the cost of insolvency, which measures the pecuniary cost of declaring insolvency, plays a significant role in the dynamics of entry. A higher cost of insolvency typically increases the persistence of entry (either gross or net), making past entry developments more important for subsequent gross and net entry (first

and fifth columns). Yet, in both cases, the impact of the cost of insolvency on the dynamics of entry comes in addition to that of growth forecasts. From a quantitative standpoint, growth forecasts still have a significantly larger impact than insolvency costs. Considering for instance a fall in past entry, then a one standard deviation increase in growth forecasts cuts the drop in subsequent cumulative entry by two thirds relative to the case of average growth forecasts and insolvency costs. Conversely a one standard deviation drop in insolvency costs only cuts the drop in subsequent cumulative entry by about 45% relative to the same average benchmark. Second, recovery rates, i.e. how many cents on the dollar, creditors are able to recoup from failing firms, also affect the dynamics of entry, although only at the margin (columns 2 and 6 in Table 11). A higher recovery rate does indeed reduce the persistence of gross entry, making past entry less important for subsequent entry. However this effect is only marginally significant and recovery rates play no role in the relationship between current exit and subsequent entry, neither in gross nor in net terms. A similar result holds for the variable measuring the extent to which creditors are involved in a firm's insolvency process (columns 3 and 7 in Table 11). A stronger involvement typically makes entry less persistent but barely affects how entry relates to past exit. Last the time involved in insolvency proceedings for creditors to recover their assets play little role in the dynamics of gross entry. But paradoxically, it tends to make net entry more responsive to past exit (last column in Table 11), possibly because a more drawn-out process makes exit less persistent.

4.4.3 Firms' ability to raise funding

In addition to the quality of insolvency frameworks, the ability to raise funding is also likely to affect firms' decisions to enter. While future prospects are undoubtedly a critical element of how firms assess profits they could earn when starting a new business, the ability to raise funding at reasonable costs is another important input in this assessment. In the specific case of entry, it happens that most of the time, new firms are small and lack the capital needed to operate on a sufficiently large scale. Moreover, how much new firms are able to grow in the first years after entry, heavily depends on their capacity to finance their expansion (see Aghion et al. 2007). To explore these possibilities, I consider three set of variables capturing

firms' ability to obtain credit and investigate the extent to which, each of them affects the dynamics of entry. First, I look into the impact of collateral and bankruptcy laws and the extent to which their design is meant to facilitate firms' access to credit. Second, I explore whether differences in credit levels or credit growth affect the dynamics of entry. Third and last, I look into whether funding costs matter for the dynamics of entry, focusing on real government bond yields and changes in credit standards, focusing for the former, on the 5-year real government bond yield —corporate debt being usually of comparable maturity—, and on supply-driven changes in lending standards applied by banks to firms, for the latter.

[insert Table 12 here]

The empirical evidence in Table 12 shows that the impact of indicators of firms' ability to obtain credit on the dynamics of entry is usually as expected: easier access to credit tends to reduce the persistence of entry and raise the sensitivity of subsequent entry to past exit. However, as was the case previously for indicators of the quality of insolvency proceedings, the empirical results show indicators for firms' ability to raise credit have a more consistent impact on the persistence of entry, than on the sensitivity of entry to past exit. In addition, the impact on the dynamics of gross entry is also more robust and consistent across indicators than the impact on the dynamics of net entry.

More specifically, the first five columns in Table 12 show that easier and cheaper access to credit for firms makes past entry less important for subsequent gross entry. This is true of all variables, except for the indicator for growth in credit to the non-financial sector to GDP. For example, when the design of collateral and bankruptcy laws facilitates access to credit for firms, then gross entry is less persistent. Similarly, when real funding costs are lower, or when banks ease credit standards applied to firms, then gross entry also shows less persistence. Conversely, indicators for firms' ability to obtain credit have much less impact on how gross entry responds to past exits. Only one indicator —the funding cost indicator— out of five, shows a (weakly) statistically significant effect, the relationship between exit and subsequent entry being negative when funding costs are high and positive when funding costs are low.

Turning to the dynamics of net entry, the last five columns in Table 12 show that the evidence for a

significant effect of firms' ability to obtain credit is more scant. There is some evidence that high credit to GDP levels and strong growth in credit to GDP increase the sensitivity of net entry to past exit. But other indictors do not show any similar effect, and none of the indicators for firms' ability to raise credit seem to affect how gross entry affects subsequent net entry.[18]

4.4.4 Regulations affecting entry

Last, regulations that govern firm entry, in particular laws that may limit entry or make it more difficult by imposing specific barriers, are very likely to affect the dynamics of entry. I consider in turn, four indicators that capture different aspects of the extent to which firms face barriers to entry. First, I focus on the cost to start a new business —expressed in percent of GDP per capita, a higher cost being typically associated with stronger barrier to entry. Similarly, I consider the amount of paid-in capital, which indicates the minimal amount of paid-in capital needed to start a new business. Here again, higher readings are associated with stronger barriers to entry. Third, I investigate the impact of the number of procedures and the number of days to start a new business on the dynamics of entry.

Unsurprisingly, empirical results in Table 13 show that barriers to entry have a significant impact on the dynamics of entry. For instance, consistent with a simple intuition, a drop in current entry typically weighs more on subsequent entry, both in gross and net terms, when barriers to entry are high (third row in Table 13). Conversely, when barriers to entry are low, past entry developments matter less for subsequent entry. High barriers to entry also imply that an increase in exits is more likely to be followed by a drop in entry (last row in Table 13). This is particularly true of the variables indicating the cost and the time it takes to start a new business. Long and costly start-up procedures are typically associated with a negative relationship between exit and subsequent entry, both in gross and net terms. Conversely, when start-up procedures are short and inexpensive, an increase in exit is more likely to be followed by a subsequent increase in entry. Last, empirical results in Table 13 show that none of the indicators capturing the extent to which

[18] It is true that the variable capturing the extent to which the design of collateral and bankrutpcy laws facilitates access to credit enters the regression with a coefficient that is marginally significant. However, the positive coefficient is unexpected as higher readings for this indicator are associated with a better access to credit for firms. Past entry should therefore weigh less, not more, on subsequent net entry.

firms face barriers to entry affects how the economic outlook affects the dynamics of entry. Throughout the different regressions, a brighter outlook is consistently associated with a significantly lower degree of persistence in entry, while strong GDP growth forecasts raise the likelihood that the relationship between exit and subsequent entry be positive.

[insert Table 13 here]

4.4.5 Which GDP component matters for the dynamics of entry?

Having established that growth forecasts matter for the dynamics of entry, beyond and above current GDP growth and structural factors, I now ask the following question: which GDP component matters most? Does private consumption, as the largest GDP component, matter, as one would expect? Or could other components, like net exports, be more important, especially as countries covered in this analysis are essentially small open economies?

To answer this question, I decompose GDP growth forecasts along the contributions of the different GDP components and test which contributions matter to the dynamics of entry. I therefore write GDP, Y, as the sum of private consumption C_p, public consumption, C_g, private investment I_p, public investment I_g and net exports NX:

$$Y = C_p + C_g + I_p + I_g + NX \tag{8}$$

Using this identity, I can write GDP growth forecasts as the sum of the respective GDP components contributions and test which of the different contributions are driving the impact of growth forecasts on the dynamics of entry. Empirical results in Table 14 provide three main takeaways. First, persistence in gross entry mainly depends on the contributions of public and private investment to future GDP growth. Both components show consistently negative coefficients (rows 4 and 5 in the first four columns), implying that stronger contributions of private or public investment to future expected GDP growth imply that current entry weighs less on subsequent entry. From a quantitative standpoint, based on estimated coefficients, the impact of a one standard deviation increase in the contribution of public investment is significantly stronger

than that of a one standard deviation increase in the contribution of private investment, roughly two times larger at a 2-year horizon (see below). Looking at the other GDP components, private consumption also has a similar impact to public and private investment, although statistically weaker, while public consumption and net exports do not seem to play any role.

Second, focusing on the relationship between exit and subsequent entry, empirical results in Table 14 show that public investment is the GDP component whose expected contribution has the most significant and consistent effect. Higher contributions of public investment are systematically associated with a stronger positive response of subsequent entry to an increase in past exit. To be sure, the contribution of private investment also matters. It is however only weakly significant and its impact is quantitatively smaller.

Third and last, empirical results for net entry partly confirm those obtained in the case of gross entry. In particular, a stronger contribution of public or private investment to future GDP growth still raises the sensitivity of net entry to past exit. That said, unlike in the case of gross entry, empirical results also suggest that fluctuations in gross entry weigh less on subsequent net entry when public consumption is expected to contribute strongly to future GDP growth.

[insert Table 14 here]

Graph 6, which provides estimates for the difference-in-difference effect for each GDP component, confirms that the expected contributions of public and private investment to GDP growth have the largest impact on entry. The left-hand panel shows that entry increases by an additional 0.3 percentage point after 2 years in response to a combined one percentage point drop in past entry and a one percentage point increase in past exit, when the contribution of public investment to expected GDP growth is one standard deviation higher. By contrast, when the contribution of public consumption to expected GDP growth increases by one standard deviation, then the response of entry to a combined one percentage point drop in past entry and a one percentage point increase in past exit is virtually unchanged. Similarly, the right-hand panel shows that net entry increases by an additional 0.4 percentage point after 4 years in response to a combined one percentage point drop in past entry and a one percentage point increase in past exit, when the contribution

of private investment to expected GDP growth is one standard deviation higher. But again, when the contribution of public consumption to expected GDP growth increases by one standard deviation, then the response of net entry to a combined one percentage point drop in past entry and a one percentage point increase in past exit is only 0.1 percentage point higher after four years.

[insert Graph 6 here]

5 Conclusions

Understanding the dynamics of firm entry and how it relates to past entry and exit developments is of crucial importance for policymakers, particularly when deep recessions that hit businesses hard call for extending wide and far-reaching policy support. Based on the experience of Euro Area countries, my empirical investigation into the dynamics of firm entry provides three main conclusions. First, growth forecasts matter for the dynamics of entry. Expectations of strong GDP growth typically make current entry developments less important for subsequent entry, both in gross and net terms, while an increase in past entry is typically associated with higher entry, again both in gross and net terms. Second, the impact of growth expectations on the dynamics of entry comes above and beyond that of other factors that could affect firms' decision to enter. This includes current economic conditions, structural factors that shape the quality of insolvency proceedings, the presence of barriers to entry, or the ability or difficulty for firms to obtain credit. Third and last, decomposing growth forecasts across the different GDP components shows that private and public investment are the two items that drive the impact of growth expectations on the dynamics of entry.

This last observation suggests two concluding remarks. On the one hand, the result on private investment suggests that economies can face self-reinforcing developments as low expectations of private investment could deter entry, which would, in turn, weaken private investment down the road. Conversely, expectations of rapidly expanding private investment could help jump-start firm entry which by itself would contribute to strengthen the outlook for private investment. On the other hand, public investment, unlike public consumption, can play a specific role in igniting this virtuous circle between private investment expectations

and entry, by making entry more responsive to past exits. This highlights that governments can play a key role in fostering business dynamism, not only by promoting structural reforms, but also by shifting to a more growth-friendly composition of expenditures that puts a stronger focus on public investment.

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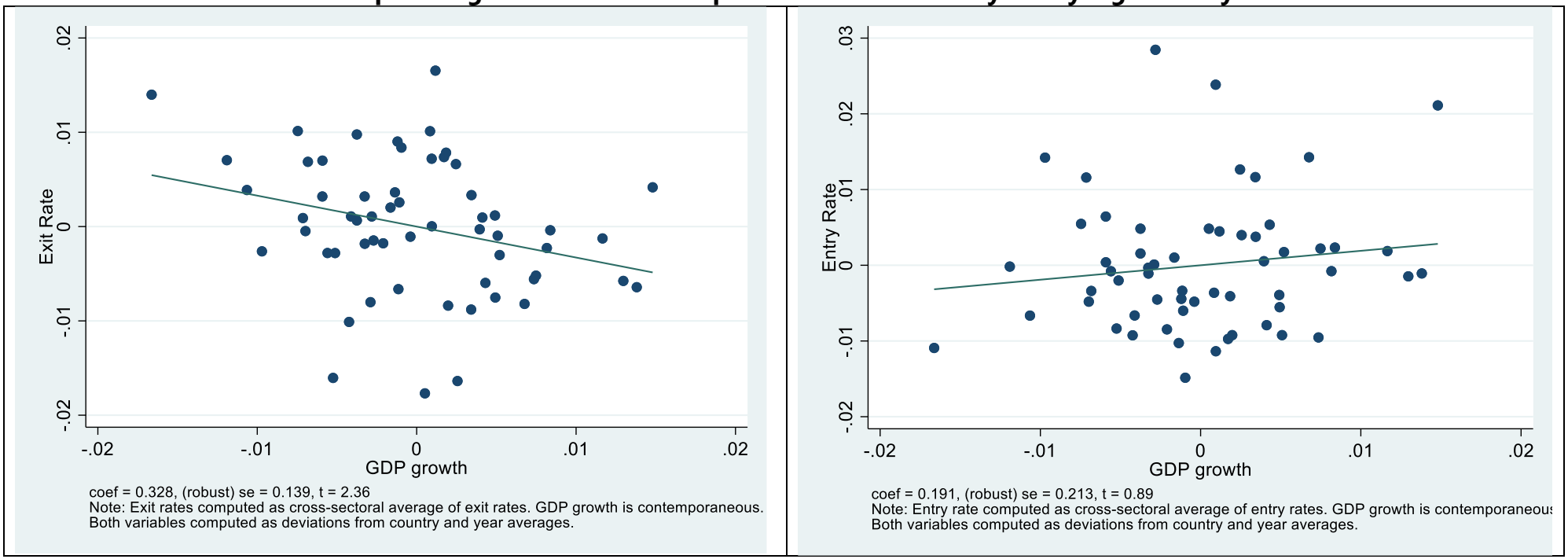
Graphs and Tables

Table 1: Entry and Exit Descriptive Statistics

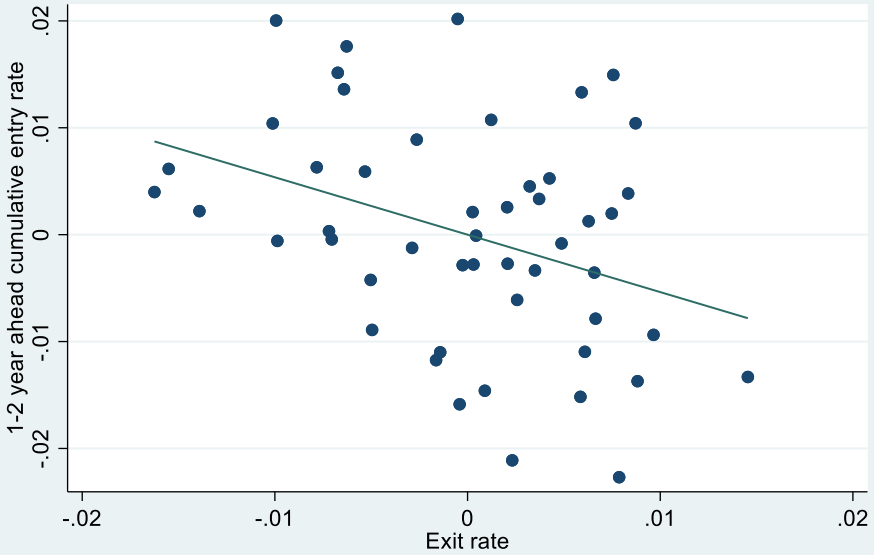
		Firm Entry as a ratio of the total number of firms					**Firm Exit** as the ratio of the total number of firms				
Country	**Obs.**	Average	Standard deviation	1st quartile	Median	3rd quartile	Average	Standard deviation	1st quartile	Median	3rd quartile
Austria	781	8.69%	3.82%	5.53%	8.39%	11.27%	7.43%	3.20%	4.96%	7.26%	9.47%
Belgium	424	3.49%	2.13%	2.10%	3.03%	4.20%	0.90%	0.51%	0.55%	0.82%	1.15%
Germany	494	7.12%	3.60%	4.16%	6.47%	9.57%	7.12%	2.66%	4.85%	7.01%	8.90%
Spain	760	9.30%	3.68%	6.71%	9.15%	11.74%	9.55%	3.19%	7.30%	9.36%	11.51%
France	637	10.66%	4.96%	7.05%	10.31%	13.49%	10.01%	4.28%	7.43%	9.85%	12.00%
Italy	778	9.16%	4.08%	6.21%	9.02%	11.44%	7.65%	2.75%	5.71%	7.35%	9.18%
Netherlands	789	10.05%	4.02%	7.45%	9.40%	11.90%	9.47%	2.86%	7.63%	9.06%	11.26%
Total sample	4663	8.73%	4.35%	5.36%	8.44%	11.37%	7.88%	3.92%	5.37%	7.98%	10.29%

Note: The table reports the summary statistics for gross firm entry and gross firm exit, expressed as ratios of the current number of active firms. The unit of observation is a sector-year for country-by-country summary statistics and a country-sector-year for the summary statistics for the total sample. Obs. Refers to the number of observations used to compute the summary statistics.

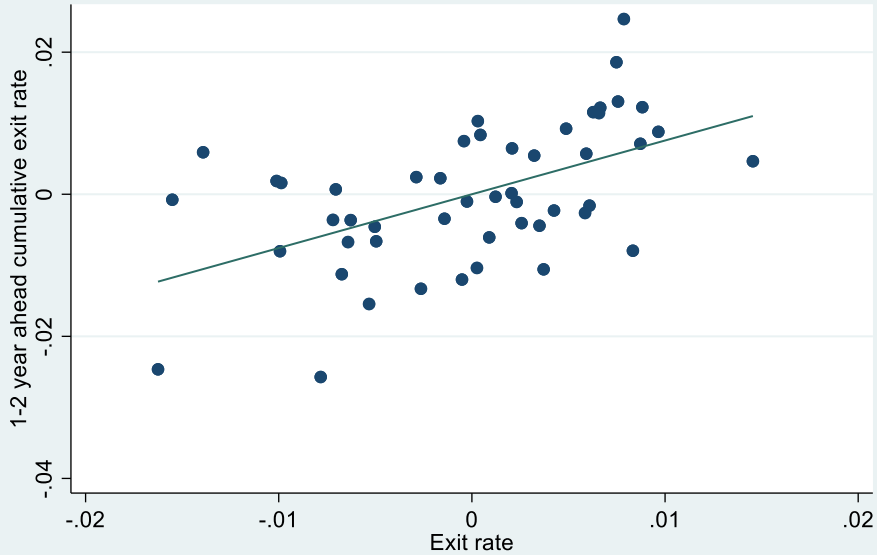
Graph 1: Higher GDP Growth implies lower exit and only mildly higher entry



Graph 2: More exits imply less entry and more exits down the road



coef = -.537, (robust) se = .206, t = -2.61
Note: Entry and exit rates computed as simple averages of sectoral entry and exit rates. Both variables are computed as deviations from country and year averages



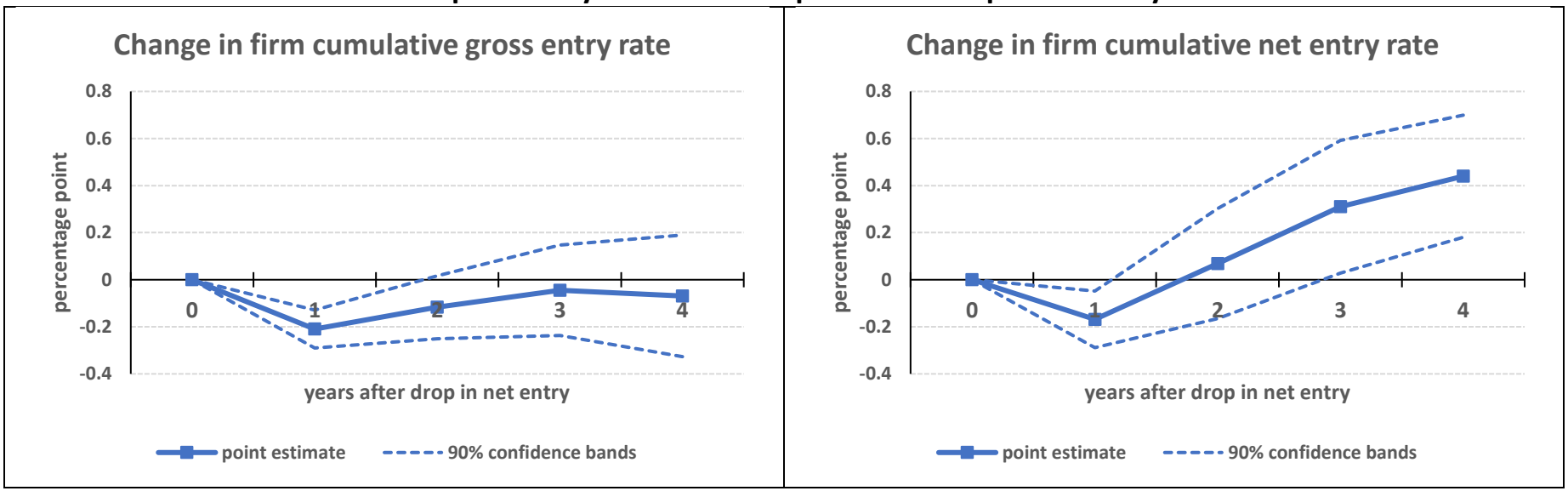
coef = -.757, (robust) se = .248, t = 3.05
Note: Exit rates computed as simple averages of sectoral exit rates. Both variables are computed as deviations from country and year averages

Table 2: The dynamics of entry

Dependent variable	Subsequent Cumulative Firm Gross Entry				Subsequent Cumulative Firm Net Entry			
Yearly horizon	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Firm Entry	**17.87**[a]	**8.645**[b]	**5.747**	**5.078**	**2.956**[a]	**1.044**	**-1.413**	**-3.836**[b]
	(3.635)	*(3.377)*	*(4.125)*	*(5.499)*	*(0.783)*	*(1.647)*	*(1.951)*	*(1.689)*
Firm Exit	**-2.981**	**2.122**	**3.695**	**2.614**	**0.325**	**2.005**[c]	**3.284**[b]	**2.948**[c]
	(2.883)	*(2.764)*	*(3.174)*	*(3.568)*	*(0.781)*	*(1.152)*	*(1.467)*	*(1.517)*
Observations	4,663	4,096	3,530	2,954	4,627	4,049	3,484	2,914
R-squared	0.919	0.945	0.951	0.953	0.637	0.745	0.824	0.887

Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformation of firm entry and firm exit in year *y*, both taken as a ratio of the overall number of firms in year *y*. Reported coefficients are all in percent. All estimations include the full set of country-sector, country-time, and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Graph 3: Entry cumulative response to a drop in net entry



Note: The blue line in the left-hand panel (in the right-hand panel) represents the change in percentage point in the cumulative gross entry rate (cumulative net entry rate) following a one percentage point increase in the gross exit rate and one percentage decrease in the gross entry rate. The change is estimated based on coefficients reported in Table 2 and expressions (5) for marginal effects. Dashed lines represent in each panel the corresponding 90% confidence interval.

Table 3: The dynamics of entry in industry and service sectors

Dependent variable	**Subsequent Cumulative Firm Gross Entry**				**Subsequent Cumulative Firm Net Entry**			
Yearly horizon	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Firm Entry *industry*	**14.69**[a] *(4.970)*	**4.035** *(4.292)*	**2.437** *(3.953)*	**4.921** *(4.038)*	**0.869** *(0.798)*	**0.751** *(1.309)*	**0.841** *(1.626)*	**-1.109** *(1.669)*
Firm Entry *services*	**19.20**[a] *(4.232)*	**10.35**[a] *(3.988)*	**7.199** *(5.227)*	**4.454** *(7.377)*	**3.825**[a] *(0.945)*	**1.031** *(2.085)*	**-2.483** *(2.394)*	**-5.397**[a] *(2.085)*
Firm Exit *industry*	**-5.006** *(5.032)*	**-3.896** *(3.516)*	**0.181** *(3.034)*	**-3.297** *(3.697)*	**-0.490** *(0.682)*	**0.365** *(0.938)*	**1.383** *(1.315)*	**-0.329** *(1.420)*
Firm Exit *services*	**-2.343** *(3.242)*	**4.918** *(3.449)*	**5.550** *(4.228)*	**6.019** *(4.645)*	**0.544** *(0.969)*	**2.772**[c] *(1.510)*	**4.189**[b] *(1.904)*	**4.503**[b] *(1.938)*
Observations	4,663	4,096	3,530	2,954	4,627	4,049	3,484	2,914
R-squared	0.919	0.945	0.951	0.953	0.639	0.745	0.824	0.888

Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformations of firm entry and firm exit in year *y,* both taken as a ratio of the overall number of firms in year *y*. Reported coefficients are all in percent. Each regression estimates separate coefficients for industry and service sectors. Industry sectors group sectors in Mining, Manufacturing, Utilities or Construction. Service sectors gather the other sectors. All estimations include the full set of country-sector, country-time, and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 4: The dynamics of entry before and after the financial crises

Dependent variable	**Subsequent Cumulative Firm Gross Entry**				**Subsequent Cumulative Firm Net Entry**			
Yearly horizon	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Firm Entry *up to 2013*	**29.49**[a] *(4.356)*	**24.01**[a] *(4.238)*	**21.91**[a] *(5.359)*	**24.37**[a] *(7.063)*	**3.676**[a] *(0.970)*	**3.606** *(2.393)*	**2.091** *(2.764)*	**0.429** *(2.169)*
Firm Entry *after 2013*	**11.85**[a] *(4.229)*	**-0.061** *(3.743)*	**-4.875** *(4.348)*	**-5.978** *(5.726)*	**2.664**[a] *(0.873)*	**-0.493** *(1.553)*	**-4.084**[b] *(1.861)*	**-7.189**[a] *(1.890)*
Firm Exit *up to 2013*	**-5.774** *(3.886)*	**-5.088** *(3.761)*	**-4.756** *(4.257)*	**-6.208** *(4.294)*	**1.289** *(1.194)*	**1.212** *(1.530)*	**-0.076** *(1.765)*	**-1.193** *(1.753)*
Firm Exit *after 2013*	**-1.683** *(3.410)*	**4.382** *(3.092)*	**6.804**[c] *(3.529)*	**6.507** *(4.446)*	**-0.333** *(0.771)*	**2.221** *(1.394)*	**5.128**[a] *(1.835)*	**6.231**[a] *(1.916)*
Observations	4,663	4,096	3,530	2,954	4,627	4,049	3,484	2,914
R-squared	0.919	0.945	0.951	0.953	0.639	0.745	0.824	0.888

Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformations of firm entry and firm exit in year *y,* both taken as a ratio of the overall number of firms in year *y*. Reported coefficients are all in percent. Each regression estimates separate coefficients for the periods up to 2013, and after 2013. All estimations include the full set of country-sector, country-time and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 5: The dynamics of entry in the core and the periphery of the Euro Area

Dependent variable	**Subsequent Cumulative Firm Gross Entry**				**Subsequent Cumulative Firm Net Entry**			
Yearly horizon	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Firm Entry *core*	**13.86**[a] *(4.108)*	**6.104**[c] *(3.698)*	**4.980** *(4.527)*	**6.813** *(6.350)*	**2.033**[b] *(0.871)*	**-0.477** *(1.840)*	**-2.210** *(2.241)*	**-2.817** *(1.838)*
Firm Entry *periphery*	**30.30**[a] *(6.718)*	**14.51**[b] *(6.417)*	**6.793** *(7.673)*	**-2.349** *(8.930)*	**5.676**[a] *(1.573)*	**5.572**[b] *(2.624)*	**0.852** *(3.169)*	**-7.227**[b] *(3.591)*
Firm Exit *core*	**1.454** *(3.086)*	**8.130**[a] *(2.915)*	**10.38**[a] *(3.345)*	**7.348**[c] *(4.043)*	**1.349** *(0.842)*	**4.174**[a] *(1.276)*	**5.754**[a] *(1.614)*	**4.688**[a] *(1.649)*
Firm Exit *periphery*	**-25.27**[a] *(6.565)*	**-26.14**[a] *(6.163)*	**-27.16**[a] *(7.590)*	**-17.44**[b] *(8.171)*	**-4.656**[a] *(1.532)*	**-7.172**[a] *(2.327)*	**-7.056**[b] *(2.834)*	**-3.287** *(3.254)*
Observations	4,663	4,096	3,530	2,954	4,627	4,049	3,484	2,914
R-squared	0.920	0.946	0.952	0.953	0.642	0.750	0.827	0.888

Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformations of firm entry and firm exit in year *y,* both taken as a ratio of the overall number of firms in year *y*. Reported coefficients are all in percent. Each regression estimates separate coefficients for countries in the core (AT,BE,DE,FR,NL), and countries in the periphery (ES,IT). All estimations include the full set of country-sector, country-time and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 6: OECD Economic Outlook forecasts

	Summary statistics					Correlation matrix			
GDP growth	Average	Standard deviation	1st quartile	Median	3rd quartile	Real-time	1-year	1-to 2-year	Final
Real-time estimate	0.76%	1.89%	0.19%	1.23%	1.74%	1	0.555	0.327	0.967
1-year ahead forecast	1.20%	0.83%	0.64%	1.32%	1.66%		1	0.751	0.542
1-to 2-year ahead forecast	1.59%	0.45%	1.36%	1.62%	1.90%			1	0.319
Final estimate	0.87%	2.02%	0.46%	1.38%	2.09%				1

Note: The first column in Table 6 reports different GDP growth variables. Real-time estimates correspond to GDP growth estimates for year t reported in the OECD Economic Outlook published in December of year t. 1-year ahead forecasts correspond to GDP growth for year t reported in the OECD Economic Outlook published in December of year t-1. 1-to 2-year ahead forecast correspond to GDP growth for year t reported in the OECD Economic Outlook published in December of year t-2. Final estimates correspond to GDP growth estimates reported in the OECD Economic Outlook published in December of year 2021.

Table 7: IMF World Economic Outlook forecasts

	Summary statistics					Correlation matrix			
GDP growth	Average	Standard deviation	1st quartile	Median	3rd quartile	Real-time	1-year	1-to 2-year	Final
Real-time estimate	0.72%	1.90%	0.19%	1.25%	1.69%	1	0.797	0.543	0.962
1-year ahead forecast	1.24%	0.74%	0.90%	1.40%	1.65%		1	0.706	0.779
1-to 2-year ahead forecast	1.48%	0.39%	1.34%	1.53%	1.76%			1	0.523
Final estimate	0.86%	2.02%	0.43%	1.38%	2.08%				1

Note: The first column in Table 7 reports different GDP growth variables. Real-time estimates correspond to GDP growth estimates for year t reported in the IMF World Economic Outlook published in October of year t. 1-year ahead forecasts correspond to GDP growth for year t reported in the IMF World Economic Outlook published in October of year t-1. 1-to 2-year ahead forecast correspond to GDP growth for year t reported in the IMF World Economic Outlook published in October of year t-2. Final estimates correspond to GDP growth estimates reported in the IMF World Economic Outlook published in October of year 2021.

Table 8: The impact of OECD growth forecasts on the dynamics of entry

Dependent variable	**Subsequent Cumulative Firm Gross Entry**				**Subsequent Cumulative Firm Net Entry**			
Yearly horizon	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Firm Entry	**44.47**[a]	**37.82**[a]	**35.82**[a]	**42.78**[a]	**5.997**[a]	**6.919**[a]	**4.542**[c]	**5.186**[c]
	(5.674)	*(5.355)*	*(6.860)*	*(8.188)*	*(1.249)*	*(2.129)*	*(2.713)*	*(2.792)*
Firm Entry × *GDP growth forecast*	**-16.84**[a]	**-17.87**[a]	**-18.39**[a]	**-23.86**[a]	**-1.963**[a]	**-3.647**[a]	**-3.737**[a]	**-5.959**[a]
	(3.086)	*(2.880)*	*(3.583)*	*(4.303)*	*(0.673)*	*(0.948)*	*(1.308)*	*(1.470)*
Firm Exit	**-24.38**[b]	**-17.27**[b]	**-20.61**[a]	**-26.89**[a]	**-4.938**[a]	**-8.106**[a]	**-9.693**[a]	**-11.96**[a]
	(7.844)	*(7.031)*	*(7.924)*	*(8.648)*	*(1.554)*	*(2.537)*	*(3.345)*	*(3.266)*
Firm Exit × *GDP growth forecast*	**13.91**[a]	**11.91**[a]	**14.77**[a]	**18.20**[a]	**3.382**[a]	**6.153**[a]	**7.896**[a]	**9.228**[a]
	(4.452)	*(3.967)*	*(4.334)*	*(5.150)*	*(0.890)*	*(1.387)*	*(1.757)*	*(1.790)*
Observations	4,663	4,096	3,530	2,954	4,627	4,049	3,484	2,914
R-squared	0.920	0.946	0.951	0.954	0.640	0.748	0.826	0.889

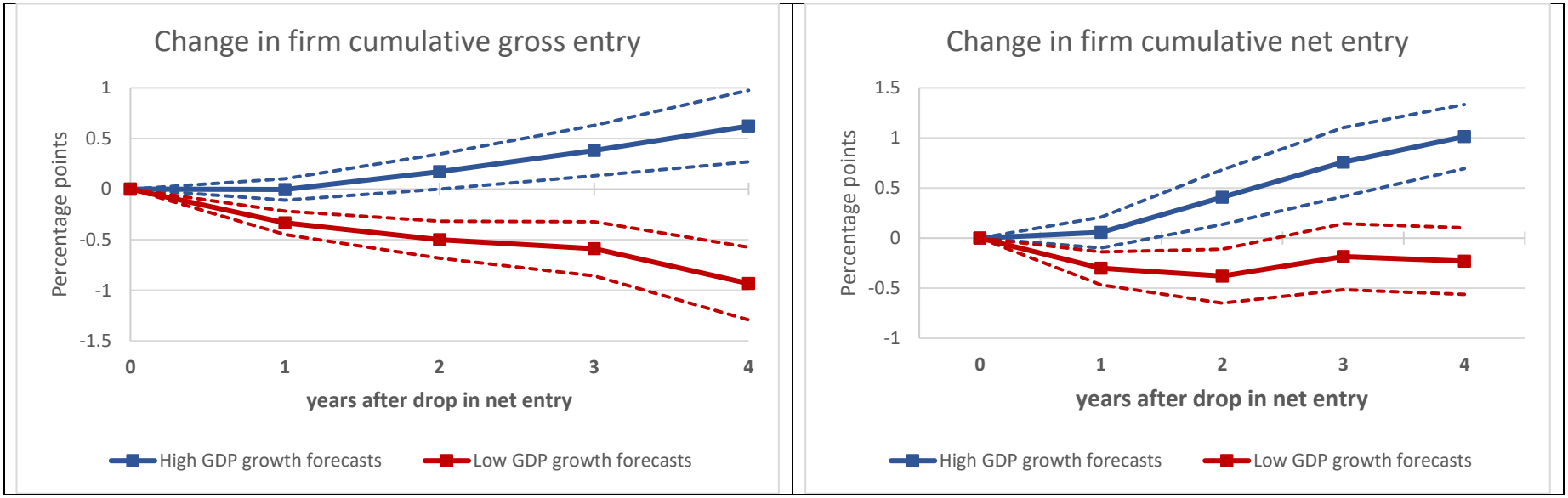
Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformations of firm entry and firm exit in year *y,* both taken as a ratio of the overall number of firms in year *y*, and their respective interactions with 1- to 2-year ahead GDP growth OECD forecasts. Reported coefficients are all in percent. All estimations include the full set of country-sector, country-time and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 9: The impact of IMF growth forecasts on the dynamics of entry

Dependent variable	**Subsequent Cumulative Firm Gross Entry**				**Subsequent Cumulative Firm Net Entry**			
Yearly horizon	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Firm Entry	**46.75**[a]	**41.56**[a]	**42.06**[a]	**36.97**[a]	**7.193**[a]	**8.419**[a]	**8.187**[a]	**3.191**
	(6.177)	*(5.522)*	*(6.948)*	*(8.291)*	*(1.221)*	*(1.917)*	*(2.640)*	*(2.969)*
Firm Entry × *GDP growth forecast*	**-18.90**[a]	**-21.54**[a]	**-23.96**[a]	**-22.12**[a]	**-2.770**[a]	**-4.827**[a]	**-6.358**[a]	**-5.073**[a]
	(3.766)	*(3.496)*	*(4.311)*	*(4.858)*	*(0.770)*	*(1.398)*	*(1.744)*	*(1.725)*
Firm Exit	**-24.95**[a]	**-16.83**[b]	**-19.82**[b]	**-18.22**[b]	**-6.597**[a]	**-9.664**[a]	**-13.87**[a]	**-11.04**[a]
	(8.771)	*(7.277)*	*(8.276)*	*(9.109)*	*(1.589)*	*(2.799)*	*(3.606)*	*(3.461)*
Firm Exit × *GDP growth forecast*	**14.37**[a]	**12.55**[a]	**15.58**[a]	**13.99**[b]	**4.491**[a]	**7.635**[a]	**11.34**[a]	**9.317**[a]
	(5.209)	*(4.761)*	*(5.221)*	*(6.081)*	*(1.113)*	*(1.967)*	*(2.375)*	*(2.156)*
Observations	4,663	4,096	3,530	2,954	4,627	4,049	3,484	2,914
R-squared	0.920	0.946	0.951	0.954	0.640	0.748	0.826	0.889

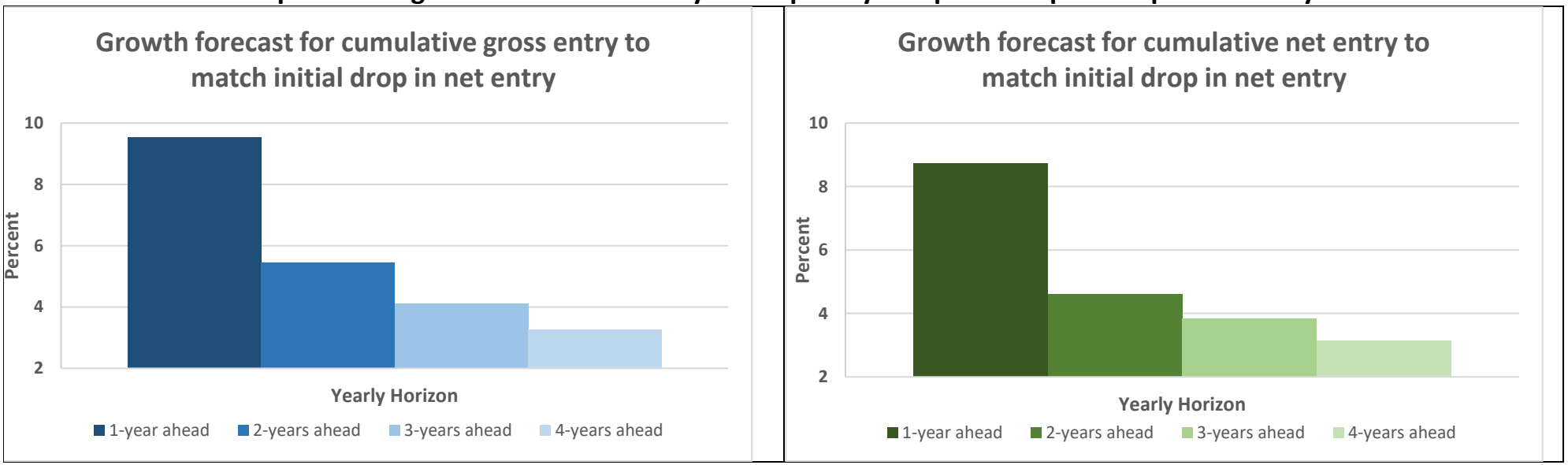
Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformations of firm entry and firm exit in year *y,* both taken as a ratio of the overall number of firms in year *y*, and their respective interactions with 1- to 2-year ahead GDP growth IMF forecasts. Reported coefficients are all in percent. All estimations include the full set of country-sector, country-time and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Graph 4: Growth expectations and the dynamics of entry



Note: The blue line (red line) in the left-hand panel represents the change in percentage point in the cumulative gross entry rate following a one percentage point increase in the gross exit rate and one percentage decrease in the gross entry rate when the 1- to 2-year GDP growth forecast is at the 90th percentile of the sample (at the 10th percentile of the sample). The blue line (red line) in the right-hand panel represents the change in percentage point in the cumulative net entry rate following a one percentage point increase in the gross exit rate and one percentage decrease in the gross entry rate when the 1- to 2-year GDP growth forecast is at the 90th percentile of the sample (at the 10th percentile of the sample). Changes are estimated based on coefficients reported in Table 8. Dashed lines represent in each panel the corresponding 90% confidence interval.

Graph 5: Strong forecasts ensure entry subsequently compensates past drop in net entry



Note: The blue bars in the left-hand panel (green bars in the right-hand panel) represent the 1-to 2-year ahead GDP growth forecast needed for cumulative gross entry (cumulative net entry) to compensate a one percentage point increase in gross exit rate and a one percentage point decrease in gross entry rates, at different yearly horizons. GDP growth forecasts are estimated based on coefficients reported in Table 8.

Table 10: The impact of growth forecast and current growth on the dynamics of entry.

Dependent variable	Subsequent Cumulative Firm Gross Entry				Subsequent Cumulative Firm Net Entry			
Yearly horizon	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Forecast provider	OECD		IMF		OECD		IMF	
Firm Entry	**40.39**[a] *(6.184)*	**30.57**[a] *(5.568)*	**41.39**[a] *(6.715)*	**32.85**[a] *(6.198)*	**5.770**[a] *(1.351)*	**6.186**[a] *(2.063)*	**7.017**[a] *(1.404)*	**7.873**[a] *(2.327)*
Firm Entry × *GDP growth forecast*	**-13.14**[a] *(3.591)*	**-11.92**[a] *(3.105)*	**-14.34**[a] *(4.242)*	**-14.46**[a] *(4.179)*	**-1.732**[b] *(0.781)*	**-3.058**[b] *(1.321)*	**-2.624**[a] *(0.962)*	**-4.369**[b] *(2.161)*
Firm Entry × *current GDP growth*	**-2.496**[c] *(1.351)*	**-3.830**[a] *(1.046)*	**-2.239**[c] *(1.271)*	**-3.424**[a] *(1.116)*	**-0.200** *(0.249)*	**-0.367** *(0.577)*	**-0.0731** *(0.264)*	**-0.210** *(0.638)*
Firm Exit	**-23.07**[a] *(7.918)*	**-13.80**[b] *(7.040)*	**-24.81**[a] *(9.356)*	**-13.00** *(7.917)*	**-4.717**[a] *(1.552)*	**-7.847**[a] *(2.686)*	**-6.401**[a] *(1.718)*	**-10.42**[a] *(3.393)*
Firm Exit × *GDP growth forecast*	**13.01**[a] *(4.805)*	**8.897**[b] *(4.101)*	**14.57**[b] *(6.086)*	**9.211**[c] *(5.554)*	**2.976**[a] *(0.879)*	**5.984**[a] *(1.591)*	**4.300**[a] *(1.268)*	**8.406**[a] *(2.583)*
Firm Exit × *current GDP growth*	**0.039** *(1.403)*	**1.582** *(1.136)*	**-0.428** *(1.458)*	**1.430** *(1.245)*	**0.412** *(0.315)*	**0.0209** *(0.557)*	**0.101** *(0.356)*	**-0.474** *(0.643)*
Observations	4,663	4,096	4,663	4,096	4,627	4,049	4,627	4,049
R-squared	0.920	0.946	0.920	0.946	0.640	0.748	0.639	0.746

Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformations of firm entry and firm exit in year *y*, both taken as a ratio of the overall number of firms in year *y*, and their respective interactions with current or 1- to 2-year ahead GDP growth forecasts. Reported coefficients are all in percent. The third row indicates whether GDP growth forecasts are drawn from the OECD EO or from the IMF WEO. All estimations include the full set of country-sector, country-time, and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 11: Controlling for the quality of insolvency frameworks.

Dependent variable	2-year ahead Cumulative Firm Gross Entry				2-year ahead Cumulative Firm Net Entry			
Insolvency indicator	Cost of insolvency	Recovery rate	Creditor Participation	Time to recover credit	Cost of insolvency	Recovery rate	Creditor Participation	Time to recover credit
Firm Entry	**29.95**[a]	**67.11**[a]	**95.03**[a]	**41.49**[a]	**5.213**[c]	**11.58**	**14.01**	**5.279**
	(7.575)	*(13.68)*	*(26.28)*	*(14.27)*	*(2.713)*	*(9.836)*	*(14.26)*	*(7.631)*
Firm Entry × *GDP growth forecast*	**-16.83**[a]	**-18.10**[a]	**-17.84**[a]	**-17.45**[a]	**-2.418**[b]	**-2.997**[a]	**-2.988**[a]	**-3.219**[a]
	(2.854)	*(2.786)*	*(2.844)*	*(2.860)*	*(0.956)*	*(0.940)*	*(0.975)*	*(0.987)*
Firm Entry × *Insolvency indicator*	**0.812**[c]	**-0.392**[b]	**-21.39**[b]	**-3.361**	**-0.0672**	**-0.0903**	**-3.306**	**-0.076**
	(0.469)	*(0.163)*	*(9.084)*	*(8.773)*	*(0.159)*	*(0.112)*	*(5.489)*	*(6.180)*
Firm Exit	**-13.18**	**-38.88**[b]	**-13.56**	**-14.81**	**-6.185**[b]	**0.487**	**-49.13**[a]	**-24.27**
	(8.056)	*(18.44)*	*(34.47)*	*(14.35)*	*(2.912)*	*(8.810)*	*(14.93)*	*(5.740)*
Firm Exit × *GDP growth forecast*	**15.68**[a]	**14.99**[a]	**15.19**[a]	**14.89**[a]	**7.253**[a]	**7.179**[a]	**7.964**[a]	**8.378**[a]
	(3.977)	*(4.057)*	*(4.086)*	*(4.116)*	*(1.426)*	*(1.389)*	*(1.411)*	*(1.464)*
Firm Exit × *Insolvency indicator*	**-0.980**[b]	**0.245**	**-2.806**	**-4.067**	**-0.257**[c]	**-0.108**	**15.12**[a]	**11.35**[a]
	(0.392)	*(0.202)*	*(12.69)*	*(9.921)*	*(0.133)*	*(0.107)*	*(5.773)*	*(4.203)*
Observations	2,655	3,145	3,145	3,145	2,640	3,108	3,108	3,108
R-squared	0.961	0.956	0.956	0.956	0.824	0.800	0.801	0.801

Note: The table reports the estimation results from regressions where the dependent variables, reported on the first row, is the logistic transformation of either 2-year ahead cumulative firm gross entry (four first columns) or 2-year ahead cumulative firm entry net of exits (four last columns), both taken as a ratio of the overall current number of firms. The independent variables are the logistic transformations of current firm entry and firm exit, both taken as a ratio of the overall current number of firms, and their respective interactions with 1- to 2-year ahead GDP growth OECD forecasts or with insolvency indicators. The second row indicates the insolvency indicator considered in each regression. **Cost of insolvency** refers to the cost of the insolvency proceedings, recorded as a percentage of the estate's value. **Recovery rate** refers to how many cents on the dollar claimants recover from an insolvent firm. **Creditor participation** refers to the extent to which creditors are involved in insolvency proceedings. **Time to recover credit** refers to the time, expressed in calendar years, for creditors to recover their credit. **Reorganisation Proceedings** refers to the extent to which creditors are involved in the reorganisation process when their interests are affected. Reported coefficients are all in percent. All estimations include the full set of country-sector, country-time, and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 12: Controlling for firms' ability to obtain credit.

Dependent variable	2-year ahead Cumulative Firm Gross Entry					2-year ahead Cumulative Firm Net Entry				
Getting Credit indicator	Legal rights	Credit to NFS	Credit to NFS Growth	Funding cost	Credit standards	Legal rights	Credit to NFS	Credit to NFS Growth	Funding cost	Credit standards
Firm Entry	**55.81**[a]	**116.2**[a]	**34.08**[a]	**33.99**[a]	**35.76**[a]	**-0.756**	**2.824**	**6.777**[a]	**6.357**[a]	**6.875**
	(10.46)	*(42.06)*	*(5.404)*	*(5.420)*	*(5.347)*	*(3.333)*	*(13.29)*	*(1.969)*	*(2.054)*	*(2.132)*
Firm Entry × *GDP growth forecast*	**-15.91**[a]	**-18.47**[a]	**-16.27**[a]	**-15.22**[a]	**-17.63**[a]	**-2.828**[a]	**-3.494**[a]	**-3.531**[a]	**-3.236**[a]	**-3.638**[a]
	(2.878	*(2.856)*	*(2.839)*	*(2.910)*	*(2.873)*	*(0.936)*	*(0.949)*	*(0.950)*	*(1.040)*	*(0.947)*
Firm Entry × *Credit indicator*	**-3.977**[b]	**-16.16**[c]	**23.94**	**4.878**[a]	**57.25**[a]	**1.118**[c]	**0.830**	**-6.269**	**0.768**	**1.317**
	(1.574)	*(8.564)*	*(16.49)*	*(1.257)*	*(14.29)*	*(0.623)*	*(2.787)*	*(7.093)*	*(0.611)*	*(5.446)*
Firm Exit	**-14.99**	**-65.97**	**-21.79**[a]	**-13.98**[b]	**-17.11**[b]	**-7.715**[b]	**-59.29**[a]	**-10.66**[a]	**-7.577**[a]	**-8.067**
	(12.84)	*(42.90)*	*(7.257)*	*(6.990)*	*(6.933)*	*(3.816)*	*(14.07)*	*(2.488)*	*(2.635)*	*(2.549)*
Firm Exit × *GDP growth forecast*	**13.58**[a]	**11.96**[a]	**13.59**[a]	**9.562**[b]	**11.58**[a]	**7.205**[a]	**6.740**[a]	**7.055**[a]	**5.892**[a]	**6.141**[a]
	(3.969)	*(3.996)*	*(4.001)*	*(3.983)*	*(3.916)*	*(1.406)*	*(1.375)*	*(1.389)*	*(1.476)*	*(1.384)*
Firm Exit × *Credit indicator*	**-0.307**	**10.10**	**36.79**	**-2.214**[c]	**-6.519**	**-0.111**	**10.49**[a]	**29.32**[a]	**-0.002**	**1.017**
	(2.218)	*(8.479)*	*(22.52)*	*(1.297)*	*(17.89)*	*(0.695)*	*(2.937)*	*(8.535)*	*(0.564)*	*(6.471)*
Observations	3,550	4,096	4,096	4,096	4,096	3,509	4,049	4,049	4,049	4,049
R-squared	0.954	0.946	0.946	0.946	0.946	0.774	0.750	0.750	0.748	0.748

Note: The table reports the estimation results from regressions where the dependent variables, reported on the first row, is the logistic transformation of either 2-year ahead cumulative firm gross entry (four first columns) or 2-year ahead cumulative firm entry net of exits (four last columns), both taken as a ratio of the overall current number of firms. The independent variables are the logistic transformations of current firm entry and firm exit, both taken as a ratio of the overall current number of firms, and their respective interactions with 2-year ahead GDP growth OECD forecasts or with indicators on firms' ability to obtain credit. The second row indicates the specific indicator considered in each regression for firms' ability to obtain credit. **Legal rights** refers to the degree to which the design of collateral and bankruptcy laws facilitates access to credit. **Credit to NFS** refers to the log of current credit to the private non-financial sector to GDP. **Credit to NFS Growth** refers to the 3-year growth in credit to the private non-financial sector to GDP. **Funding Cost** refers to the difference between the 5-year yield on government bonds and current inflation. **Credit standards** refers to the change in credit standards applied by banks to loans to the business sector. Reported coefficients are all in percent. All estimations include the full set of country-sector, country-time, and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 13: Controlling for the regulations affecting entry.

Dependent variable	2-year ahead Cumulative Firm Gross Entry				2-year ahead Cumulative Firm Net Entry			
Starting a business indicator	Cost	Paid-in capital	Procedures	Time	Cost	Paid-in capital	Procedures	Time
Firm Entry	**19.89**[a]	**35.90**[a]	**-5.246**	**19.63**[a]	**-0.784**	**4.281**[b]	**-3.715**	**1.516**
	(6.304)	*(5.524)*	*(9.330)*	*(6.053)*	*(3.032)*	*(2.148)*	*(3.929)*	*(2.589)*
Firm Entry × *GDP growth forecast*	**-13.03**[a]	**-18.52**[a]	**-12.70**[a]	**-13.21**[a]	**-1.527**	**-3.769**[a]	**-2.066**[b]	**-2.297**[b]
	(2.741)	*(2.930)*	*(2.906)*	*(2.799)*	*(0.988)*	*(1.010)*	*(0.971)*	*(0.944)*
Firm Entry × *Start indicator*	**1.731**[a]	**0.157**	**5.568**[a]	**0.782**[a]	**0.539**[a]	**0.100**[b]	**1.062**[a]	**0.134**[a]
	(0.387)	*(0.109)*	*(1.036)*	*(0.110)*	*(0.180)*	*(0.0474)*	*(0.361)*	*(0.0433)*
Firm Exit	**6.640**	**-17.91**[b]	**-14.35**[c]	**-10.55**	**1.223**	**-8.655**[a]	**-5.186**	**-5.651**[b]
	(8.181)	*(7.128)*	*(8.594)*	*(7.417)*	*(3.758)*	*(2.562)*	*(3.246)*	*(2.735)*
Firm Exit × *GDP growth forecast*	**7.833**[b]	**15.85**[a]	**13.59**[a]	**13.27**[a]	**4.861**[a]	**9.646**[a]	**6.992**[a]	**6.904**[a]
	(3.907)	*(4.182)*	*(3.881)*	*(3.870)*	*(1.427)*	*(1.587)*	*(1.337)*	*(1.315)*
Firm Exit × *Start indicator*	**-2.323**[a]	**-0.126**	**-0.472**	**-0.461**[a]	**-0.916**[a]	**-0.186**[a]	**-0.454**	**-0.148**[b]
	(0.481)	*(0.123)*	*(0.890)*	*(0.133)*	*(0.245)*	*(0.0621)*	*(0.328)*	*(0.0649)*
Observations	3,550	3,550	3,550	3,550	3,509	3,509	3,509	3,509
R-squared	0.954	0.954	0.954	0.955	0.776	0.774	0.778	0.774

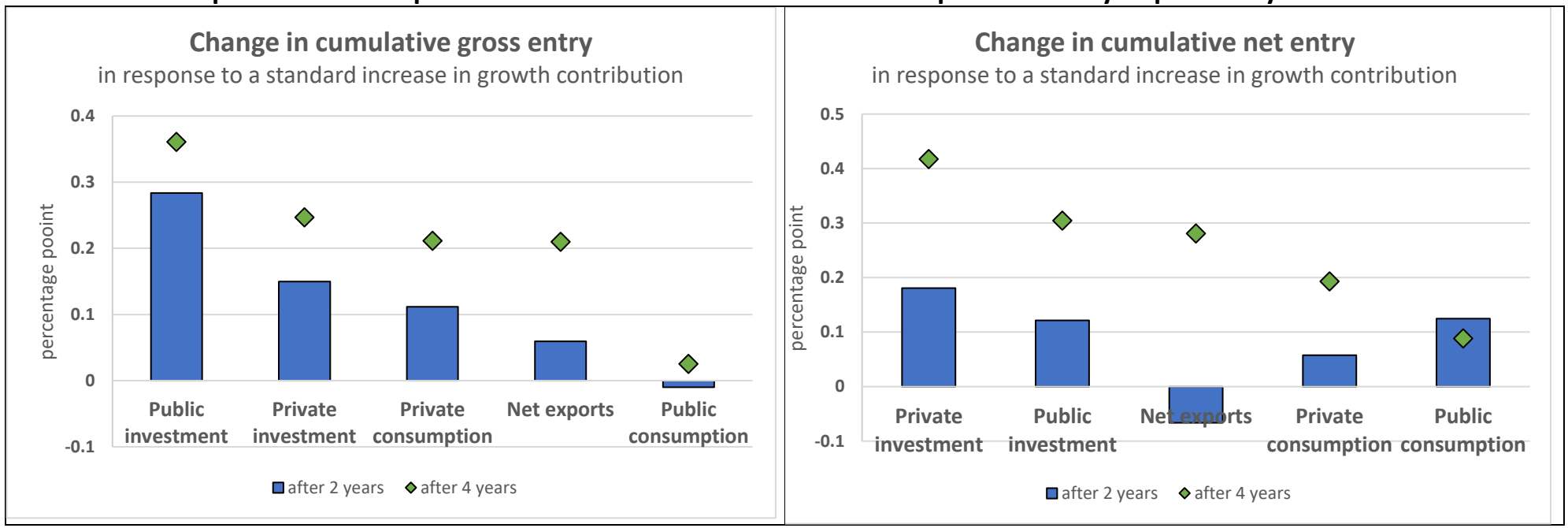
Note: The table reports the estimation results from regressions where the dependent variables, reported on the first row, is the logistic transformation of either 2-year ahead cumulative firm gross entry (four first columns) or 2-year ahead cumulative firm entry net of exits (four last columns), both taken as a ratio of the overall current number of firms. The independent variables are the logistic transformations of current firm entry and firm exit, both taken as a ratio of the overall current number of firms, and their respective interactions with 2-year ahead GDP growth OECD forecasts or with indicators on the ease to start a new business. The second row indicates the specific indicator considered in each regression for the ease to start a new business. **Cost** refers to the cost to start a business in percent of income per capita; **Paid-in capital** refers to the minimal paid-in capital in percent of income per capita, needed to start a business; **Procedures** refers to the number of procedures to start a business; **Time** refers to the number of days needed to start a business. Reported coefficients are all in percent. All estimations include the full set of country-sector, country-time, and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Table 14: Decomposing growth forecasts along GDP components.

Dependent variable	Subsequent Cumulative Firm Gross Entry				Subsequent Cumulative Firm Net Entry			
Yearly horizon	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Firm Entry	**41.94**[a]	**28.69**[a]	**22.47**[b]	**31.48**[a]	**6.339**[a]	**3.701**	**-1.639**	**2.624**
	(7.295)	*(6.984)*	*(9.442)*	*(11.30)*	*(1.582)*	*(3.162)*	*(4.133)*	*(4.243)*
× *Private Consumption*	**-13.05**[b]	**-9.724**[c]	**-3.526**	**-14.20**[b]	**-2.305**	**0.558**	**-0.458**	**-1.400**
	(6.073)	*(5.424)*	*(6.219)*	*(7.186)*	*(1.464)*	*(2.049)*	*(2.649)*	*(2.869)*
× *Public Consumption*	**-8.696**	**-10.21**	**2.152**	**-1.599**	**-4.721**[b]	**-10.98**[a]	**-0.457**	**-5.859**
	(10.39)	*(8.833)*	*(11.48)*	*(15.27)*	*(2.172)*	*(3.488)*	*(4.499)*	*(4.913)*
× *Private Investment*	**-17.74**[a]	**-15.97**[a]	**-22.52**[a]	**-25.36**[a]	**-1.303**	**-3.050**	**-0.989**	**-8.285**[a]
	(6.668)	*(6.044)*	*(7.644)*	*(9.729)*	*(1.423)*	*(2.063)*	*(2.690)*	*(3.202)*
× *Public Investment*	**-83.18**[a]	**-91.91**[a]	**-100.9**[a]	**-108.0**[a]	**-1.934**	**-6.217**	**-14.19**[b]	**-13.07**[c]
	(15.33)	*(14.37)*	*(17.48)*	*(26.65)*	*(3.638)*	*(5.362)*	*(6.578)*	*(7.497)*
× *Net Exports*	**-16.81**[b]	**-9.982**	**-4.352**	**-13.48**	**-2.409**[c]	**-0.485**	**4.974**	**-3.366**
	(6.956)	*(6.597)*	*(8.689)*	*(11.40)*	*(1.462)*	*(2.645)*	*(3.742)*	*(4.157)*
Firm Exit	**-24.14**[a]	**-9.614**	**-11.95**	**-22.83**[b]	**-4.594**[a]	**-2.590**	**-2.993**	**-9.288**[c]
	(8.295)	*(8.040)*	*(9.515)*	*(11.35)*	*(1.656)*	*(3.126)*	*(4.572)*	*(4.789)*
× *Private Consumption*	**14.15**[c]	**8.622**	**7.426**	**17.48**[b]	**5.001**[a]	**3.145**	**2.167**	**6.666**[b]
	(7.260)	*(6.261)*	*(6.825)*	*(8.182)*	*(1.805)*	*(2.495)*	*(3.151)*	*(2.959)*
× *Public Consumption*	**-8.036**	**-11.92**	**-8.057**	**4.120**	**-4.916**	**-2.306**	**-3.634**	**0.0342**
	(13.40)	*(12.16)*	*(14.02)*	*(14.64)*	*(3.071)*	*(4.486)*	*(5.699)*	*(5.609)*
× *Private Investment*	**16.63**[b]	**11.54**[c]	**17.25**[b]	**15.56**	**3.181**[c]	**6.244**[a]	**9.846**[a]	**11.07**[a]
	(7.606)	*(6.698)*	*(7.695)*	*(9.740)*	*(1.666)*	*(2.396)*	*(3.160)*	*(3.631)*
× *Public Investment*	**75.39**[a]	**66.62**[a]	**77.74**[a]	**79.40**[a]	**10.65**[c]	**12.81**[c]	**20.94**[b]	**31.04**[a]
	(20.53)	*(18.37)*	*(23.10)*	*(22.41)*	*(5.773)*	*(7.736)*	*(8.763)*	*(9.052)*
× *Net Exports*	**13.36**[c]	**-1.488**	**2.962**	**13.82**	**1.170**	**-2.997**	**-1.502**	**6.893**
	(7.669)	*(7.716)*	*(9.178)*	*(11.13)*	*(1.602)*	*(3.079)*	*(4.359)*	*(4.562)*
Observations	4,663	4,096	3,530	2,954	4,627	4,049	3,484	2,914
R-squared	0.921	0.947	0.952	0.954	0.645	0.754	0.829	0.890

Note: The table reports the estimation results from regressions where the dependent variable, reported on the first row, is the logistic transformation of either cumulative firm gross entry (four first columns) or cumulative firm entry net of exits (four last columns) between year *y+1* and year *y+h*, taken as a ratio of the overall number of firms in year *y*. The second row reports the horizon *h* at which the dependent variable is computed. The independent variables are the logistic transformations of firm entry and firm exit in year *y,* both taken as a ratio of the overall number of firms in year *y*, and their respective GDP components' contributions to 1- to 2-year ahead GDP growth OECD forecasts. Reported coefficients are all in percent. All estimations include the full set of country-sector, country-time and sector-time fixed effects. Robust standard errors reported in parentheses. [a]/[b]/[c] indicate statistical significance at the 1%/5%/10% level.

Graph 6: Public and private investment matter most for the response of entry to past entry and exit



Note: The blue bars (green diamonds) in the left-hand panel represent the relative change in cumulative gross entry after 2 years (after 4 years) in response to a combined one percentage point increase in exit and a one percentage point decrease in entry, when the contribution of each GDP component in the x-axis to future GDP growth increases by one standard deviation. The blue bars (green diamonds) in the right-hand panel represent the relative change in cumulative net entry after 2 years (after 4 years) in response to a combined one percentage point increase in exit and a one percentage point decrease in entry, when the contribution of each component in the x-axis to future GDP growth increases by one standard deviation. Future GDP growth refers to the 1- to 2-year ahead GDP growth OECD forecast. Estimates based on coefficients reported in Table 14.

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