10 Family firms and regional entrepreneurship

The European evidence

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Introduction

Family firms are the most predominant form of business organization and account for a large proportion of employment, business turnover and gross domestic product (Bjuggren, Johansson, & Sjögren, 2011). This relevance has led researchers to focus on the behavioral differences between family and non-family firms, and on the role played by some family-specific attributes in explaining the former's profitability and productivity (Anderson & Reeb, 2003; Sraer & Thesmar, 2007), financing and investment decisions (Anderson, Mansi, & Reeb, 2003; Anderson, Duru, & Reeb, 2012) and internationalization and innovation activities (Minetti, Murro, & Paiella, 2015; Pongelli, Caroli, & Cucculelli, 2016).

The literature has mainly focused on micro-oriented research at the firm and family levels, whereas the role played by family ownership and industry attributes at the aggregate level has received less attention (Basco, 2015). This is particularly evident in the case of regional entrepreneurship, as the extant literature has scarcely explored the connections between local entrepreneurial activity and specific exogenous industry characteristics, like the industry structure and the density of family-owned firms.

The aim of this chapter is two-fold. First, it aims at analyzing whether family firm density, together with industry scale, affects entrepreneurship at the regional level. Second, it investigates whether the development stage of the economy plays a role in this relationship. As this last issue is central to our analysis, we explore the different stages of development of European regions to identify the influence of structural industry characteristics on regional entrepreneurship rates across European geographical areas.

The rationale behind this research study is to connect three complementary streams of analysis: the industry scale, the ownership structure of companies and the stage of industrial development of European regions. For the first, previous studies have demonstrated that a high regional concentration of large scale industries – i.e., the industry scale – negatively affects entrepreneurship (Stuetzer et al., 2016), whereas the prevalence of small businesses has been associated with a higher level of entrepreneurship

(Reynolds, Storey, & Westhead, 1994; Lee, Florida, & Acs, 2004; Fritsch & Falck, 2007).¹ This makes the industry structure a significant external boundary condition in assessing the development of entrepreneurial activity at the regional level.

As for the second line of research, we argue that in addition to the industry scale, the industry composition – in terms of the prevalent type of ownership – also matters for entrepreneurship, as it can influence the incentives behind individual decisions and, in turn, local entrepreneurial activity (Villalonga & Amit, 2010). A large presence of family firms makes the long-term orientation a pervasive feature of incumbent companies, thus supporting risk-taking in the economy, which, in turn, fosters entrepreneurship (Zahra, Hayton, & Salvato, 2004). Similarly, family firms are very well suited to promote interaction between founders and workers, an aspect that makes it easier for the latter to learn how to start and run a firm.

Finally, as for the third research area, recent evidence on the impact of family ownership on innovation helps to explain why the influence of industry factors on entrepreneurship may run differently depending on the stage of regional development (Cucculelli & Peruzzi, 2020). In regions that are in an early stage of industrial development, foreign direct investments may fuel economic growth because of employment opportunities and other spillovers that are poured into the local economy by external large players. Multinational firms – typically large-sized firms – may also generate positive spillovers on host regions in terms of diffusion of technologies and management practices, thereby fostering local entrepreneurship. Moreover, large external companies may also stimulate local entrepreneurship through the sub-contracting of productive tasks from a vertically integrated process to small-sized satellite businesses. All these aspects make the stage of development of the local economic environment a significant factor in shaping the relationship between industry characteristics – including company ownership – and the process of new firm creation (Smallbone & Welter, 2001).

In this context, the chapter aims at checking whether and to what extent selected industry-level variables – i.e., the average firm size (regional industry scale) and the share of family owned firms (regional family firm density) – matter for regional firm birth rate (regional entrepreneurship), and whether this relationship is facilitated or inhibited by the stage of development of the local economic environment. To test these intuitions, we drew information from two main datasets. First, the Eurostat regional database, which provides the main regional economic and demographic variables (e.g., the firm birth rate and the average firm size in the manufacturing sector) for European countries. Second, the BvD-Amadeus dataset, which provides firm level information (e.g., ownership information) about a large sample of European firms. By merging the two, we ended up with a final sample of 121 regions, located in 13 European countries: Bulgaria, Czech Republic, Estonia, Hungary, Romania, Poland and Slovakia (classified as Eastern European); Denmark, Spain, Finland, France, Italy and Portugal (classified as Western European).

To summarize our findings, estimation results indicate that the average firm size and the share of family firms in the regional industry are negatively and positively associated, respectively, with higher regional firm birth rate. This means that entrepreneurship reacts positively to a more pervasive presence of family firms and negatively to the presence of large companies. However, these results only hold in Western European regions, whereas in Eastern Europe, entrepreneurial initiatives are positively and significantly driven only by the average firm size and the density of family ownership does not play a substantial role.

Theoretical background

Industry structure and entrepreneurial activity

Few theoretical and empirical studies have investigated the relationship between industry structure and entrepreneurial activity (e.g., Bauernschuster, Falck, & Heblich, 2010; Wyrwich, 2013; Glaeser, Kerr, & Kerr, 2015; Stuetzer et al., 2016). In this research area, the classical approach to entrepreneurship is the one put forward by the literature on Industrial Organization (IO). According to this perspective, new firm creation depends on industry characteristics such as the level of capital intensity, the average minimum efficient size (MES) and the level of irreversible investment (i.e., the sunk costs in the case of exit or failure). For instance, large-scale industries are typically associated with high levels of capital intensity, large amount of irreversible investments and the existence of large minimum efficient size, all of which are negatively related to firm entry. Therefore, a key finding of this framework is that large-scale industries only provide a limited number of entrepreneurial opportunities (Siegfried & Evans, 1994; Geroski, 1995).

Within the IO approach to new firms and startups (Santarelli & Vivarelli, 2007), one strand of research has focused on the role of firm size in explaining entrepreneurial phenomena (Parker, 2009; Elfenbein, Hamilton, & Zenger, 2010). These studies, which are closely related to IO literature because of the association between average firm size and industry scale (Beesley & Hamilton, 1984), have built on the idea that the opportunity cost of starting a firm is relatively low when working in a small business, due to low wages, reduced job security and limited opportunities for professional advancements.

In this framework, a number of reasons have been suggested that push people into small firms and then promote their entrepreneurial behavior. First, employees with personality traits that are conducive to entrepreneurship self-select into small firms because of the close similarity in the work environment (Stuetzer et al., 2016). Second, entrepreneurial skills that emanate from the ability of people to perform a broad spectrum of diverse tasks and challenges are higher in small enterprises where the division of labor is low and workers are not highly-specialized (Wagner, 2004; Hyytinen &

Maliranta, 2008; Bublitz & Noseleit, 2014; Lechmann & Schnabel, 2014). Third, the propensity to start one's own firm might be stimulated by direct interactions with an entrepreneurial role model, which is more likely to occur in very small firms than in large enterprises. Through such interactions, young workers learn about the process of starting and running a firm, thereby improving their entrepreneurial human capital (Minniti, 2005; Fritsch, 2013).

Although large-scale industries affect entrepreneurial activity at the industry level, there is some evidence that they also determine the regional level of entrepreneurship. Davidsson (1995) analyzed regional entrepreneurial activity in Sweden and shows that small firm density is positively and significantly associated with new firm creation because of good supply of entrepreneurial models, relevant work life experience, and access to practical know-how on how to get a business going. Keeble and Walker (1994), who examined the geographic distribution of new firms and closing firms in the United Kingdom for the period 1980–1990, suggest that, in addition to population growth, housing wealth, professional expertise and urbanization, the presence of small firms fosters entrepreneurial initiatives. Similarly, Reynolds (1994), who looked at 382 labor market areas in the United States, shows that the impact of small firms on the annual birth rate of independent businesses is positive and statistically significant, but tends to vary for different economic sectors and the type of labor market area.

The aforementioned findings have been confirmed by more recent studies. By analyzing labor market areas in the United States, Armington and Acs (2002) found that new firm creation is substantially explained by regional differences in income growth, population, industry intensity and firm size. Similar results are shown by Stuetzer et al. (2016), who analyzed the entrepreneurial activity of British regions and found that the ones with high employment shares of large-scale industries in the 19th century have lower entrepreneurship rates and weaker entrepreneurship culture today. All these contributions make regional heterogeneity in the endowment of small and large firms a crucial issue to be investigated, to understand how entrepreneurship develops within a region.

Family ownership and regional entrepreneurship

Most empirical studies on regional entrepreneurship only partially consider the heterogeneous nature of firms behind the entrepreneurial activity. We believe that a key distinction here might be between family and non-family firms, because the former exhibits a stronger social network within their region and are themselves more likely to be influenced by their environment's community (Stough et al., 2015).

Recently, a growing number of studies have started to analyze the intersection between the entrepreneurship and the family business fields by examining the impact of the family environment on entrepreneurial activities and

processes. This literature considers the family firm a highly entrepreneurial organizational context, that is dynamic and change-oriented because of the long-term mindset of family owners and managers. Consistently with this view of family ownership, by using data from 536 U.S. manufacturing companies, Zahra et al. (2004) showed that family firms' culture is an important strategic resource that gives these firms a competitive advantage over their rivals by promoting and sustaining entrepreneurial activities. Similarly, Kellermanns and Eddleston (2006), who focused on a sample of 232 family businesses in the northeastern United States, indicated that a willingness to change and technological opportunity recognition are positively related to entrepreneurship in family firms. Finally, Aldrich and Cliff (2003) found that family dynamics is the most important factor in recognizing entrepreneurial opportunities, because of the exclusive access to resources, norms, attitudes and values of family firms.

Berger and Luckmann (1967) argued that the family can be considered the strongest social institution when it comes to passing on values and attitudes to its members. In the context of family firms, the values that are transmitted to family members are specific knowledge, skills, abilities, attitudes and motivations on how to run a business. Because of their involvement in the firm's ownership and management, family members become endowed with a higher tolerance of failure and risk-taking behaviors. However, the transmission of human and entrepreneurial capital in the context of family firms is also extended to non-family employees and managers. Through close and frequent interactions with the family firm's founder, young workers learn about the process of starting and running a firm, thereby becoming more likely to start their own in the future. Consistent with this view, Fairlie and Robb (2007) found that in the United States, children of business owners are substantially more likely than others to become self-employed. Moreover, Alsos, Carter, and Ljunggren (2014) highlighted the importance of the entrepreneurial household in business creation and growth by demonstrating that farm households play an important role in business incubation by providing resources, knowledge and emotional encouragement.

So far, studies on the relationship between family ownership and entrepreneurial activities have been mainly micro-oriented, thus neglecting the role of family firms in explaining regional outcomes (Stough et al., 2015). Considering the regional density of family firms, we provide an empirical evidence to shed light on the importance of family firms for regional entrepreneurship.

Testable hypotheses

The aim of our chapter is to investigate the role played by industry scale and family ownership prevalence at the regional level in promoting entrepreneurial initiatives in European regions. In line with the aforementioned theoretical and empirical literature, we expect that the industry scale, i.e.,

the average firm size at the industry level, is negatively associated with the birth rate of firms at the regional level, whereas the density of family firms has a positive impact. Hence, we formulate our hypotheses as follows:

Hypothesis 1: Average firm size is negatively associated with the firm birth rate at the regional level.

Hypothesis 2: Family firm density is positively associated with the firm birth rate at the regional level.

However, as far as the influence of the industrial structure is concerned, we expect that the relationship between average firm size and entrepreneurial activities may be different in European regions at a lower industrial development stage. Chinitz (1961) used this intuition to explain the different level of entrepreneurship between New York and Pittsburgh, which resulted from the dissimilar processes of past economic development of the two cities. The historical concentration of industries characterized by large, mass-production firms (e.g., the steel industry) hindered entrepreneurial activity in Pittsburgh. On the other hand, the development of decentralized industries (e.g., the garment industry) characterized by the presence of small independent firms fostered entrepreneurship in New York. Using this evidence and exploiting the same underlying rationale, a recent paper by Stuetzer et al. (2016) showed that entrepreneurship activity is actually shaped by the industry structure in the UK, where the presence of large-scale industries in a region is associated with a lower rate of entrepreneurial activity in that area.

Borrowing from Stuetzer et al. (2016), we therefore assume that the industry average firm size may affect entrepreneurial activity in European areas differently according to their stage of industrial development. Large foreign firms that are mainly responsible for the increase of the average firm size in Eastern European regions actually play a crucial role in these areas because of the positive externalities – in terms of diffusion of technologies and management practices – on local businesses, which, in turn, can foster local entrepreneurship. Moreover, we may expect that also the outsourcing of production activities to local agents by large foreign and state-owned enterprises may drive new entrepreneurial activities, along a process of division of labor spurred by the re-organization of vertically-integrated plants. Hence, we test the following additional hypothesis:

Hypothesis 3: The relationship between average firm size and firm birth rate may be reversed in Eastern European regions.

Data, variables and method

Dataset

To construct regional variables, we rely on two databases. The Eurostat regional database provides the main economic and demographic variables

(e.g., the regional firm birth rate and the regional share of employees in the manufacturing sector) for European NUTS2 regions (Eurostat, 2011) for the period 2011–2016. The Bureau van Dijk–Amadeus database provides information on ownership and headquarter location about European companies, which we use to compute the regional share of family firms in 2009. Combining the two databases, we obtain a final sample of 121 regions of 13 European countries, i.e., Bulgaria, Czech Republic, Denmark, Estonia, Spain, Finland, France, Hungary, Italy, Poland, Portugal, Romania and Slovakia.²

Dependent variable

We measure annual regional entrepreneurship in terms of firm birth intensity in the industry sector (NACE Rev. 2, B-E) (*Regional firm birth rate*), calculated as the ratio between the sectoral regional number of firm births³ for each year of the reference period 2011–2016 and the sectoral regional number of existing firms in the same year. Due to data constraints, the number of observations on the annual regional firm birth rate (expressed in percentages) ranges from 1 (for 18 regions) to 6 (for 56 regions).

Map 10.1 shows the distribution of the average annual firm birth rate over the period 2011–2016 in the 121 regions considered in our analysis. It shows

Map 10.1 Regional birth rate of industry firms (*Regional firm birth rate*) – average values for the period 2011–2016.

that regions with the lowest levels (less than 6%) of firm birth rate are located mainly in Italy, Finland and Spain, while regions with the highest levels of firm birth rate (higher than 10%) are located mainly in East European countries like Poland, Romania and Slovakia. Overall, a strong country effect emerges, which will have to be accounted for in the empirical analysis.

Industry scale

To measure the scale of the manufacturing sector (NACE Rev.2, 10–33) at the regional level, we use the average firm size (*Regional firm average size*). This variable is computed as the ratio between the regional number of employees in the manufacturing sector in 2009 and the regional number of firms in the same sector in 2009. Map 10.2 shows the distribution of the average firm size in the 121 regions with available data. Regions with the largest firm sizes (higher than 20 employees) are located mainly in Slovakia and Romania, while those with the smallest firm sizes (less than ten employees) are located mainly in the Czech Republic, Portugal and in the southern regions of Italy, France and Spain.

Family firm density

Family firm density at regional level is computed using information on ownership and the headquarters location of firms in the manufacturing sector,

Map 10.2 Regional average size of manufacturing firms (*Regional average firm size*) in 2009.

Map 10.3 Regional density of family manufacturing firms (*Regional family business density*) in 2009.

as provided by Bureau van Dijk–Amadeus. First, to distinguish family firms from non-family firms we use the ownership equity share. We consider a firm as a family firm when the largest shareholder (top 1) in 2009 was an individual or a family. Additionally, we use the NUTS 2 code of the company's headquarters location to assign it to a particular region. Regional family firm density (*Regional family business density*) is the ratio between the regional number of family firms in the manufacturing sector and the regional total number of firms in the manufacturing sector.

Map 10.3 shows the distribution of family firm density in the 121 regions with available data. Regions with the highest shares of family firm density (higher than 0.4) are located mainly in Bulgaria, Italy, Poland and Spain, while regions with the lowest shares of family firm density (less than 0.2) are located mainly in Denmark, France, Portugal and Romania.

Econometric specification

We model regional entrepreneurship using the annual firm birth rate in the industry sector (*Regional firm birth rate*). Our two main variables of interest capturing the industry structure of regions are average firm size (*Regional firm average size*) and family firm density (*Regional family business density*) in the manufacturing sector. We controlled for several factors that

affect firm *Regional firm birth rate* and that could be correlated with *Regional firm average size* and *Regional family business density*. The GDP per capita in 2009 (*Regional GDPpc_i*) is included to control for the overall level of economic development.⁴ Moreover, the share of employees in the manufacturing sector (*Regional share of manufacture*) controls for the degree of industrialization of regions. Finally, a set of country dummies (*C*) and year dummies (*T*) are included to control, respectively, for all country-level unobserved characteristics and for time specific events. As results, *Regional firm birth rate* is modelled using the following equation:

$$\begin{aligned} \text{Regional firm birth rate}_{i,t} = & \text{Regional average firm size}_{i, 2009} + \\ & \text{Regional family business density}_{i, 2009} + \\ & \text{Regional GDPpc}_{i, 2009} + \text{Share of} \\ & \text{manufacture}_{i, 2009} + \theta' C + \gamma' T + \varepsilon_i \end{aligned} \quad (1)$$

Equation (1) represents our main model. As we were also interested in exploring different patterns between Eastern and Western European countries due to the stage of industrial development, additional regressions have been run for the sub-sample of 48 regions belonging to East European countries (i.e., Bulgaria, Czech Republic, Estonia, Poland Hungary, Romania and Slovakia) and the sub-sample of 73 regions belonging to West European countries (i.e., Denmark, Finland, France, Italy, Portugal and Spain).

All estimates are performed using OLS pooled regressions with clustered standard errors. To facilitate the comparison of the regression coefficients, continuous independent variables were standardized, dividing them by two times the sample standard deviation, while the dichotomous independent variables are centred around their sample mean (i.e., demeaned) (Gelman, 2008). The adopted linear rescaling changes the coefficient values of the independent variables, but it does not change the associated *t*-statistics and *p*-values.

Estimation results

Table 10.1 shows the descriptive statistics and matrix of correlations of the unstandardized regression variables. Table 10.2 shows the results of the OLS pooled estimates for regional firm birth rate.

In Table 10.2, models in columns 1, 2 and 3 show the baseline specifications with controls only for the country (Italy as reference category) and year fixed effects. Model 4 extends the basic models by adding all other control variables – i.e., *Regional GDP pc* and *Regional Share of manufacture*.

The coefficient of *Regional firm average size* is negative and significant in Models 1, 2 and 3. This means that the presence of large-scale firms negatively affects entrepreneurship. A two-standard deviations increase in *Regional firm average size* (i.e., an increase of 16.94 employees per firm)

Table 10.1 Descriptive statistics and correlation matrix

<i>Variable</i>	<i>Mean</i>	<i>Std. Dev</i>	(1)	(2)	(3)	(4)	(5)
(1) <i>Regional firm birth rate</i>	7.23	2.75	1.00				
(2) <i>Regional family business density</i>	0.28	0.19	-0.31	1.00			
(3) <i>Regional firm average size</i>	13.21	8.47	0.42	-0.16	1.00		
(4) <i>Regional share of manufacture</i>	0.22	0.08	0.16	0.12	0.33	1.00	
(5) <i>Regional GDP pc</i>	0.02	0.01	-0.51	-0.16	-0.34	-0.43	1.00

Table 10.2 Determinants of regional firm birth rate: OLS pooled regressions

<i>Dep. Var.: Regional firm birth rate</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<i>Regional family business density</i>		1.245*** (0.396)	1.005*** (0.328)	1.606*** (0.484)
<i>Regional firm average size</i>	-1.786*** (0.506)		-1.548*** (0.431)	-0.870 (0.703)
<i>Regional share of manufacture</i>				-0.708* (0.394)
<i>Regional GDP pc</i>				0.387 (0.476)
<i>Bulgaria</i>	4.312*** (0.401)	3.668*** (0.349)	4.399*** (0.382)	4.929*** (0.748)
<i>Czech Republic</i>	3.406*** (0.470)	3.847*** (0.536)	3.761*** (0.492)	4.642*** (0.692)
<i>Denmark</i>	3.435*** (0.710)	3.996*** (0.819)	4.410*** (0.783)	4.558*** (0.845)
<i>Estonia</i>	4.462*** (0.313)	4.415*** (0.331)	4.993*** (0.353)	5.549*** (0.812)
<i>Spain</i>	0.208 (0.308)	0.087 (0.322)	0.344 (0.307)	0.295 (0.410)
<i>Finalnd</i>	0.386 (0.376)	0.755 (0.499)	1.074** (0.466)	1.124** (0.539)
<i>France</i>	2.535*** (0.269)	3.477*** (0.480)	3.466*** (0.400)	3.955*** (0.628)
<i>Hungary</i>	2.340*** (0.289)	2.369*** (0.309)	2.713*** (0.323)	3.486*** (0.698)
<i>Poland</i>	6.035*** (0.393)	5.581*** (0.386)	6.042*** (0.399)	6.372*** (0.674)
<i>Portugal</i>	4.309*** (0.359)	5.760*** (0.608)	5.487*** (0.523)	6.784*** (0.842)
<i>Romania</i>	7.368*** (0.519)	7.152*** (0.508)	8.007*** (0.566)	8.696*** (1.061)
<i>Slovakia</i>	9.772*** (0.966)	7.330*** (0.444)	9.889*** (0.863)	9.658*** (1.419)
<i>Constant</i>	7.526*** (0.082)	7.593*** (0.086)	7.552*** (0.084)	4.147*** (0.253)
<i>Year Dummies</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	585	585	585	585
<i>R-Squared</i>	0.656	0.653	0.662	0.691

Notes: Clustered standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Year dummies (included in the models) are not reported for the sake of clarity.

produces an average decrease of 1.55% in regional firm birth rate (see Model 3). These results support Hypothesis 1a. However, when we control for *Regional GDP pc* and *Regional share of manufacture* (see Model 4), the negative effect of *Regional firm average size* decreases and becomes not significant. This means that the relationship between *Regional firm average size* and entrepreneurial activity at regional level may be dependent on the level of industrial development of the region. Eastern and Western European regions differ in terms of stage of industrial development and the role of the manufacturing industry as an engine of growth, thus making the influence of the variable *Regional firm average size* different between the two groups of regions. We turn back to this issue below.

In all models, we find a significant and positive effect of family firms (*Family business*). A two-standard deviation increase in *Regional family business density* (i.e., an increase of 0.38 in the share of family firms) produces an average increase of 1.1% in regional firm birth rate (see Model 3). These results support Hypothesis 1b and suggest that a high density of family firms is conducive to entrepreneurial attitudes and cultures. With regard to the other control variables, we find a negative and significant effect of *Regional Share of manufacture* on the entrepreneurial activity. This means that regions with an economic structure characterised by a strong presence of manufacturing industries show lower regional firm entry rate. Moreover, country dummies are almost always statistically significant: the firm entry rate are particularly high for Poland, Romania and Slovakia as compared to Italy, the reference category.

As argued in Hypothesis 1c, we can expect that *Regional firm average size* reduces regional firm entry rate only in Western European regions, while an opposite effect is expected for Eastern Europe. Table 10.3 reports the results of OLS pooled regressions for the sub-sample of Western European regions (Model 5) and the sub-sample of Eastern European regions (Model 6). All regressions in Table 10.3 include the full set of control variables.

In line with Hypothesis 1c, the coefficient for *Regional firm average size* is negative for Western European regions (Model 5) and positive for Eastern European regions (Model 6). Interestingly, the results show that the coefficient for *Regional family business density* is positive for Western regions (Model 5), but it is not statistically significant for Eastern regions (Model 6). We believe that this evidence, i.e., the scarce or null influence of family business density on entrepreneurship in Eastern European regions, is due to the significant dependence of local industrial sectors on non-local actors, i.e., multinational or other foreign firms. However, further research is needed to comprehensively explain this result.

Additional checks have been conducted to validate the robustness of our main results.⁵ First, we performed tobit regressions to take into account the fact that the dependent variable is left censored. The results are very similar to those discussed above. Secondly, we performed additional regressions using different subsample periods to account for heterogeneous macroeconomic conditions (crisis and recovery periods). Finally, we assessed the

Table 10.3 Determinants of regional firm birth rate: OLS pooled regressions for the subsample of West and East European regions

<i>Dep. Var.: Regional firm birth rates</i>	<i>West Europe</i>	<i>East Europe</i>
	<i>Model 5</i>	<i>Model 6</i>
<i>Regional family business density</i>	1.546*** (0.512)	-0.230 (0.537)
<i>Regional firm average size</i>	-2.640*** (0.748)	2.157*** (0.376)
<i>Regional share of manufacture</i>	-0.459* (0.253)	-1.729*** (0.364)
<i>Regional GDP pc</i>	0.593 (0.589)	2.103*** (0.677)
Year Dummies	Yes	Yes
Country Dummies	Yes	Yes
Observations	392	193
R-squared	0.724	0.480

Notes: Clustered standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Country dummies and year dummies (included in the models) are not reported for the sake of clarity.

weak causality of the cross-sectional model by using a rolling-reference window for the dependent variable, from the time interval 2011–2016 to the time interval 2014–2016 and 2015–2016. In all cases, estimated results confirm the main evidence of the paper.

Conclusion

In this chapter we investigated the impact of industry scale and family firm density on new entrepreneurial initiatives at the regional level in Europe. By drawing information on 121 regions located in 13 European countries from the Eurostat regional database and the BvD-Amadeus database, we found that the regional industry scale (i.e., the average firm size at the industry level) and the regional density of family firms positively affect regional entrepreneurship (i.e., the regional firm birth rate). However, when the level of industrial development is taken into account – and European regions are classified either as Eastern or Western – these results only hold for Western European regions, whereas in Eastern European regions the industry scale variable has a positive (instead of negative) influence on entrepreneurship and the contribution of family firm density almost disappears.

The main contribution of this chapter is to explore behavioral differences between family and non-family firms in a regional context. Existing literature highlights the importance of family ownership in explaining firms' economic and innovative behaviors, but partially neglects the role played by family firms within the geographical context. Family firms can benefit from a strong social network and they are more embedded in the industrial setting of the region than non-family firms. This book chapter provides an

empirical evidence to shed light on the impact of family firms on entrepreneurship as a regional outcome.

Our analysis has a number of limitations that also presents questions for further research. First, the specific mechanisms that drive the different results for Eastern and Western European regions remain a black box to a large extent. In addition to large multinational and foreign firms, these outcomes can be also related to national and regional institutions and policies. In general, the analysis could be enriched by incorporating additional institutional, economic and social variables in the framework and identifying their role more precisely. Second, we focus on entrepreneurship, but the analysis of the impact of industry scale and family firm density can be extended to other regional economic outcomes. Third, since we use OLS cross-sectional regressions, we could only show associations and not causality in the relationships. Therefore, it might be important to strengthen the analysis using more appropriate and robust estimation methods.

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Notes

- 1 This is mainly due to low entry barriers, low opportunity costs of self-employment and a direct interaction with entrepreneurial role models.
- 2 Other European countries and regions have not been considered because of missing data on regional firm birth rate (Eurostat database) and/or the NUTS2 region of firms (Bureau van Dijk–Amadeus database).
- 3 According to the Eurostat–OECD definition (2007), the number of firm births does not include spurious entries related to extraordinary events like mergers and acquisitions, split-offs or restructuring of existing enterprises and reactivation of dormant units.
- 4 The GDP per capita in 2009 is highly correlated with other factors affecting firm entry (Harrigan, 1981; Stuetzer et al., 2016) as the R&D expenditure per capita in 2009 and the share of high skilled people in 2009, i.e., the percentage of people aged 25–64 with a tertiary education (ISCED levels 5, 6, 7 and 8). In unreported regression, we also include these indicators. The results (available from the authors upon request) are very similar.
- 5 Full results of the robustness checks are available from the authors upon request.

References

- Aldrich, H. E., & Cliff, J. E. (2003). The pervasive effects of family on entrepreneurship: Toward a family embeddedness perspective. *Journal of Business Venturing*, 18(5), 573–596.
- Alsos, G. A., Carter, S., & Ljunggren, E. (2014). Kinship and business: How entrepreneurial households facilitate business growth. *Entrepreneurship & Regional Development*, 26(1–2), 97–122.

- Anderson, R. C., Duru, A., & Reeb, D. M. (2012). Investment policy in family controlled firms. *Journal of Banking & Finance*, 36(6), 1744–1758.
- Anderson, R. C., Mansi, S. A., & Reeb, D. M. (2003). Founding family ownership and the agency cost of debt. *Journal of Financial Economics*, 68(2), 263–285.
- Anderson, R. C., & Reeb, D. M. (2003). Founding-family ownership and firm performance: Evidence from the S&P 500. *The Journal of Finance*, 58(3), 1301–1328.
- Armington, C., & Acs, Z. J. (2002). The determinants of regional variation in new firm formation. *Regional Studies*, 36(1), 33–45.
- Basco, R. (2015). Family business and regional development—A theoretical model of regional familiness. *Journal of Family Business Strategy*, 6(4), 259–271.
- Bauernschuster, S., Falck, O., & Heblich, S. (2010). Social capital access and entrepreneurship. *Journal of Economic Behavior & Organization*, 76(3), 821–833.
- Beesley, M. E., & Hamilton, R. T. (1984). Small firms' seedbed role and the concept of turbulence. *Journal of Industrial Economics*, 33, 217–231.
- Berger, P., & Luckmann, T. (1967). *The Social Construction of Reality*. New York: Penguin Press.
- Bjuggren, C. M., Johansson, D., & Sjögren, H. (2011). A note on employment and gross domestic product in Swedish family-owned businesses: A descriptive analysis. *Family Business Review*, 24(4), 362–371.
- Bublitz, E., & Noseleit, F. (2014). The skill balancing act: When does broad expertise pay off? *Small Business Economics*, 42(1), 17–32.
- Chinitz, B. (1961). Contrasts in agglomeration: New York and Pittsburgh. *American Economic Review*, 51, 279–289.
- Cucculelli, M., & Peruzzi, V. (2020). Innovation over the industry life-cycle: Does ownership matter? *Research Policy*, 49(1), 103878.
- Davidsson, P. (1995). Culture, structure and regional levels of entrepreneurship. *Entrepreneurship & Regional Development*, 7(1), 41–62.
- Elfenbein, D. W., Hamilton, B. H., & Zenger, T. R. (2010). The small firm effect and the entrepreneurial spawning of scientists and engineers. *Management Science*, 56(4), 659–681.
- Eurostat, & OECD. (2007). *Eurostat-OECD Manual on Business Demography Statistics*. Retrieved from <http://www.oecd.org/sdd/business-stats/39974460.pdf>.
- Eurostat. (2011). *Regions in the European Union, Nomenclature of Territorial Units for Statistics NUTS 2010/EU-27*. Retrieved from <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-RA-11-011>.
- Fairlie, R. W., & Robb, A. (2007). Families, human capital, and small business: Evidence from the characteristics of business owners survey. *Industrial & Labor Relations Review*, 60(2), 225–245.
- Fritsch, M. (2013). New business formation and regional development: A survey and assessment of the evidence. *Foundations and Trends in Entrepreneurship*, 9(3), 249–364.
- Fritsch, M., & Falck, M. (2007). New business formation by industry over space and time: A multidimensional analysis. *Regional Studies*, 41, 157–172.
- Gelman, A. (2008). Scaling regression inputs by dividing by two standard deviations. *Statistics in Medicine*, 27(15): 2865–2873.
- Geroski, P. A. (1995). What do we know about entry? *International Journal of Industrial Organization*, 13(4), 421–440.
- Glaeser, E. L., Kerr, S. P., & Kerr, W. R. (2015). Entrepreneurship and urban growth: An empirical assessment with historical mines. *Review of Economics and Statistics*, 97(2), 498–520.

- Harrigan, J. R. (1981). Barriers to entry and competitive strategies. *Strategic Management Journal*, 2(4), 295–412.
- Hyttinen, A., & Maliranta, M. (2008). When do employees leave their job for entrepreneurship? *Scandinavian Journal of Economics*, 110(1), 1–21.
- Keeble, D., & Walker, S. (1994). New firms, small firms and dead firms: Spatial patterns and determinants in the United Kingdom. *Regional Studies*, 28(4), 411–427.
- Kellermanns, F. W., & Eddleston, K. A. (2006). Corporate entrepreneurship in family firms: A family perspective. *Entrepreneurship Theory and Practice*, 30(6), 809–830.
- Lechmann, D. S., & Schnabel, C. (2014). Are the self-employed really jacks-of-all-trades? Testing the assumptions and implications of Lazear's theory of entrepreneurship with German data. *Small Business Economics*, 42(1), 59–76.
- Lee, S. Y., Florida, R., & Acs, Z. (2004). Creativity and entrepreneurship: A regional analysis of new firm formation. *Regional Studies*, 38, 879–891.
- Minetti, R., Murro, P., & Paiella, M. (2015). Ownership structure, governance, and innovation. *European Economic Review*, 80, 165–193.
- Minniti, M. (2005). Entrepreneurship and network externalities. *Journal of Economic Behavior & Organization*, 57(1), 1–27.
- Parker, S. C. (2009). Why do small firms produce the entrepreneurs? *The Journal of Socio-Economics*, 38(3), 484–494.
- Pongelli, C., Caroli, M. G., & Cucculelli, M. (2016). Family business going abroad: The effect of family ownership on foreign market entry mode decisions. *Small Business Economics*, 47(3), 787–801.
- Reynolds, P. (1994). Autonomous firm dynamics and economic growth in the United States, 1986–1990. *Regional Studies*, 28(4), 429–442.
- Reynolds, P. D., Storey, D. J., & Westhead, P. (1994). Cross-national comparisons of the variation in the new firm formation rates. *Regional Studies*, 28, 443–456.
- Santarelli, E., & Vivarelli, M. (2007). Entrepreneurship and the process of firms entry, survival and growth. *Industrial and Corporate Change*, 16(3), 455–488.
- Siegfried, J. J., & Evans, L. B. (1994). Empirical studies of entry and exit: A survey of the evidence. *Review of Industrial Organization*, 9(2), 121–155.
- Smallbone, D., & Welter, F. (2001). The distinctiveness of entrepreneurship in transition economies. *Small Business Economics*, 16(4), 249–262.
- Sraer, D., & Thesmar, D. (2007). Performance and behavior of family firms: Evidence from the French stock market. *Journal of the European Economic Association*, 5(4), 709–751.
- Stough, R., Welter, F., Block, J., Wennberg, K., & Basco, R. (2015). Family business and regional science: “Bridging the gap”. *Journal of Family Business Strategy*, 6(4), 208–218.
- Stuetzer, M., Obschonka, M., Audretsch, D. B., Wyrwich, M., Rentfrow, P. J., Coombes, M., & Satchell, M. (2016). Industry structure, entrepreneurship, and culture: An empirical analysis using historical coalfields. *European Economic Review*, 86, 52–72.
- Villalonga, B., & Amit R., 2010. Family control of firms and industries. *Financial Management*, 39(3), 863–904.
- Wagner, J. (2004). Are young and small firms hothouses for nascent entrepreneurs? Evidence from German micro data. *Applied Economics Quarterly*, 50(989), 379–391.

- Wyrwich, M. (2013). Can socioeconomic heritage produce a lost generation with regard to entrepreneurship? *Journal of Business Venturing*, 28(5), 667–682.
- Zahra, S. A., Hayton, J. C., & Salvato, C. (2004). Entrepreneurship in family vs. non-family firms: A resource-based analysis of the effect of organizational culture. *Entrepreneurship Theory and Practice*, 28(4), 363–381.