Regional economic performance and the differential prevalence of corporate and family business

Structured Abstract

Design/methodology/approach: Hierarchical clustering is performed to map the regional distribution of European family business.

Purpose: Previous studies have largely examined interregional variations of SME rather than family firm concentrations. This paper addresses this gap through an analysis of firm type indicators across Europe from the Eurostat Data Base, using social, economic and demographic statistics at the NUTS 2 regional level to ascertain the nature, prevalence and regional contexts of family firm concentrations.

Findings: Results show that the co-existence of family SMEs with large firms is negatively related to regional economic performance, and this variation has implications for our understanding of the survival and strategic behaviour of family firms.

Originality/value: The study promotes a new family business 'in context' than 'by context' point of view and paves the way for further empirical work with interregional family business data at various spatial levels.

Keywords: Family firms; Self-employment; Context; Regional development; Europe.

Introduction

Although the importance of family businesses to national economies has been recognised for some time, their regional distribution is uneven and "little is known about where family firms tend to appear" (Chang, Chrisman, Chua and Kellermanns, 2008: 559). Using US state-level data, they illustrated how in less prosperous regions, family firms may play a "role of disproportionate importance in economic development" (ibid. p. 569). How external environmental conditions affect the regional distribution of family firms, these authors argue, is thus an important, but overlooked field of study amongst family business researchers. They suggested further research in other regional study contexts, not only different countries, but also differences between less aggregated regions. They also highlighted an important problem of causality, whether economic development caused by external factors in less developed regions allows more family firms to develop (because large non-family firms do not tend to locate in poor economic environments) or whether family firms by their presence and interactions cause a negative effect on economic development outcomes (Morck and Yeung, 2004). This asks the question whether family firms respond differently by regional context or whether their regional distribution is part of the regional context in the first place (Bika and Frazer, 2020). The need for more research on family business regional trends for policy formulation is further emphasised in a report to the EU Enterprise and Industry Directorate General, which highlights the need to "mainstream family-business-relevant issues", particularly "the role family businesses play "in the stability and long-term growth of regions" (European Commission, 2009: 23).

The importance of considering national and regional contexts in family business research is pointed out by Colli, Perez and Rose (2003) who found significant differences as well as similarities in the capabilities and characteristics of family firms in three different countries. Regional context is also demonstrated as important for family business start-ups in

Sweden (Bird and Wennberg, 2014), not only in terms of population size and economic development, but also regarding "embeddedness", with new family firms tending to emerge from the stock of pre-existing small family firms, and from where more favourable community attitudes exist towards small firms. The density of family firms in Germany has also been linked to higher levels of innovation output, as measured by the number of successful patent applications (Block and Spiegel, 2013). More recently, Baù et al. (2019: 361) concluded, using once again the Swedish context: "family firms benefit from local embeddedness more than non-family firms [in terms of business growth] and that this effect is more pronounced in rural areas". These authors stress the importance of regional ecology for family firm presence, which is still poorly understood and "under-theorised" (Bird and Wennberg, 2014: 421). It is thus desirable to extend studies into other regional contexts and adopt an interregional lens.

This paper contributes to our understanding on how regional socio-economic context relates to family business prevalence by examining regional variation of family firms in the European community. Family firms form the majority of firms in Europe (IFERA, 2003), and a sizeable proportion (some 40%) of medium and large sized firms are family owned (La Porta, Lopez de Selanes and Shleifer, 1999). However, there is little empirical research on interregional distributions and concentrations of family firms in Europe as a whole, and the impact of family business growth asymmetries on this variation. This reflects that research has so far tended to concentrate on SME concentrations rather than family business ones. Even when the focus has moved to regional rates of continuing entrepreneurial activity (Ross, Adams and Crossan, 2015), the unit of analysis has remained the SME rather than the family business. This paper thus seeks to revisit the relationship between the presence of family firms with their unique organizational structures (e.g. longevity, family employment and succession) and the socio-economic characteristics/performance of European regions.

The rest of this article is structured as follows. The next section reviews family firm concentrations in European regions and advances a conceptual framework for their investigation. The research methods deployed in the collection and analysis of the secondary data are then presented, followed by our findings on our hierarchical cluster analysis of family firm concentrations in the EU-27. Finally, we offer conclusions and policy implications on the impact of firm type prevalence on regional economic performance.

2. A conceptual framework for investigating family firm concentrations and regional development

2.1. Family Firm Concentrations in European Regions

Regional performance has been a central preoccupation of European Union policy, with substantial subsidies allocated to the development of poorer peripheral regions since the 1960s. In the 1970s and 1980s, much of the subsidy support was allocated to attracting inward investment of larger corporate firms, but this policy was modified following the industrial restructuring of the 1980s when many large corporate firms failed or reduced the scale of their operations. Many such firms proved adept at relocating from one region to another to take advantage of subsidies, but also prone to leaving the region once subsidies run out. This has resulted in considerable socio-economic problems in regions in which they had been important sources of employment. Thus, the policy of attracting inward investment that dominated the 1970s and 1980s has been replaced by a much greater emphasis on indigenous firm support, particularly growth orientated SMEs. In recent years there has been a further shift in thinking from regarding regional economies as less "a collection of individual firms each with its own set of capabilities and behaviours" and more as "enabling environments that provide benefits to regional firms as a consequence of the shared social and institutional

assets" (Birch, MacKinnon and Cumbers, 2010: 37). In this sense local business families with long standing roots in the region, and well developed local social and business networks, can be viewed as an important component of the ecosystem (Bird and Wennberg, 2014; Colli, 2013).

There is little empirical treatment of the relationship between firms' characteristics and the evolution of business clusters. Models of spatial agglomeration often assume a substantial homogeneity of participating firms (Cainelli, Iacobucci and Morganti, 2006: 508) and an unfaltering community (Johannisson and Lindholm Dahlstrand, 2009; Karlsen, 2011). As Cumbers, Mackinnon and Chapman's British study of SMEs in the Aberdeen oil complex of the North Eastern Scotland (2003: 1690) reminds us "spatial proximity is not necessarily translated into effective collaboration and learning between firms". To this extent, the emphasis on regional assets and competencies as an engine of competitiveness has omitted to explore regional drawbacks such as the increased competition associated with firm collocation (Sorenson and Audia, 2000) and more specifically, the co-existence and interactions of family firms (predominantly SMEs) and large inward investing corporate firms. Such co-existence may also represent a significant growth barrier to the economy if the latter are transient and have supplier networks with firms located at a distance from the region.

This study map will rectify this omission, whilst at the same time follow Cook et al.'s (2007) logic of reporting on the problems or centrifugal forces of agglomeration (not only the centripetal ones that firm interaction produces) and become part of recent studies questioning the "ideal model" of cluster organization (Bell et al., 2009). Unequal power relations between firms and heterogeneous firm-specific capabilities have so far been examined at the regional level in relation to innovation (Sternberg and Arndt, 2001; Cumbers et al., 2003; Camisón and Villar-López, 2012), governance (Bell et al., 2009), or business groups (Cainelli et al., 2006;

Brioschi, Brioschi and Cainelli, 2002). Our study's theoretical rationale embraces a focus on the regional population of firms (innovation systems) rather than the collectiveness and unquestioned societal embeddedness of regional business (industrial district) (Johannisson and Lindholm Dahlstrand, 2009). We argue that this literature, however valid, largely fails to profess anything in relation to the impact of non-family corporate and family businesses prevalence on regional economic performance. Only two recent exceptions have examined how family firms (as opposed to non-family ones) have comparative employment growth advantages in Swedish regions with relatively low population density (Karlsson, 2018) or how German regions with higher family firm density have higher levels of innovation output (Block and Spiegel, 2013). This paper adopts a bottom-up view of regional economic performance where the interaction of elements and relationships is seen as producing systemic effects infused in *competitive asymmetry* (Camisón and Villar-López, 2012), such as flows of resources, downsizing, or even policy uptake (Romanelli and Khessina, 2005; Kalantaridis and Bika, 2006; 2011; Lounsbury, 2007; Bika, 2007; Greenwood et al., 2010). We suggest that such asymmetry might be responsible for creating family business heterogeneity at the regional level.

2.2. A family firm-region conceptual framework

We put together a conceptual framework in order to reach "a better understanding of the family firm-region link" … and how the heterogeneity of firms affects regional outcomes" (Stough et al., 2015: 209). Drawing on Stough et al.'s suggestions (2015) for future research questions and a promising research agenda, we ask: How does firm type prevalence affect regional economic development outcomes? This endorses a view that tries to explain the emergence and development of a region's corporate and family business growth practices over time. More specifically, Block and Spiegel (2013) have investigated in Germany the

positive effect of regional family firm density (number of family firms divided by the number of total firms) on regional innovation output (measured by the number of successful patent applications). Karlsson (2018) found that "the employment growth of family firms and non-family firms converges over firm size" and only micro- and small sized firms exhibit different regional employment growth rates of family firms and non-family firms in Sweden. Karlsson (2018) found that family firms are heterogeneous and range in size in the Swedish context, but also the influence of their differences diminishes with size. In other words, one can safely deduct that firm size trumps family firm influence and "larger firms are homogenous across ownership categories" (Karlsson, 2018: 304).

Taking into account this literature, the conceptual framework employed by this research to study European regional development sees the impact of microeconomic elements of business growth asymmetries as being composed of three key dimensions: family workers, self-employed and firm size (persons employed per local business unit) or class (more than 20 persons employed per local business unit). In this fashion, we move beyond the small but important family business 'by context' literature (Carney and Gedajlovic, 2002; 2003; Sasaki et al., 2019; 2020) that largely aims to understand how the context of family firms (from the spatial and institutional to the social) is a key influence on enterprise activity. Instead we look at family businesses 'in context' as a phenomenon that is historically specific and "bounded in space and time" (Jackson et al., 2019: 34) where the family SME concentrations 'constitute' rather than (with the former 'by context' conceptualisation) 'respond to' the regional context (Bika et al., 2019; Bika and Frazer, 2020). In our conceptual framework, the regional context itself not only matters, but also stands in the middle of our conceptual framework (Figure 1), is multi-dimensional and underpins our investigation on the effects of the different and fluctuating configurations of family and non-family businesses and their employment growth

asymmetries. The three dimensions of our family firm-region conceptual framework are operationalized in workable variables as will be described in section 3 below.

Insert Figure 1

3. Research approach and methods

Overview

Reflecting our conceptual framework, our study compares regional levels of family business concentration with regional performance measures. Data from the Eurostat Database of regional indicators were used to carry out statistical comparisons. Eurostat is the main statistical office of the European Union, which collects quality data on a large range of business, economic and demographic indicators for comparing countries and regions within the Europe Union, to inform policy decisions. Although overall the Eurostat-Regio Database is rich, it is not comprehensive with many potentially interesting indicators of economic performance missing for many regions, particularly for less macro regions. Hence, the study had to be limited to measures that were mostly complete across all the regions of interest. There are no direct data to measure the concentration or characteristics of family firms in the regions, but variables exist to enable us only to construct proxy measures of family business concentration. Finally, because there are so many regions to consider even at the medium range of resolution adopted (NUTS 2 see below), a mechanism had to be found to aggregate them in a meaningful way. This was achieved through a hierarchical cluster analysis that produced eight groups with different characteristics of family business and industry concentration.

Details

The Eurostat-Regio database contains quantitative information at a number of different levels of European geographic aggregation and thus presented a valuable source for compiling the study's dataset as it benefits from its extensive potential for comparative analysis, regular data collection and its harmonized statistics. The European Union divides regions for policy purposes into hierarchical territorial units. The NUTS classification (Nomenclature of Territorial Units for Statistics) is a hierarchical system that enables (a) the collection, development and harmonisation of EU regional statistics and (b) the socio-economic analyses of the regions. Three levels of regional resolution are identified (NUTS 1, 2 and 3):

- NUTS 1: major socio-economic regions
- NUTS 2: basic regions for the application of regional policies
- NUTS 3: small regions for specific diagnoses

However, as the Eurostat-Regio dataset formation lacks comprehensiveness it often forces its users to rely on proxy variables, share data limitations and use a larger than desired level of aggregation that leads to suboptimal explanations for interesting research problems (Crescenzi, 2009). The selection of the geographic aggregation level and variables extracted for further investigation was made in such a way that Eurostat-Regio data availability problems were eliminated in the data-set by accessing variables with no missing values. (i.e. Number of NUTS 2 regions = 275, no missing values). The particular data used in the study's mapping exercise for the EU-27 include core economic indicators such as GDP 2000 (Purchasing Power Standards (PPS)) per inhabitant, sectoral distribution (NACE, 2002) alongside employment (such as unemployment rate, family workers and the self-employed)

and demographic indicators (such as population density, population change and high education i.e. persons having a university degree).

Table 1 presents the minimum/maximum, mean and standard deviation (square root of variance) of the NUTS 2 values for each variable used in cluster analysis. However, the great heterogeneity of NUTS 2 regions (as shown by the minimum and maximum columns) occasionally distorts the statistical results if the data are used in their raw form. For example, the case of NUTS 2 region UKI1 'Inner London' with GDP 54,151.10 affects the mean GDP for the EU-27 as a whole (19,227.92). To correct this, variables were standardized in the cluster analysis to eliminate differences in scales of measurement.

Particular emphasis was placed on professional status indicators available only for employed people (*breakdown by: Self-employed / Employee / Family-worker*) and collected through the Labour Force Survey because of their comparability potential with regional structural business data.

Insert Table 1

The observation unit for the regional structural business statistics is the local unit, which is an enterprise or part of one situated in one geographically identified place. Regional structural business data are available at the NUTS 2 level for very few variables including the '*number of local units*'[1] and the '*number of persons employed*'[2] among others. This study's regional structural business data collection came across a slightly accentuated problem of missing values (Number of NUTS 2 regions with available data = 246). Such business

[1] "At national level, the statistical unit is the enterprise. As an enterprise can consist of several local units, it is possible for the principal activity of the local unit to differ from that of the enterprise to which it belongs. Hence, national and regional structural business statistics are not entirely comparable" (Regions: Statistical Yearbook 2006: 117)

[2] The 'number of persons employed' refers to "those persons working in a local unit (paid or unpaid) and those working outside the unit while remaining part of it and being paid by it" (Regions: Statistical Yearbook 2004: 79); therefore, it includes working proprietors, unpaid family workers, part-time workers and seasonal workers.

statistics are normally presented by sectors of activity according to the NACE classification (data availability is restricted to the non-financial business economy that is NACE sections C to K, less J; non-financial business economy includes mining/quarrying, manufacturing, electricity/gas/water supply, construction, wholesale/retail trade, hotels/restaurants, transport and real estate; it excludes agricultural, forestry and public administration and other non-market services). Another important constraint for this study's dataset is that business demography indicators presented by size are only available at NUTS 1 level (country) and therefore, the decision to apportion the existing data at NUTS 2 level had to be made (Number of regions with available data = 140). To carry out the apportionment, regional data at the NUTS 2 level for the '*number of local units*' were collected from regional structural business statistics alongside national data at the NUTS 1 level for '*the number of enterprises*' presented by size class (see footnote 1). The population covered was once again market employment in the non-financial sectors, corresponding to NACE Sections C to K excluding J that covers the financial sectors.

The methodology for the apportionment of the business demography data by large size class to NUTS 2 level included the following steps: Firstly, the number of local units per NUTS 2 Region *100 was divided by the total number of local units at NUTS 1 level (country) in order to determine the 'apportionment share' of NUTS 1 local units for each NUTS2 region (adding up to 100%). Secondly, the number of enterprises in the C_K size class 20 employees or more *100 was divided by the total number of enterprises in the C_K size class at NUTS 1 level (country) in order to find out the 'firm size class rate 20+'. Finally, each 'apportionment share' of NUTS 1 local units for each NUTS 2 region (%) was divided by the firm size class rate 20+ to get the percentage of local units in the C_K "*firm size class 20+*" (employees) at NUTS2 level. This apportioned business demography indicator represents statistical raw data, broken down by size class and by region that may diverge to

some extent, but their scale is the same. Complementing this approach, the "*average firm size*" came into play as another indicator that was used to approximate the share of large-sized firms at NUTS 2 level. The persons employed at NUTS 2 level divided by the appropriate regional number of local units was the calculation that underpinned the latter indicator. Both these indicators were selected in order to portray the corporate business presence vis-à-vis the family and self-employment patterns encountered at the European regional level.

Subsequently, a family and self-employment based clustering was sought to substantiate this study's claim about the importance of seeing family business in a wider context of socio-economic interconnections that goes beyond how family firms contribute or are affected by the context (Bika and Frazer, 2020). Cluster analysis is a well-known class of statistical techniques, which was used here to find similarities and differences among European regions on the basis of social, demographic and economic indicators. The intention was to use this technique to provide a regional classification with high homogeneity within clusters and with high variations between clusters. On account of the study's small sample size, hierarchical cluster analysis was performed applying the *Ward method (with Squared Euclidean Distance Measure)*, a common clustering algorithm that has been extensively used in previous studies of typologies and was selected for its ability to create compact clusters (Hair et al., 1995). In a comparative study of agglomerative hierarchical methods, Blashfield (1976) highlighted the accuracy advantages that the Ward method offers, whilst Pothos and Chater (2001) argue that the choice of this similarity measure among others depends on how well it performs on a given dataset. To this extent, the determination of the unknown number of regional groups in hierarchical clustering was guided by the increase in within-cluster distances as groups were merged. Relatively large increases, that signify the merging of less similar cases (Harrigan, 1985; Carlyle, 2001), were apparent from the 7 to 8 cluster-solution. Thus, the 8-cluster solution was employed here as the most appropriate one. The cluster

profiles presented in a thematic order, are: Capital, City, Mixed-Economy, SME, Diversified Rural, Nordic, Coastal and Peripheral Regions. Table 2 reports the means and standard deviation of economic, employment and demographic cross-tabulations carried out for each cluster. Adding further detail to the results, a cross-tabulation of cluster membership by a variety of business demography indicators is presented in Table 3 ("average firm size": local units/persons employed) and Table 4 ("large firm size class": 20 employees or more).

Insert Table 2, 3, and 4

4. Findings

The development of typologies has been widely used as a means of organising diversity, so that researchers can identify key differences amongst the large population of entrepreneurs (Kalantaridis and Bika, 2006), family firms (Westhead and Howorth, 2007) or local areas (Hodge and Monk, 2004; Rordríguez-Pose, 1998). In this study, the development of European regional types was focused on family workers and self-employment data as an aggregate proxy of the family firm prevalence. Here, hierarchical cluster analysis of NUTS 2 Eurostat-Regio data, in the EU-27, tentatively maps the distribution of European family business but also shows poorer, sparsely populated regions with higher levels of family workers and self-employment relating to high average firm size and firm size class (thus low firm density levels and the presence of large corporate enterprises). However, it has been widely acknowledged – at least at the European level – that "there is a strong correlation between average enterprise size and economic prosperity, as measured by per capita GDP" (ENSR, 2004: 28). This correlation is not found in our findings.

The results of the clustering are presented below in terms of NUTS 2 regional profiles for the EU-27 (including Switzerland and Norway, no data availability for Malta) that is the

mean value of each available variable. The diagrammatic presentation of the results (Figure 2) was based on standardized variables (i.e. standardized scores or z-scores were given as so many standard deviation units above or below the mean). This was achieved by first determining how far above or below the mean the raw score was and then dividing that number by the Standard Deviation: z (standard score)=(x-mean)/standard deviation. A position towards the centre of the Figure 2 indicated lower-than-average levels of self-employment, family work, large enterprises and GDP/h, whilst a position at the edges of the Figure 2 pointed towards the opposite trend for each regional cluster. Table 5 synthesizes the distinguishing variables (relatively high or low cluster mean values in levels or changes) for each emerging cluster. The detailed description of the EU-27 cluster profiles in a thematic style of presentation follows:

"Capital Regions", numbered Cluster 3, contains 4 NUTS 2 regions, comprising Inner London, Brussels and other European capital cities. Their most distinguishing variables were their urban character (the highest population density and positive population change alongside the lowest percentage of utilisable agricultural area) and their prosperous economy (the highest GDP/h). Family work was found to be relatively low, as expected in areas of large conurbations. A higher-than-average employment in financial intermediation/public administration/community activities, unemployment rate and high education attainment combined with lower-than-average firm size suggested the existence of a service economy that included a few large-sized manufacturing units (the highest 'average corporate manufacturing'). Their profile made these places desirable to live in Europe and thus were characterised by an influx of population.

"City Regions", numbered Cluster 2, contains 60 NUTS 2 regions, of which 32 were in the UK, 6 in Belgium, 4 in the Netherlands and 4 in Switzerland, among many other countries. Some capital cities were also included, with Vienna and Prague being some obvious examples. The main distinguishing features were lower-than-average self-employment, family work, unemployment and agricultural employment combined with below average proportions of large firms (low "average firm size" and low "firm size class 20+"). These were densely populated areas, inhabited by highly educated people who predominantly worked in financial intermediation, transport or real estate sectors. Moreover, rates of GDP/h were relatively high here which was partial evidence of regional prosperity (Objective 2) and wealth creation i.e. the outcome of a blend of socio-economic forces that are usually found in operation in the more urbanised parts of Europe.

"Mixed-Economy Regions", numbered Cluster 5, contains 41 NUTS 2 regions, comprising an unusual mixture of Eastern European regions (12 were in Poland, 7 in Czech Republic, 6 in Hungary and 6 in Bulgaria) with Northern British (North Eastern Scotland) and Northern Greek (West Macedonia) regions. This was the most interesting cluster profile for the purposes of this study's enquiry. Objective 1 and border regions were mostly included in this cluster. Their much higher-than-average utilisable agricultural area (UAA) and levels of employment in agriculture rather accentuated the mixed character of their economic activities (higher-than-average employment in mining, manufacturing, electricity/water/gas supply and transport) and their lack of dependency on a single sector. However, great distinctiveness was obtained by the co-existence of family SMEs and large firms that was found in this regional cluster. Higher-than-average means of family workers and self-employed people were combined

with a relatively high "average firm size" and most importantly, the highest "firm size class 20+". At the same time, this cluster's particularity lay in its limited ability to retain its population (for example, North Eastern Scotland: -1.41%), although its inhabitants were not highly educated, and unfavourable economic development outcomes (highest unemployment rate and lowest GDP/h).

"SME Regions", numbered Cluster 1, contains 58 NUTS 2 regions, of which 26 were in Germany, 8 in Austria, 9 in Italy and 8 in the Netherlands. Thus, this cluster accounts for most of the territory of Germany and Austria and comprised rural areas (e.g. Emilia Romagna, Tuscany, Franche-Comté) in and around most of the medium-sized conurbations and "old industrial districts" i.e. Hannover, Düsseldorf, Salzburg and Bologna, in the countries included. The high utilisable agricultural area as a percentage of total area was one of the distinguishing factors in this cluster which suggested the existence of pockets of farming activities but also an economic diversity scenario provided this pattern was not accompanied by higher-than-average employment in agriculture. Instead, many people were found to work in manufacturing, although the cluster was characterised by lower-than-average size companies, including those in the manufacturing sector. This cluster represents the success stories of Europe with higher-than-average GDP/h, lower-than-average unemployment rates and a variety of small and medium-sized firms. Higher-than-average levels of family workers were also observed in these predominantly Objective 2 but also rural regions.

"Diversified Rural Regions", numbered Cluster 4, contains 32 NUTS 2 regions, of which 18 were in France, 8 in Italy and 4 in Belgium, comprising Bretagne, Basilicata and Alentejo amongst many other areas of intensive farming. This cluster includes large

rural areas (the highest utilisable agricultural area as a percentage of total area) that were inhabited by people without high education attainment levels. Small enterprises seem to dominate this cluster that was characterised by lower-than-average levels of firms with 20 employees or more and higher-than-average levels of unemployment, family work and self-employment. This profile went hand in hand with higher-than-average employment in public administration/household services and pockets of entrepreneurial dynamism and business growth in construction, hotels/restaurants, mining/energy supply. To this extent, alternative revenue streams to farming were actively developed in a regional diversification effort.

"Nordic Regions", numbered Cluster 7, contains 30 NUTS 2 regions, of which 9 were in Germany, 5 in Finland, 7 in Norway and 7 in Sweden. These less densely populated regions (e.g. the UK Highlands and Islands) were mainly distinguished by higher-than-average levels of employment in community activities/health and the lowest proportions of family work and self-employment. Relatively high education attainment levels and the over 65 year old's employment rates characterised these Northern regions that also came across as suffering from heavy population losses and utilisable agricultural land limitations. Manufacturing units of lower-than-average size were encountered in this cluster, however, a higher-than-average total incidence of firms with 20 employees or more was also reported.

"Coastal Regions", numbered Cluster 6, contains 31 NUTS 2 regions, of which 16 were in Spain, 4 in Greece, 3 in Italy and 6 in Portugal. This cluster included many Mediterranean Islands and other coastal regions such as Aegean Islands, Andalucía, Cyprus and Acores that are well-known places of tourist attraction. Consequently, a

higher-than-average employment in the fishing industry, hotels/restaurants, household services, trade and construction alongside relatively high mean values of family workers and self-employed people were reported. These coastal regions were disadvantaged in terms of agricultural land use and human capital (lower-than-average levels of utilisable agricultural area and high education attainment combined with comparatively high over 65 years old employment rates). However, considerable business growth potential was detected in various sectors of these coastal regions by virtue of their high "average firm size".

"Peripheral Regions", numbered Cluster 8, contains 19 NUTS 2 regions, of which 8 were in Greece, 4 in Poland and 7 in Romania. These were predominantly Objective 1, Border, rural and sparsely populated regions with significantly lower-than-average levels of highly educated people, GDP/h and employment in services or trade. A significant share of their population was family workers, entered self-employment, worked over the age of 65 years old or was employed in agriculture (the highest levels for all four indicators). At the same time, fewer than average numbers of firms with more than 20 employees were reported. These were lagging regions that were unable to compete effectively at the European level.

Insert Figure 2

Several conclusions can be drawn from the cluster analysis results presented above where "clustering firms in different groups and aggregating them at the regional level is a feasible proxy for capturing aggregate firm behaviour" (Stough et al., 2015: 215). Firstly, the strong correlation between average firm size and economic prosperity, as measured by GDP, was rather conditional and not always verified at the NUTS 2 regional level, if all other

territorial factors were not held constant. Secondly, the persistence of regional disparities in the EU-27 was reaffirmed (Rordríguez-Pose, 1998; Dunford, 1993). Thirdly, the co-existence of family SMEs and large firms was a significant descriptor of the economic prosperity of mixed-economy regions.

In this regional cluster, the example of North Eastern Scotland that also includes (the "highly entrepreneurial") Aberdeenshire (Ross, Crossan and Juleff, 2012) with its particular family and self-employment patterns was especially informative. Cumbers et al. explained (2003: 1692) that "as a result of oil-related development in the 1970s and 1980s, Aberdeen was transformed from a locally controlled economy based upon traditional industries to a heavily specialised, externally controlled agglomeration … [with] a significant SME sector (as locally based firms established themselves in the supply chain)" and grew (Vaessen and Keeble, 1995). In our cluster analysis, though, corporate/family inter-firm concentrations emerged as being correlated with a reduction in the competitiveness of a regional economy and this relationship was mostly evident in such mixed-economy spaces. Interestingly, large survey results confirm that more than 40% of Scottish (and Northern Irish) family SMEs were approached about (and two thirds of this group positively considered) the option of selling the business to outsiders in the 1990s (Cromie, Adams and Reid, 1999). Microeconomic elements of business growth asymmetries surface here as impactful at these mixed-economy spaces.

In summary, the EU-27 cluster analysis results here (see Table 5 for a synthesising view) offers descriptive evidence for the proposition that family business renewal appears to be closely connected to the firm type prevalence in the regional context and this has important implications for regional competitiveness. To put it simply, it is the firm type prevalence rather than the presence or type of family firms *per se* that affects regional outcomes.

Insert Table 5

5. Discussion and Conclusions

Family business research has concentrated primarily on micro causes and processes of strategic firm behavior (Stough et al., 2015), and there has relatively been little research on the impact of firm type prevalence on regional economic performance and social sustainability. Previous research has focused on the identification of distinct stages in the family firm lifecycle and challenges of their ownership, management and succession in a regional vacuum (for a critique of this see Colli, 2013; Bika and Kalantaridis, 2019) or promoted the idea that family firms have a negative effect on socioeconomic development outcomes (Morck and Yeung, 2004; Fogel, 2006). The different configurations of family and non-family firms at the European regional level and their impact on regional economic development outcomes has been the focus of our study (Stough et al., 2015). Our evidence shows that regional economic performance is correlated with the number and characteristics of interacting enterprises within a region (the system-based view) and that their variable degree of embeddedness, through strong forward and backward linkages, on the region influences their ability to exist, grow, innovate and diffuse knowledge. This adds to the body of "evidence showing that family firms affect regional processes through proximity dimensions" (Basco and Bartkevičiūtė, 2016: 718) rather than simply through their business transfer issues and other size related barriers.

Our contribution is twofold: Firstly, we contribute to the academic discussion around regional cohesion and the impact of microeconomic elements of business growth asymmetries. Our empirical enquiry complements Basco's theoretical attempt (2015: 260) to explain how, "at the aggregate level, the composition of businesses (i.e., the type of firm, such as family or non-family firms) in the regional productive structure may affect the regional dimensions responsible for regional growth and development". The impact of such

composition is of particular importance in resource scarce settings, where employment and income generating opportunities may be limited and the natural advantage of family firms (e.g. lower cost of financial/human resources for the business, local embeddedness and limited dependence on well-developed infrastructure) becomes more critical for survival (Chang et al., 2008; Bird and Wennberg, 2014). As a whole, the cluster analysis results showed here that a symbiosis of family work, self-employment and corporate enterprise only exists in the least favoured EU regions, a fact that has significant implications. Spatial variations in prosperity were shown to be inversely associated with both average firm size/class and rates of entrepreneurial participation, which can be adequately explained by keeping in mind that family enterprising is a localised process (Basco, 2015).

We conclude that there is a need for a deeper understanding on how family firm concentrations relate not only to regional economic performance, but also to models of regional firm concentrations and business ecosystems. Our EU-27 data based study offers an interregional view of family firm concentrations and supplements the small number of pioneering studies on these issues at the national level (Chang et al., 2008 in the USA; Bird and Wennberg, 2014; Karlsson, 2018 in Sweden; Block and Spiegel, 2013 in Germany). We therefore move the debate beyond the employment growth advantages of family SMEs (as opposed to non-family ones) in less densely populated areas (Backman and Palmberg, 2015; Karlsson, 2018; Kim et al., 2019). We suggest that it is the firm type prevalence rather than the uniqueness of the family firm type that matters the most and influences how family firms interact with their environment.

Secondly, this study informs policy by turning attention to the impact of localization effects from the co-existence of family SMEs with large firms and highlights the regional development need to provide support for family SMEs. This is especially important given that state intervention no longer revolves around generalizing the post-war norms of mass

consumption and therefore corporate enterprise, but is now rather "orientated to the supply side, not the demand side, especially through the promotion of innovation and competitiveness" (Goodwin et al., 1995: 1247). Large enterprises' search for greater recourse to local family businesses or the self-employed with negative consequences for the latter's survival prospects is proposed here as being correlated with certain regions becoming underperformers. Should the policy makers decide to support family firms, then they "must recognize the composition of firms within the space to ensure policy efficiency" (Basco, 2015: 268) and develop policies that substantially soften the effects of family vs. non-family business growth behaviour on the regional context (not the other way round).

Thirdly, the NUTS data base is but one of many data bases in different countries collecting information on the characteristics, regional concentrations and economic indicators of firms. Few of these data bases differentiate family firms from non-family firms, despite the fact that they comprise the majority of firms in all countries. One practical implication of this study is the fact that it has demonstrated how, using proxy indicators of family firms, that it is possible to obtain meaningful statistical findings for this neglected sector.

Our study also comes with limitations that indicate directions for future research. One limitation is that despite the success of devising usable proxy measures, they still remain proxy measures, and not ideal substitutes for a direct measure of family firms. We suggest that such a classification would be complex, as the family business sector is diverse in both size, sectoral distribution and the mix of ownership and control. Another limitation is a consequence of the NUTS data base itself, which is not complete in all its levels, and thus limited the scope of the analysis. This paper thus provides a base to inform much needed future research on family firm concentrations, rather than a comprehensive appraisal of the issues researched.

To conclude, this is a new family business 'in context' than 'by context' point of view (Bika and Frazer, 2020) that looks at the origins of family firm heterogeneity (Bika et al., 2019; Jaskiewicz et al. 2020) and moves the debate beyond simply understanding how the situational context informs both the nature and the characteristics of family enterprise activity. This also means that we should take seriously territorial proximity (e.g. through firm type prevalence incentives) and leave behind the 'one-size-fits-all' logic of current policy interventions for family firms (e.g. through tax benefits or succession advice) included in the European Union 2020 Strategy (Basco and Bartkevičiūtė, 2016). To this extent, further work with family business data at various spatial levels is called for, where a variety of variables, aggregated measurements and analyses are descriptively used, whilst considering family business vs. regional development causalities.

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Table 1: Variables used in NUTS 2 Regional Clustering

Clustering Variables (EUROSTAT-REGIO)	Variable Labels (ESPON Database Version 2_3)	N	Min.	Max.	Mean	Standard Deviation
Family workers in 2002	FAM_WORK_BOTH_02R	275	.00	50.42	3.76	7.01
Gross Domestic Product in 2000 Purchasing Power Standards (PPS) per head	GDP00PH (GDP in MIO PPS/inhabitants *1000000)	275	4,174.60	54,151.10	19,227.92	7,694.77
Self-employed persons in 2002	SELF_EMP_BOTH_02R	275	5.82	46.16	15.44	8.19
Persons with high education attainment 02	HIGH_EDU_TOTAL_02R	275	5.02	45.84	20.63	8.05
Employed persons in agriculture in 02	NACE_A_BOTH_02R	275	.00	52.17	7.22	9.01
Employed persons in fishing 02	NACE_B_BOTH_02R	275	.00	2.77	.1760	.40
Employed persons in mining/quarrying 02	NACE_C_BOTH_02R	275	.00	11.00	.58	1.22
Employed persons in manufacturing 02	NACE_D_BOTH_02R	275	1.63	36.38	18.80	7.04
Employed persons elect/gas/water supply in 02	NACE_E_BOTH_02R	275	.00	7.08	1.02	.72
Employed persons in construction 02	NACE_F_BOTH_02R	275	3.03	17.88	7.70	2.47
Employed persons in trade/repairs 02	NACE_G_BOTH_02R	275	6.14	21.86	14.30	2.20
Employed persons in hotels/restaurants 02	NACE_H_BOTH_02R	275	.37	23.92	4.23	2.56
Employed persons in transport/storage 02	NACE_I_BOTH_02R	275	2.40	20.39	6.19	1.82
Employed persons in finance. intermediation 02	NACE_J_BOTH_02R	275	.52	10.67	2.81	1.58
Employed persons in real estate/renting 02	NACE_K_BOTH_02R	275	.75	22.71	7.44	3.57
Employed persons in public administration 02	NACE_L_BOTH_02R	275	3.02	36.74	7.45	2.96
Employed persons in education 02	NACE_M_BOTH_02R	275	3.15	13.89	6.94	1.60
Employed persons in health/social work 02	NACE_N_BOTH_02R	275	2.55	22.33	9.46	4.09
Employed persons in community activities 02	NACE_O_BOTH_02R	275	1.21	9.72	4.24	1.40
Employed persons in household services 02	NACE_P_BOTH_02R	275	.00	6.33	.71	.94
Employed persons in extra-territorial bodies02	NACE_Q_BOTH_02R	275	.00	3.92	.07	.30
Population Density in 2000 (km2)	POPDENSITYkm2	275	.00	8.81	.34	.84
Percentage Population Change 1996-2000	PT00 and PT96	275	-25.32	16.28	.59	2.57
Unemployment Rate in 2000	UNRT00	275	1.50	31.00	8.74	5.69

Table 2: Cross tabulations of cluster membership (mean/std. deviation, N=275)

No	Cluster Names and Number of Regions	Family workers	Self-employed	GDP PPS/head	Pop. density	% Pop change	High education	Employed over 65 /Rate	Unemployed /Rate	UAA % of total area 1995-1996
1	SME Regions (58)	2.35 1.75	12.79 5.27	23,740.10 3405.05	.21 .16	1.25 1.00	18.36 4.13	3.32 1.42	4.94 1.82	47.41 10.76
2	City Regions (60)	.84 .81	11.87 2.78	24,000.06 5812.20	.74 .92	1.46 2.51	26.94 5.40	4.41 2.51	5.31 2.58	46.00 23.81
3	Capital Regions (4)	.64 .29	12.38 3.40	40,494.55 17,713.95	4.85 3.60	3.94 1.98	29.77 11.28	3.60 2.61	12.37 9.45	26.10 32.53
4	Diversified Rural Regions (32)	2.83 2.10	14.88 6.18	18,298.90 2,248.34	.12 .09	.58 1.21	18.47 6.21	2.07 2.07	11.93 5.44	56.93 13.61
5	Mixed Economy Regions (41)	3.14 3.60	14.95 5.98	9,508.75 3,743.55	.13 .19	-.79 1.42	14.99 7.96	3.53 2.63	14.45 6.59	55.03 12.27
6	Coastal Regions (31)	3.99 4.47	23.60 7.91	17,950.56 4,318.33	.14 .16	1.35 2.46	18.99 8.72	5.04 7.12	9.80 5.84	39.32 14.17
7	Nordic Regions (30)	.64 .30	9.56 2.78	20,166.88 5,000.33	.07 .08	-1.37 4.94	28.32 5.00	5.86 4.47	9.27 5.29	33.31 23.85
8	Peripheral Regions (19)	25.42 10.82	33.49 7.70	9,046.02 4,233.18	.07 .02	.07 1.26	12.08 3.56	14.56 11.59	10.17 3.36	52.54 13.79
	NUTS2 regions *Sig. Between groups*	*0.000**	*0.000**	*0.000**	*0.000**	*0.000**	*0.000**	*0.000**	*0.000**	*0.000**

Source: EUROSTAT-REGIO (Unit: N x 1000 – in persons) – * Owing to statistical rounding of numbers a probability of 0.000 does not mean zero, but that is less than 0.001 [or in other words, significant at $p < 0.001$]

Table 3: Average firm size & cluster membership: the sectoral view (mean/std. deviation), N=246

No	Cluster Names	Mining & Quarrying	Manufacturing	Elect./water/ gas supply	Construction	Trade	Hotels/ Restaurants	Transport	Real Estate
1	SME Regions	7.31 5.18	4.46 4.08	4.36 2.71	12.38 14.05	24.36 11.59	21.75 6.57	9.41 4.14	21.27 11.25
2	City Regions	9.14 5.52	5.54 3.25	2.18 .95	14.35 7.15	12.25 4.54	10.58 3.54	7.51 2.63	15.73 7.28
3	Capital Regions	5.25 .00	18.39 12.74	3.20 1.01	10.08 .00	28.49 24.28	18.47 16.10	16.14 16.90	21.52 13.73
4	Diversified Rural Regions	12.96 5.31	11.10 7.20	6.43 3.51	26.35 5.79	32.84 14.85	34.16 6.93	13.57 4.83	32.32 13.36
5	Mixed Economy Regions	5.36 4.64	9.72 7.81	2.73 1.35	25.40 12.65	31.99 7.91	28.25 9.88	21.56 11.92	40.23 15.29
6	Coastal Regions	9.93 5.38	17.06 15.60	5.12 3.78	24.50 12.93	35.41 7.20	32.14 9.93	32.37 16.86	33.65 12.54
7	Nordic Regions	11.27 8.53	5.28 3.15	8.43 4.27	19.18 12.43	24.17 4.99	20.30 7.14	19.67 33.82	20.78 11.72
8	Peripheral Regions	5.76 7.37	11.91 10.00	1.52 1.37	26.81 21.43	32.95 7.36	29.81 11.39	27.86 18.38	38.35 19.05
N	NUTS2 regions *Sig. Between groups*	209 *0.000**	232 *0.000**	182 *0.000**	246 *0.000**	201 *0.000**	201 *0.000**	241 *0.000**	226 *0.002*

Source: EUROSTAT-REGIO (Average firm size – i.e. persons employed/no of local units per NACE C to K in 2002)
– * Owing to statistical rounding of numbers a probability of .000 does not mean zero, but that is less than 0.001 [or in other words, significant at $p < 0.001$]

Table 4: Apportioned business demography indicators by firm size class at NUTS 2 level, N=140

No	Cluster Names	Mean	No of NUTS 2 Regions	Countries (and No of NUTS 2 Regions)	Std. Deviation	Minimum	Maximum
1	SME Regions	2.68	17	IT (8), NL (8), UK (1)	2.92	.22	11.22
2	City Regions	1.53	40	CZ (1), ES (1), HU (1), NL (4), SE (1), UK (32)	2.49	.18	9.89
3	Capital Regions	.97	2	ES (1), UK (1 – Inner London)	1.24	.09	1.85
4	Diversified Rural Regions	1.79	10	IT (8), PT (1), UK (1 – Northern Ireland)	1.52	.29	4.56
5	Mixed Economy Regions	6.98	19	CZ (7), EE (1), HU (6), LT (1), LV (1), RO (1), SI (1), UK (1 – North Eastern Scotland)	6.28	.20	28.41
6	Coastal Regions	2.09	25	ES (16), IT (3), PT (6)	1.90	.17	7.30
7	Nordic Regions	5.55	20	DK (1), FI (4), NO (7), SE (7), UK (1 – Highlands and Islands)	7.12	.15	27.97
8	Peripheral Regions	1.58	7	RO (7)	.27	1.17	1.93
N	Total *Sig. Between groups*	3.10 *0.000**	140		4.43	.09	28.41

Source: EUROSTAT-REGIO (Firm size class 20 employees or more – i.e. No of Local Units Total%/C_KsizeclassRate in 2002) – * Owing to statistical rounding of numbers a probability of 0.000 does not mean zero, but that is less than 0.001 [or in other words, significant at $p < 0.001$]

Table 5: Cluster Profiles for the EU-27 (including Switzerland and Norway)

No	Cluster Names and No of Regions	NUTS 2 Examples	'HIGHER THAN AVERAGE'	'LOWER THAN AVERAGE'
1	SME Regions (Total: 58) [AT 8; CH 3; DE 26; FR 2;IE 1; IT 9; NL 8; UK 1]	Emilia Romagna, Tuscany, Hannover, Salzburg or Bologna	Objective 2 regions; Utilisable agricultural area; GDP/h; family workers; agriculture; employment in manufacturing	Average firm size; unemployment
2	City Regions (Total: 60) [AT 1; BE 6; CH 4; CZ 1; D3 5; ES 1; FI 1; FR 1; HU 1 IE 1 NL 4; SE 1; SK 1; UK 32]	Vienna, Zurich or Prague	Objective 2 regions; population density, high education, GDP/h; employment in financial intermediation/public administration/community activities	Self-employment; family workers; unemployment; agriculture; average firm size; average firm size; firm size class 20+
3	Capital Regions (Total: 4) [BE 1; ES 1; LU 1; UK 1]	Inner London or Brussels	Objective 2 regions; population density; population change; GDP/h; unemployment; high education; employment in financial intermediation/public administration/community activities	Utilisable agricultural area; agriculture; mining; manufacturing; family workers; average firm size
4	Diversified Rural Regions (Total: 32) [BE 4; FR 18; IT 8; PT 1; UK 1]	Bretagne, Basilicata, Alentejo or Northern Ireland	Utilisable agricultural area; high education; unemployment; family workers; self-employment; employment in public administration/household services; average firm size	Firm size class 20+
5	Mixed Economy Regions (Total: 41) [BG 6; CZ 7; EE 1; GR 1; HU 6; LT 1; LV 1; PL 12; RO 1; SI 1; SK 3; UK 1]	West Macedonia or North Eastern Scotland	Objective 1 and border regions; Utilisable agricultural area; unemployment; family workers; self-employment; average firm size; firm size class 20+; agriculture; employment in mining, manufacturing, electricity/water/gas supply and transport	High education, GDP/h; negative population change; household services
6	Coastal Regions (Total: 31) [CY 1; ES 16; FR 1 GR 4 IT 3; PT 6]	Aegean Islands, Andalucía, Cyprus or Acores	Self-employment; family workers; employment in the fishing industry, hotels/restaurants, household services, trade and construction; over 65 year old employment; average firm size	Utilisable agricultural area; high education
7	Nordic Regions (Total: 30) [DE 9; DK 1; FI 5 NO 7; SE 7; UK 1]	UK Highlands and Islands or Dresden	High education; over 65 year old employment; firm size class 20+; employment in community activities/health	Utilisable agricultural area; population density; average firm size; self-employment; family workers; household services; negative population change
8	Peripheral Regions (Total: 19) [GR 8; PL 4; RO 7]	Epirus, Crete, Thessaly, Podlaskie or Nord-Est	Objective 1 and border regions; Utilisable agricultural area; self-employment; family workers; over 65 year old employment; agriculture; employment in electricity/water/gas supply	Population density; high education; GDP/h; employment in financial intermediation/public administration/community activities, transport and trade; firm size class 20+

Figure 1: A family firm-region conceptual framework

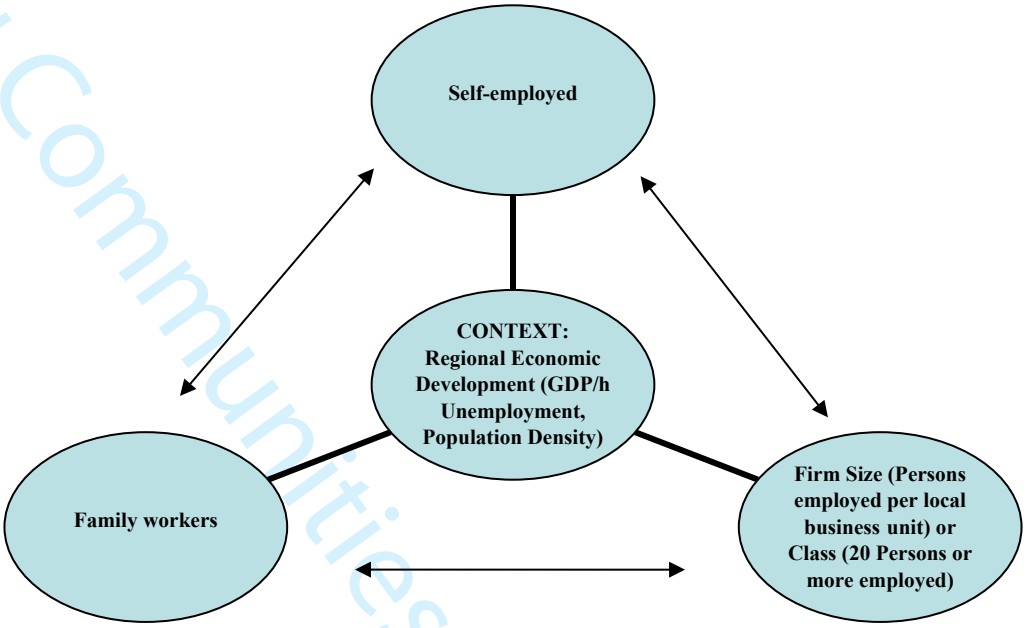

Figure 2: The impact of firm type prevalence on regional economic performance (standardized z-scores)