

Are European Funds supporting new firms' formation well spent? New evidence on the role of public expenditure for entrepreneurship in Italy

Andrea Ciffolilli¹, Eleonora Cutrini², Marco Pompili³

EXTENDED ABSTRACT

Entrepreneurship and new firm formation are essential for competitiveness, employment, prosperity of regions and, ultimately, for individual wellbeing. According to the literature, several factors are important for explaining regional variation in new firm formation. These factors are wide ranging and include: the business cycle, the existence of an innovation friendly environment characterised by the availability of services and institutions which facilitate entrepreneurship (e.g. from incubators to research and financial institutions), industrial density and the average size of existing firms, labour market characteristics (e.g. unemployment rate and structure, human capital), demographic features, cultural factors and history.

European countries and regions invest a significant amount of EU Cohesion policy resources on firm formation both directly, through non-repayable and repayable grants (EUR 746 million, or nearly 4% of total ERDF was disbursed in Europe for these kind of initiatives in the 2007-2013 period), as well as indirectly (e.g. by strengthening research and innovation systems, developing transport and digital infrastructures, investing in education and training, encouraging self-employment).

Therefore, understanding the role of public intervention in respect to firm formation is crucial for policy design, evaluation and management, in addition to being relevant for economic theory. Nonetheless, the public policy side is often disregarded in the studies on firm formation, also due to a scarcity of suitable data.

The present paper is aimed at mitigating this knowledge gap and providing an original contribution to the existing evidence. A binomial regression model is used to analyse the factors which may have influenced new firm formation, including public expenditure co-financed by the EU, in Italy over the period 2007-2013. The inclusion of the public policy dimension is made possible by a new database on the

¹ Ismeri Europa, Via G.G. Belli 39, 00193 Roma, e-mail: ciffolilli@ismerieuropa.com.

² Università degli Studi di Macerata, Dipartimento di Giurisprudenza, Piaggia dell'Università 2, 62100, Macerata, e-

² Università degli Studi di Macerata, Dipartimento di Giurisprudenza, Piaggia dell'Università 2, 62100, Macerata, e-mail: eleonora.cutrini@unimc.it (corresponding author).

³ Ismeri Europa, Via G.G. Belli 39, 00193, Roma, e-mail: pompili@ismerieuropa.com.

European Regional Development Fund (ERDF) expenditure by NUTS3 and priority theme which was developed by the authors for the European Commission in 2015⁴. ERDF is the main and often the only source of public funding for facilitating business creation in the majority of the Italian regions.

While there is a huge interest on the territorial effects of European structural funds, the empirical evidence so far is not conclusive and results provided have been possibly flawed by a series of limitations (See Aiello and Pupo (2012) for a critical review and the main shortcomings in the different approaches). In this respect, this work is a first attempt to overcome some of the shortcomings the two authors highlighted. First, our database allows us considering European funds actually spent and not just the resources committed. Second, high disaggregation of priorities gives us the possibility to focus on the resources dedicated to a specific purpose, i.e. the support to firm creation. Third, we perform our analysis at the higher territorial disaggregation than it has been usually done in the related literature, avoiding scale aggregation bias that may have affected previous unconvincing results. Fourth, we rely on a set of econometric tools to correct for spatial autocorrelation.

The preliminary results of the analysis are consistent with the existing literature as regards the relation between firms formation, density of economic activity, human capital, and unemployment rate. Furthermore, our analysis shows that public spending has a positive and significant effect on new firm formation. These results are also robust when controlling for spatial autocorrelation and endogeneity concerns.

The remainder of the article is organized as follows. Section 1 reviews the relevant literature. Section 2 illustrates the data, the variables used in the analysis and the estimation method. The basic results of the analysis are discussed in section 3, robustness checks are presented in section 4 and conclusions and policy implications in section 5.

1. Literature review

The empirical literature so far has devoted only a scant attention to the role of public expenditure on new firm formation. The main reasons include the difficulties in evaluating the effects of public policies and also that the culture of evaluation has only recently been introduced in the public sphere, especially in Italy.

Several factors have been recognized to be important in regional variation in new firm formation: industrial density, size structure, population growth and household wealth, labour market characteristics (unemployment rate and, more recently, also unemployment structure; human capital), financial development, cultural factors.

The density of industrial activity should facilitate spillovers across different manufacturing sectors (agglomeration economies) (Ciccone and Hall, 1996) and thus should have a positive effect on new firm formation. Armington and Acs, 2002 to capture this spillover effect use an industry density indicator

⁴ We thank Stefano Condello of Ismeri Europa, who was involved in the WP13 project and contribute to produce the database..

(number of establishment divided by the population). The economic cycle, growth dynamics (population growth, income growth are indicators to capture this growth effect) and ownership and household wealth (Garofoli, 1994) should facilitate new firm formation. Industry density and population growth rates are usually found to have strongly positive effects on creation of new firms; income growth also but to a lesser extent (Armington and Acs, 2002; Audretsch and Fritsch, 1994; Keeble and Walker, 1994;).

The size structure of existing enterprises can be a factor influencing new firm formation rates. Localities dominated by small firms have high rates of new firm formation (Cross, 1981; Storey, 1982; Audretsch and Fritsch, 1994; Garofoli, 1994; Armington and Acs, 2002). Gudgin et al., 1979; Cross, 1981, show that a large proportion of entrepreneurs spring from having had prior experience in small firms. In this sense, Cross 1981, argues that the small firm is the best incubator of entrepreneurial capacity. In the case of Italy, this has been considered to reflect the importance of local productive systems but also reflects the relatively high barriers to entry in industries dominated by large firms (Garofoli, 1994). The existing literature also highlighted that areas dominated by large plants are likely to have lower rates of new firm formation (Gudgin, 1978) because even if large firms both provide employment for highly skilled workers in the economy, they fail to provide a suitable training ground for new entrepreneurs.

Unemployment has an ambiguous role in relation to new firm formation. In this respect there are two opposing views. On one side, drawing from the seminal work of Oxenfeld (1943), due to the lack of job opportunities individuals tend to become self-employed therefore higher rate of unemployment should increase new firm birth (*unemployment push-hypothesis*). On the other side, lower rate of unemployment are usually associated to economic prosperity, high level of demand and thus positive expectations for entrepreneurs (*unemployment pull-hypothesis*). In this second case, the relationship between unemployment and new firm formation should be negative. Some studies are consistent with the unemployment push-hypothesis (e.g. Storey and Johnson, 1987), others found support of the unemployment pull-hypothesis (e.g. Storey, 1991; Audretsch and Fritsch, 1994) while some are not conclusive in this respect (Armington and Acs, 2002; Audretsch et al. 2005). To better understand this uncertain relationship, Audretsch et al., 2014 considers the impact of unemployment structure by duration and skill endowments and found that both have an important impact in the regional start-up intensity.

For Italy, in their analysis conducted on 103 provinces for the period 1997-2003, Santarelli *et al.* (2009) conclude that unemployment does not provide a positive effect on entry (*push effect* is not confirmed by their analysis). When the analysis is conducted at the regional level, the effects of unemployment on entry depend upon the sector under study, but are mainly negative, thus confirming the *unemployment pull-hypothesis* (Carree et al. (2008).

According to the incubator hypothesis metropolitan areas and core regions should have a crucial role in new firm formation (Hoover and Vernon, 1959; Vernon, 1960). However such hypothesis is not supported in the Italian case (Garofoli, 1994).

Another important driver of firm birth rate is the social structure enhancing entrepreneurial culture, a characteristic related to features of the local population, cultural traits such as life modes (self-employment,

career and wage-work) (Illeris, 1986) and other characteristics of the local institutional environment (e.g. political leadership, financial and educational institutions) (Johannisson, 1984) or the incidence of independent workers (Fritsch and Mueller (2007)). Regions where there is dominance of large and externally owned firms should have low new firm birth rates, while large metropolitan areas, where well-educated workers engaged in the advancement of their career are widespread, there should be a higher rate of new firm formation (See Armington and Acs, 2002 for a discussion on this issue). Fritsch and Mueller (2007) found that the main factors determining the level of regional start-ups are innovation and an *entrepreneurial climate*.⁵ They conclude that steering innovation and creating an entrepreneurial atmosphere could be an appropriate starting point for policy measures that try to promote start-ups, although their effect can be appreciated only in the long run.

In this context, new firm formation should also be positively associated with higher levels of educational attainment. In fact, human capital is usually found to be positively associated with new firm formation especially in technologically advanced industries (Armington and Acs, 2002; Savage et al., 1998; Anselin et al. 1997, 2000). Nevertheless, when the analysis is restricted to manufacturing firms the relationship between college education and birth rate is negative. Garofoli (1994) found that areas having a large proportion of manual workers have low rates of new firm formation.

More recently, cultural diversity of the population and migration have been recognised to be crucial from the point view of knowledge transmission mechanisms (Audretsch et al., 2010 and Niebuhr, 2010).

The role of the public expenditure is investigated by Karahasan (2015), that analysed new firm formation in Turkey during the period 1997-2006. In this case, the evidence provided demonstrates the inability of the public support to explain regional new firm formation, possibly because less developed locations have benefited more from public expenditure and subsidies. Karahasan (2015) confirms the role of local demand, business cycles, human capital, for manufacturing and service sectors.

As for Italy, the recent literature that focuses on the spatial differences in new firm formation is limited. Audretsch et al., 1999 carried out a survival analysis of firms in each manufacturing industry and related the growth process to the start-up size. Santarelli et al., 2009 analyses the relationship between firm entry and exit and unemployment in Italian provinces for the period 1997-2003. Carree *et al.* (2008) conducted a similar analysis but at the regional level. They find that industrial districts are important determinants for entry but only for manufacturing. In the context of the Great Recession, in Italy the analysis on the demography of firms have focused more on firm survival (eg.; Ferragina and Mazzotta, 2014) and/or firm mortality (e.g. Cainelli et al., 2012, Arrighetti et al., 2016) rather than new firm formation.

⁵ *Entrepreneurship Climate* is here proxied by the share of employees working in small and young businesses in the respective region. Businesses were classified as small and young when they had less than 20 employees at the time of their founding and were no more than three years old.