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The Fog and the Cloud:
The emergence and development of social incubators in cities

An analysis of the urban geography of social innovation

a dissertation submitted in partial fulfillment of the requirements for the Doctoral degree (Ph.D.) doctoral programme in Development Economics and Local Systems

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Abstract

The creation and support of an ecosystem of social incubators has been analysed in organizational research with regards to business models, services provided and financial performances' evaluation (Giordano et al., 2015). How these ecosystems are created, the peculiarity of third sector as well as the role of social innovation is a debated topic in social economy. Social incubators are substantially different from the technological incubators for motivations, relations and processes of the firms and actors involved. They are intrinsically bonded to the local systems where they are usually established by virtue of local institutions. However, the local impacts of these new typology of organizations have not yet been systematically investigated, leaving the topic uncovered by economic geography. Social incubators are located in cities, close or incorporated into knowledge hubs such as universities or in zones with relevant level of inequalities, for developing innovations answering local social needs, engineering social innovation. Community social networks are reproduced to satisfy human needs and social empowerment, their relationship being explained by the geographical perspective of social innovation (Van Dyck and Van den Broeck, 2013). Despite its recognized key role in development, geography approach to social innovation still remain extremely vague (Van Dyck and Van den Broeck, 2013). The objective of this dissertation is to provide a first set of answers to that gap involving the urban environment of the city of Milan and a subsequent comparative case strategy with incubators in Brussels.

Keywords: cities, social innovation, social incubators, urban geography, social economy

Table of contents:

Introduction

The title of this dissertation originated in the first phases of discussion of the research idea. Both fog and cloud are made of water, which in the event of the fog comes as suspended droplets while in the case of the cloud as watery vapour. We are used to associate something which is undistinguished, without clear boundaries or logical organization as being foggy. This was our first perception when starting to face the challenge of dealing with social incubators and social innovation. The cloud, as opposite, became a synonym of archive, a place where you can conveniently stack your files to be working on at a later stage and wherever you need. Therefore, this was our aim: to make some order, to transform the fog into a cloud and analyzing social incubators with the tools provided by agglomeration research and geography.

The creation and support of an ecosystem of social incubators has recently started to be analysed through firm research regarding business models, services provided and financial performances evaluation. Interactions between institutions, local private and private actors resulted in the building of an ecosystems dealing with economic, social and environmental issues. These ecosystems are not crystallized bodies but feature evolutions and continuous adaptations to the emerging local needs. Cities are indeed the most relevant expression of ecosystems, being founded on an organized multiplicity of social networks. The social network, however, is part of an ecosystem, deploying the connections between the involved institutions and the actors. The overall interaction between the environment, the infrastructures, and the institutions, the public and private actors constitutes the broad urban ecosystem, which can be divided into several others dependent on the number of the actors, the sectors and the relevant issues at stake in a single neighbourhood of the city.

Social enterprises are becoming relevant subjects in the evolution of urban ecosystems of social innovation. Global, Regional and State legislation differ regarding the meanings, aims and spectrum of social enterprises. They have impacts on local development and on the community in which they are active. In order to link the different aspects of cities and urban framework it is necessary to state that urban system features an essential form of social interaction and organization in the creation and distribution of wealth, one of the main organizational mechanism through which efficiency in production and trade is attained and

distribution effected. The relation between increasing urbanization rates and increasing income levels or adequate living standards is not always positive. When focusing on developing countries' urban areas urban areas, it is apparent how rising urbanization levels are correlated with high income inequality, violence and environmental risks. Those are aspects which have been analyse in economic geography and agglomeration.

The literature on agglomerations is wide and extensive, encompassing national, regional and local levels. Amongst the main questions related to local and territory development lie the reasons because do cities exist. The clustering of human activities in small areas is the core of the researches pioneered by von Thünen (1826) and Marshall (1890). The variety of answers proposed several and remarkable streams of research across the whole XX century, culminating in the 90's with Paul Krugman and Edward Glaeser. The existence of big cities cannot be explained by the innate advantage of house supply or by the fact that a denser area makes the building easier (Glaeser and Gottlieb, 2009), neither amenities driven logic alone is suitable to explain the existence of cities. Therefore, a plethora of drivers and advantages, stemming from natural advantage to transportation costs, lie at the base of the creation of cities.

Cities are the prominent location of productive factors, where productivity can benefit from the application of the most innovative solutions. The mechanisms undergoing the causes of the rising and fall of cities are very complex and not always suitable to generalization. Cities evolve at a dramatic pace attracting people and capitals and expanding or contracting their territories. Therefore, it is necessary to approach the subject in a multidisciplinary way, encompassing urban planning, economic geography, macroeconomics, transport economics, industrial economics and innovation economics. Changes are affecting the whole set of cities around the world as the results of the continuous evolutionary mechanism. Recent studies and the revamped interest in regional economics increased the discussions related to how regional planning policies can impact local innovation and growth. Innovative industrial clusters, districts and *milieu* are indeed at the centre of the possible role for regional planning in stimulating growth.

Cities also played an important role in the industrialization waves both as leading centres of ecosystems of high technology and culture. Human capital is at the centre of the ongoing "digitalization wave", as the development of the human capital necessary for

sustaining this process has its core in urban and metropolitan areas. The specificity and specialization of cities led to the creation and implementation of different areas featuring urban settlements but sharing the values with its historical central business districts.

Some of these sub-centres have been identified as edge cities which are linked to the urban centres. Edge cities are constituted by the identification of factors like substantial changes in inequality, employment rate, household income, production density and land value. Contemporary metropolitan areas are characterized by increasingly complex spatial structures that are differentiating from the archetype of the city with monocentric features. Metropolitan industrial, business development and employment have been dispersed on the urban territory, altering significantly the monocentric patterns of urban spatial organization driving them towards polycentricity. The resulting development path spread from these centres through the outer clusters, incorporating other smaller municipalities, which have built relations and strong bonds with the complementary urbanities of the whole metropolitan and regional areas. The morphology of the different models of urban framework is a fascinating topic which must be further researched also regarding the urban sprawl effects.

Innovative ideas are best created in cities (Glaeser and Gottlieb, 2009) through technology advancements in information and transportation in order to increased returns to innovation (Glaeser and Ponzetto, 2007). In the last three decades, the learning effect developed in cities allowed the functional specialization, creating cities specialized in ideas (Duranton and Puga, 2005). Therefore, literature converges on affirming that agglomeration exists and is identified as externalities, significantly affecting urban growth (Krugman, 1991) and creating substantial benefit to growth and development as well as relevant challenges to sustainability and social inclusion. To this effect, a relevant branch of economic theory on local and urban development devoted to the study of the ecosystems of social interest (Amin, 1994; Moulaert et al., 2002; Defourny and Nyssens, 2013; Pinch and Sunley, 2016), focusing on the analysis of the third sector. New typologies non-capitalist oriented firms have been created to reply to those needs left unanswered by both the market and public actor.

This doctoral dissertation aims at three objectives, summarized as follows:

- The identification of the theoretical and institutional backgrounds linking social economy and urban economics and local development, lying as the foundations of Geography of Social Innovation.
- The understanding of the presence and typologies of externalities of actors of social economy in the neighbourhoods of a city.
- The identification of relevant practices of social incubation and social innovation, thus to identify the emerging role of social incubators in cities.

The bridging of two different fields of research is paramount in dealing with the creation of social capital and development in cities. The first field of research envisages regional and urban economics. The complexity of local economies and impacts on the territories of industrial policies is unfurled in the following chapters.

The second field of research deals with the third sector and social economy, social enterprises including cooperatives, nonprofit and for-profit firms envisaging the creation of social services as their main objectives is the first. Indeed, it deals with the objective of the analysis, which is the social incubator as an agglomeration of social enterprises.

The common denominator is identified in the role of the third sector in contributing to social innovation in the urban environment, impacting on a wide range of services which have been left without action by the public actor and the most private counterparts such as multinationals and profit driven firms. These gaps opened the floor to the introduction and proliferation of different kind of firms. Those firms benefited from the agglomeration in specific areas of the city as business firms do, but these agglomeration patterns provide benefits to the territories.

Three overall research questions are proposed as they are instrumental to tackle the territorial perspective of social innovation and the research objectives.
- Is the third sector influencing city evolution and vice versa?

This question deals with the main literature review on agglomeration, urban science and social economy. Starting from the review of the state of the art on urban geography economics and the influences of globalization and urbanization on the innovation in local systems, we identified what are the reasons behind the development and creation of third sector in cities and the emergence of new social needs. Market failures and welfare needs are amongst the

pivotal reasons discussed.

- Are there any correlations between nonprofit institutions and growth in cities?

The second question deals with the empirical analysis of relations between geographical and micro geographical aspects of diversification amongst nonprofits in Milan, thus identifying correlations between nonprofits, their agglomeration and growth in neighbourhoods in the city of Milan. The choice of the city of Milan is dependent upon the significance of the ecosystem of nonprofits and the legacy of the city in providing a solid example of third sector policies.

- Do social incubators contribute to social innovation in cities?

The last question deals with issues with reflexes on urban policies and innovation through a qualitative comparative analysis. We go deeper into a set of four identified relevant incubators in two cities (Brussels and Milan) to understand their services provided, their role in the neighbourhoods and how they have been dealt with a qualitative approach of case study analyses.

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Chapter 1- Cities in movement: the third sector in cities

"There are three hypotheses about the inhabitants of Baucis: that they hate the earth; that they respect it so much they avoid all contact; that they love it as it was before they existed and with spyglasses and telescopes aimed downward they never tire of examining it, leaf by leaf, stone by stone, ant by ant, contemplating with fascination their own absence."

— Italo Calvino, Invisible Cities, 1972 -

Introduction

The aim of this first chapter is the analysis of third sector performing social innovation in cities, with particular focus on the emergence of social incubators. We take into consideration the economic evolution of the needs and firms at city level and the geographical and structural evolution in the cities. This contribution intends to lay the first theoretical and institutional ground for a more extensive research, connecting territorial evolution and specialization with the creation and development of the so-called *third sector*. The latter is built on the existence of new typologies of needs in the developed countries where the welfare state is facing pivotal challenges. The relevant issues at the base of the evolution of the third sector in cities are analysed using the perspective of economic geography and territorial-regional economics.

An implemented geography perspective of social innovation is needed as, despite a recognized key role in development and institutional dynamics, territorialized social innovation approaches still remain extremely vague, as it is usually analysed by organization and management studies (Van Dyck, 2010; Van den Broeck, 2011).

Findings from recent studies on agglomeration of social enterprises in UK cities suggest that there are multiple evidences of the impacts of social firms on urban life deriving from the variety of sectors in city clusters and predominant local market orientation. However, the perception and awareness of these impacts resulted to be limited among the managers of the firms (Pinch and Sunley, 2016). Furthermore, social enterprises have the paramount need of specific knowledge and knowledge exchanges at local level. The presence of suppliers organized in a local business ecology drives the exploitation of knowledge. Social enterprises are predominantly created with the financial support of the public actors through focused programs targeting specific objectives of social development and innovation. This model of entrepreneurship has the intervention of local institutions at their core.

The creation and support of an ecosystem of social incubators recently started to be analysed through research about social firms regarding business models, services provided and financial performances evaluation (Giordano et al., 2015). It is our specific objective to address this issue not from the organization perspective, but a more generalized and close-to-the-territory focus. Therefore, our logic starts from the analysis of the agglomeration studies, envisaging innovation outspread and its roles as well the study of the evolution of urban ecosystems. The entire ecosystem of social enterprises in Europe engaged in 2010 over 14,5 million paid employees (6,5% of EU-27 working population, increasing from 6% of 2002-03 period). About 2.8 million organizations, as of 2010, are engaged in social issues in Europe (Social Europe Guide, 2014).

Accurate data on the social economy are however very difficult to obtain, even if very recently a less scant attention has been put on the issue by statistical offices. However, the territorial impacts of this new typology of clusters have not yet been investigated, while business hubs have been analysed in the US regarding patenting and job markets. Significant less attention, however, has been dedicated to build an economic geography perspective for identifying local impacts of social enterprises and social incubators (as incubators of social enterprises can be defined), as they do not patent nor produce hard products but services, which are less suitable for standard economic analysis.

Herewith I propose a logic path according to the necessary specifications of social incubators, clearly stating the founding "bricks" of both real facts and theory.

The first fundamental brick in the wall is the *geographical approach*. Innovation mostly takes place in cities for the relevance of interactions and networks amongst citizens, public and private organizations, which generate and increase social capital (Putnam, 1993; Fukuyama, 1995). Incubators are therefore located in cities, close or incorporated into knowledge hubs such as universities or (for the social ones) in zones with relevant level of inequalities. This research in the geography of innovation starts according to a framework of territorial and agglomeration analysis.

Innovation process is paramount to this path (the second brick in the wall), as incubators are those black boxes where innovation takes place. Innovation in economic activities is stimulated, according to the Schumpeterian view of economic change, by the creation of new

outputs, the research of new inputs and the opening of new markets. The above is coupled with the evolutionary perspective of economic change, inspired by selection in industrial dynamics in local areas.

Social innovation is the third and last brick in the wall. There are two definitions of social innovation: the first addresses social innovation as the satisfaction of unsatisfied or alienated human needs; the second addresses innovation in the social relations between individuals and groups in the neighbourhoods and the wider territories embedding those (Moulaert, 2000). Even if not a top issue in theoretical debates until 2000's, the concept is particularly appealing in light of the difficulties facing traditional welfare systems and development models essentially based on only two actors: the market and the state. The increasing difficulty of welfare state to meet the growing and diversifying needs of society is apparent. The barriers and inequalities stimulated by globalization and urbanization trends are threats to social cohesion, thus social innovation works as a driver for the latter one and a complement of the former two. However, social innovation has relevant specifications differentiating it from the pure technological dimension which is basic in business oriented firms. It usually is a participative process of dialogue between public bodies and social actors for the creation and support of micro enterprises, or the creation of nonprofit enterprises by single or organized stakeholders. The roles of public and private actors, be them associations, cooperatives and social enterprises themselves, is dependent on the social context and the local communities where actions deriving from the process of social innovation are going to take place.

According to the trail highlighted above, the first section of this chapter deals with the global urbanization topic, defining the geographical scope of the framework and providing a clear definition of geographical terminologies. A second section deals with the innovation framework in cities, identifying the factors at the base of the dynamics of innovation and the drivers of local needs and trends in cities. The third section is dedicated to present social innovation and its determinants, connecting them with the existing theory; a particular focus will be dedicated to social incubators and social enterprises, presenting the current research and literature. The last paragraph concludes.

1.1   *The link between globalization and urbanization*

The eleventh Goal of the SDGs (Sustainable Development Goals) published in 2016 recites "Sustainable cities and communities: Make cities and human settlements inclusive, safe, resilient and sustainable" (UNCTAD, 2016). It is indeed defined as a complex cross-cutting goal to be accomplished as soon as possible for a rapidly urbanizing planet. The objective, as stated by the United Nations Conference for Trade and Development, aims at providing safe and affordable houses and public transport while developing well-planned cities with environmentally sustainable buildings for the protection of cultural and natural heritage. The proportion of urban population living in slums has fallen from 46 % in 1990 to 30 % in 2014, while absolute numbers of urban populations living in slums have grown from 689 million in 1990 to 881 million in 2014 (UN-Habitat, 2016). The urbanization process defined by Muggah (2016) is expected to continue with more people looking for employment, better quality of life, infrastructures and facilities, adding more than 2.5 billion of urban dwellers in the next 35 years, equivalent to 192,000 people moving into cities across the world every single day until 2050 (United Nations, 2014).

The overall urbanization process has been and still is strongly linked to globalization (Fujita at al., 1999; Khanna, 2016; Krugman, 1991; Glaeser, 2012), thus driving the most striving antithesis in socio economic issues. More people are moving to cities in search of better quality of life, opportunities, more rewarding jobs stimulated by creativity and connections. However, many people fall in poverty traps while they move to cities, which are the cradle of inequalities and gentrification. The rapid growth of urban slum centres (e.g. the cases of Cote d'Ivoire, Philippines, Liberia and Jordan) brings also renewed health risks combined with poor air quality, dietary issues and lack of common spaces (UNCTAD, 2016).

Cities are interconnected (Ohmae, 1999; Friedmann, 1999) both virtually and physically by different typologies of infrastructures and networks (Khanna, 2016). Global movements are encouraged by these connections be them channels, tunnels, railways, ports, cables, pipelines and canals. They foster innovative supply chains at global levels, surpassing the regional and national concepts, linking different cities and communities which are competing with each other to spawn even more amazing boosts in investments for infrastructures (Khanna, 2016). Parag Khanna introduced the word *connectography* as the vision for

14

interpreting the economic and geopolitical complexity and consequences of an increased connected global system, which is highlighting even more the nodal role of cities in the most relevant facts at global level.

The length recovery and the woes of post 2008 crisis invited a reflection focused on the mechanisms reproducing geographies of uneven development (Aalbers, 2009; Harvey, 2014; Bassens et al., 2015), thus contributing to the deepening of inequality issues in regions and urban areas. The interconnected features of the global economy are conceptualized in the notion of a flow-centred meta-geography envisaging interurban interconnections: the mode of integration of cities with the global economy can be explained by the dynamic change steered by the driving forces of competition, accumulation needs and political struggles (Friedmann and Wolff, 1982; Friedmann, 1986). Such integration involves many interconnected and concerted actions. While trade liberalization and market opening policies took their helm, cities emerged as the relevant nodes in the development and innovation of the world network infrastructure.

Cities were identified as the crucial nodes for contagion (French et al, 2009; Wainwright, 2012; Wòijcik, 2013). However, as well as having been the cradle of the crisis, cities have been the very same localities that are repositioning themselves as the champions of post crisis resurgence. Sassen (2010) identifies cities and urban practices as essential components of analysis of the contemporary capitalist order (Bassens et al., 2015). A relevant part of research linking global capital interconnections and identifying cities as localized nodes comes from the financial analysis. The global spread of capitalism and free trade has been often studied from the perspective of cities, metropolitan areas and urban agglomerations[1]. A large theoretical literature in both urban economics and macroeconomics argues that aggregate human capital has positive effects on productivity over and above its private effect, making human capital spillovers important factors in explaining the economic growth of cities, region and countries (Moretti, 2004).

In addition, the concept of world cities was made paramount for capitalism as places in which labor market rigidities implemented in the past decades (mainly the 1970s) can be more easily managed, thus providing boost to capital accumulation in global economic nodes

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[1] Differentiation in terminology regarding cities will be explained in section 1.2.

(Friedmann, 1986). Research linking world cities development and spatial organization of global capitalism has been core for understanding and critically analysing its spatial organization and the relative advantages of city networks.

A related body of research defined the concept of "global cities" as those places where Advanced Producer Services (APS) produce mainly accountancy, law, finance, management consulting and advertising related global control functions (Sassen-Koob, 1985; Sassen, 2001, 1992, 1998). The relevance of cities stood again as the places of over-accumulation, therefore where the capital surplus, particularly relevant in the financial sector, accumulated.

The period immediately afterwards the 2008 crisis was characterized by the antithesis constituted by an overproduction in the presence of a lack of effective demand in "standard" value production chains, either in manufacturing and services, namely those showing a high degree of maturity (Harvey, 2010; Bassens et al., 2015). Following this "squeeze" in aggregated demand, cities continued to perform as a space of coordination of global production (Bassens et al., 2015) but command and control have been financialized. The "financialization" and the level of mistrust perceived by producers in cities drove the increase in capital gain unpredictability, coupled with progresses in social movements and community processes and significant geographical institutional overlapping (Wòijcik, 2013). Therefore, an overall increase in wealth in urban areas generally concurred with increases in exclusion and segregation of fragile communities. In many urban areas in the developed world, those communities reacted to the emergence of new social needs deriving from poverty increases and rising unemployment by co-organizing new forms of enterprises with non-capitalistic missions. The creation of supply of services related to the increasing inequality was not met by the State, in many EU countries representing the "natural" producer of welfare related services.

Figure 1 shows the Globalization Index of the world as identified by KOF Index; using a panel of 209 countries KOF index describes globalization through three dimensions, aggregated by principal component analysis: economic globalization, social globalization and political globalization. Current flows of goods and services are measured by economic globalization. The spreading of ideas, information and people is measured by social globalization. The diffusion of government policies is envisaged by the political globalization (Dreher, 2006). The main use of the KOF Index is to monitor changes in the level of

globalization of different countries over an extended period of time. The KOF globalization index is an average of *de facto* and *de jure* globalization index. While *de facto* index measures include variables representing flows and activities, such as the cross-border exchange of goods and services, *de jure* index measures include variables that represent policies that enable flows and activities, such as the regulatory environment for international financial flows (Gygli, Savina, Florian Haelg and Jan-Egbert Sturm, 2018). Both components of the globalisation index, *de facto* globalisation of trade along with *de jure* financial globalisation, were responsible for its current level of growth.

According to the KOF index, the level of economic globalization, performed a steady rise with falls in mid70s, end of 80s, mid 90s and in conjunction with the dot-com bubble of the early 2000s, slightly declined for the first time since the recession of 2008-2009. Both trade and financial flows growth rates decreased together with a deteriorating political framework. The most strongly globalized countries are those operating as hubs for trading and financial sectors, such as Singapore, Hong Kong, the Netherlands, Belgium and Malta (Gygli, Savina, Florian Haelg and Jan-Egbert Sturm, 2018).

Figure 1: KOF Globalization Index 1970 - 2015. Source: Gygli, Savina, Florian Haelg and Jan-Egbert Sturm (2018)
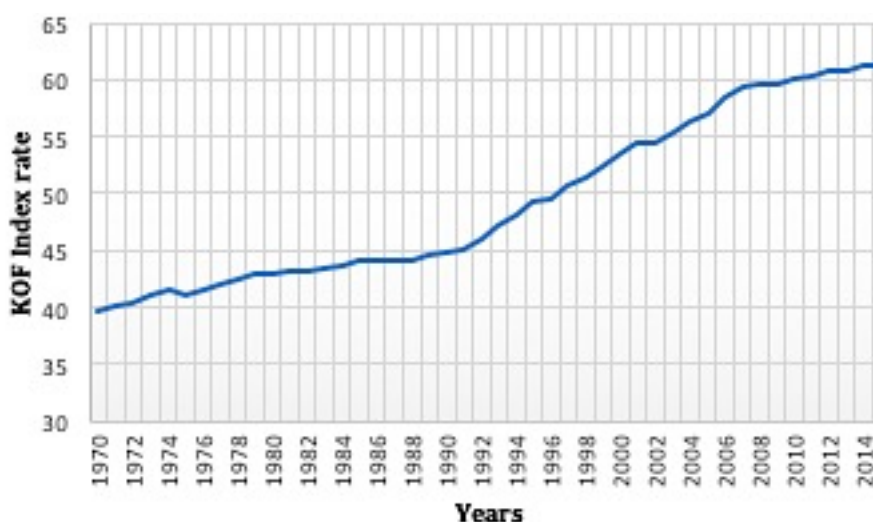

1.1.1 Global Urbanization trends

Urban transition is the process describing a shift from a population predominantly agriculturally based and dispersed across small rural settlements, towards the concentration (of the population) in larger urban settlements with predominance of manufacturing and

services (Montgomery, 2005). Urban transition has been historically closely linked to economic development (UN Report on Urbanization, 2014) as well as deep negative impacts on living and environmental conditions. Europe and North America observed rapid urbanization in the late 1800s and 1900s accompanying the industrial revolution and rapid economic growth. Similar, although weaker, associations can be observed in Latin America, Caribbean and Eastern Asia. 54.2% of total global population lived in cities in 2016 and more than 7 billion people by 2050 (66% of global population), increasing global citizenship by 2.5 billion (UN, Department of Economic and Social Affairs, Population Division, 2014). According to this scenario, more developed regions will keep the lead of urbanization rates (85%), followed by less developed regions (65 %) and least developed regions (55 %). As of 2016, more than 80% of the global GDP has been generated in cities (World Bank, 2018).

Figure 2 illustrates the global trend of urbanization from 1960 to 2016. As aforementioned, the 50% was surpassed in 2009.

Figure 2: Global Urbanization Trend 1960 - 2016. Urban population (% of total). Source: The United Nations Population Division's World Urbanization Prospects (March 2018).
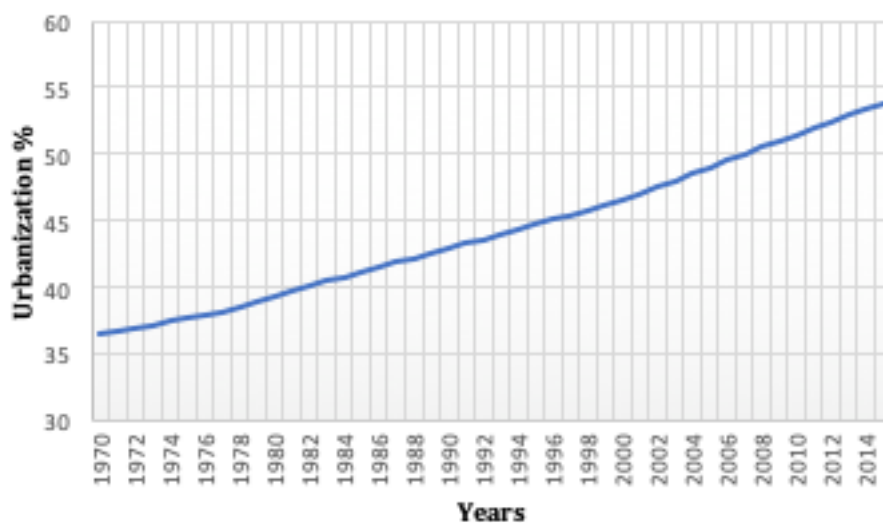
Urban figures identify a decisive supremacy of cities as "manhood's masterpiece" (Glaeser, 2012). They stand as the prominent locations of productive factors and as the places where productivity can be improved through innovative solutions and technologies, coupled with a heavy nexus of externalities. The mechanism underlying the causes of the rising (and in some cases also fall) of urban areas is very complex and not always suitable to generalization.

Urban areas are evolving at a dramatic pace, attracting people and capitals and expanding, or contracting, their territories.

However, a striking number of optimistic statements often fail to expose the levels of inequality across and within these nodes of wealth, development and productivity. As aforementioned, the urbanization process has two facets. Based on data on social economic conditions, immigration and research reports (UN Reports, 2016), the urbanization process is also driving the most powerful engine of inequality, where welfare state provisions are subject to a growing number of failures.

Urban systems have played an important role in the industrialization waves both as network hubs of high technology and culture, as well as organizational regional hubs of typical predominant industries (Dunford and Greek, 2005). It is paramount to assess that one of the last waves of industrialization, the "digitalization wave", has the development of human capital at the centre. The development of the human capital necessary for sustaining this process has its core in the urban and metropolitan areas (Moretti, 2012).

While the high-income countries were highly urbanized since several decades, upper middle-income countries have experiences the fastest pace of urbanization since the 50s (UN Report on Urbanization, 2014) and are the countries which will experience the most relevant rise in urbanization in the forthcoming decades.

Environmental pollution (both noise and air), rising traffic congestion levels, urban sprawl, generation of waste and waste-water are components of the common set of issues which cities must confront with (European Commission Document Thematic Strategy on the Urban Environment, 2006). The relevance of assessing urbanization and its manifold aspects is intimately linked to the research of sustainable development measures in order to face the double faceted phenomenon of urbanization. Migration towards cities and agglomeration provide with a large set of negative aspects represented by increased segregation, inequality, gentrification and environmental issues. It is estimated that 77 million urban residents will be driven into poverty by climate change by 2030 (World Bank, 2018).

The enhancement of good planning policy procedures in urban transition is set to facilitate the creation of opportunities for social development, together with the minimization of negative impacts.

1.1.2 Taxonomy

The majority of the economic activities are primarily *urban*, because of the scale effects resulting from their organization. The results of these agglomeration of economic activities are unbalanced growth and social tensions (Rossi-Hansberg and Wright, 2007). Cities are the results of a process of endogenous trade-offs between agglomeration forces and congestion costs. Urban Economic analysis has been instrumental to tackle questions related to the efficient organization of production and trade flows. The "isolated state" model by Von Thünen (1826) proposed a general spatial equilibrium theory (Samuelson, 1983; Fujita, 2010) identifying that economic forces modelled the shape of the efficient urban landscape. This landscape sees the simultaneous interaction of the costs of transport, land and crop productivity. Over the last two centuries cities have been spreading out, turning the tide towards polycentricity in the last decades with concentrated employment centres impacting on both employment and population distributions (Anas et al., 1998). The creation of sub centres, multiple business districts, edge cities and metropolitan areas, and the emergence (or re-emergence in case of the European medieval heritage) of the so-called city regions (EC, 2006; Tosics, 2007) provided a composite nomenclature to be ascertained and properly addressed. This paragraph is dedicated to explicating the different meanings of the urban framework, central business district, urban structure, metropolitan area, urban area and city. In general, the analysis of these definitions is made utilising a model of urban framework.

1.1.2.1 Urban Framework

When dealing with cities, urban agglomerations and related urban development, a multiplicity of aspects must be taken into account: social, spatial, technological, functional and economic aspects. What is called urban framework, that is a model for analysing city development and urbanization trends has proven to be extremely useful for studying urban economics problems starting from the assumption of a priori existence of a Central Business District (e.g. Alonso-Mills-Muth model). Following the enlargement of the contributions from the New Economic Geography (mainly Fujita and Krugman, 1995), a new framework of analysis for the city has been detailed, starting with a Thünen-type city surrounded by agricultural land, with agricultural-manufacturing equilibrium conditions. Fujita and Mori

(1997) simulated the event of a gradual population increase with the hinterland growth and rise of a new city at a certain time when firms find worthwhile to move away.

1.1.2.2 Central Business District

A Central Business District (CDB) is a concept introduced by Burgess in 1925 while presenting a descriptive concentric urban land use model. A CBD is the more prominent subarea of an agglomeration and usually the gravity point of the surrounding districts which can be commercial, residential, manufacturing, etc. It can also be identified in common language as "downtown" or "central district". Although the term "central business district" (CBD) was not in common use until a few decades ago it is now part of the urban vocabulary (Murphy, 2017). The CBD is traditionally considered a "part" of the city with distinctive features such as centrality in terms of transport, accessibility and relevant concentration of socio-economic activities, attracting the most investments and human businesses.

CBDs have never been and still are not static, as they have been characterized by commercial, residential, industrial and institutional uses in different times during their history. CBDs emerged as the dominant activity centres in industrial metropolis in the mid of the nineteenth century and maintained their regional centrality advantage until 1950s (Alonso, 1964); from the '60s the shift to service economies in developed countries highlighted the centrality of innovation, crucial to compete in the globalization process, while manufacturing reduced its centrality in being the engine of centrifugal forces of polycentrism (Muller, 2017).

CBDs are not homogeneous or uniform, neither they are static. They do not possess spatial delimitation nor are exclusively found in the geographical centre of the agglomerations which gravitate around them. They are suitable to enlargement and shrinking due to implementation of different policies: for instance, a limit on the height of buildings, thus allowing a horizontal growth, otherwise allowing a vertical development in case of absence of strict regulations. The results are different geometries with impacts on consumers and firms (Harari, 2016). Due to their centrality and accessibility they envisage the concentration of establishments requiring ready accessibility to the entire surrounding (called "tributary area").

1.1.2.3 Urban Structure

The analysis of what is called urban structure[2] has been the core topic of an extensive literature encompassing regional economics, urban development, transportation, urban and spatial planning and industrial economics. It has been defined as a network of cities at regional level or internal city system.

The more extensive approach saw Walter Christaller (1933), for example, laying the base for the central place theory. Through this model he demonstrated the functional and spatial distribution of urban hierarchy, where flat terrain with no physical barriers represents the ideal region coupled with uniformity of features such as soil fertility, non-urban population distribution, purchasing power and transportation networks; according to these characteristics, the products created in central places would overcome in all trajectories, given a set maximum distance. The economic composition of the territories involved is used for identifying cities' structures, connections and daily activities' distribution of people and economic actors (ISTAT, 2015)[3]. In this wider framework, the analysis of the so-called city regions (Scott, 2002; EC, 2006; Tosics, 2007) provides no innovative concept in the study of urban economics and human geography. City region terminology have been adopted in the 50's for the continuous changing in shapes and adaptations of the urban structure, the commuting patterns and areas of influence of the territories pivoting on a Central Business District attracting an unusually large area sharing resources and markets. Rossi-Hansberg and Wright (2007) consider the urban structure as the number and size of cities in a country. Zipf (1949) established a rank size rule with the Zipf's Law, which holds that in an urban hierarchy model the population of a town or a city will be inversely proportional to its rank in the urban hierarchy (Zipf, 1949).

The second approach to the definition of urban structure is the one adopted in this dissertation, being more specific to the objective of this research, which is the analysis of the relations inside one city. The urban structure envisages how a city is internally organized, and

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[2] Literature and empirical studies have used different perspectives in order to capture the urban structure: Demographic perspective, Geo-economic perspective, Political perspective of urban structure, Historical perspective., Morphological perspective. The separation between these five perspectives is useful to identify the different elements of the urban structure, while their intersections may compose a further literature review, providing a broad research objective with an urban economics target, which is not my ambition.

[3] Chapter 2, "Luoghi, città, territori: struttura e dinamiche di sviluppo".

which is the relationships amongst different areas, neighbourhoods and CBDs. Cities can exhibit a functional structure to perform their functions as places of commerce, production, learning and others with a spatial organization. Different rules, during the history of urban research, have been drafted and normed regarding urban structures. Institutions, transport costs and economies of scale shape the urban structure, their interaction contributing to the creation of a diversified grid characterising the city structure, where the coexistence of diversified districts is feasible. Those are the principles lying the basements of agglomeration economies (Glaeser, 2010; Fujita and Thisse, 2013).

Hodge (1968) defines the urban structure of a spatial unit as a set of independent social, economic and physical dimensions; Horton and Reynolds (1971) conceptualized the traditional urban structure including transportation networks, commercial ribbons, manufacturing nodes, residential populations and densities. Spatial concentration degree of population and labor, distinguished between centralized and decentralized, is described by Anas et al. (1998); Employment rates in urban structure, separated for CBD, sub centres and dispersed areas, are used by Lee and Gordon (2007).

1.1.2.4 Metropolitan area

In this dissertation, we will address the definition of metropolitan area as defined by the US Federal Office of Management and Budget, clearly declaring when we will use other definitions. Metropolitan area is generally considered "*a core area containing a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that core* "(GARM, 2011). Metropolitan areas include satellite cities and non-urban settlements.

Common infrastructures as pivot in attracting different urban areas, overflowing the single city boundaries, were observed as the physical feature of large urban concentration, dating back to more than 100 years in research for metropolitan areas definition.

The emergence of edge cities (Garreau, 1991) in the suburban and outer areas represents one phase in the development of metropolitan areas. An edge city is characterized by large concentration of spaces dedicated to services, residential in major transport nodes (Anas et al., 1998).

Increasing complexity in spatial structures is shifting cities from the monocentric city archetype. Industrial activities, business development and employment are dispersed throughout the urban territory, altering significantly the traditional monocentric pattern of urban spatial organization towards polycentric structures. The resulting development path spread from these centres through the outer clusters, incorporating cities, which have built relations and strong bonds with the complementary urbanities of the whole metropolitan and regional areas. The morphology of the urban structure is a fascinating topic which will be discussed more in the following paragraphs.

1.1.2.5 Urban Area

Urban areas are not to be confused with metropolitan areas as they do not include satellite cities and settlements. An urban area is a region surrounding a city, incorporating numbers of sub centres as well as the CBD (Anas et al., 1998). The city itself as well as the surrounding areas are included in the urban area, which is characterized by a high development of infrastructures and relations, extensive and strong networks and density of human structures. Urban area can incorporate smaller municipalities clearly dependent on the main cities. The definition of urban areas and their relationships is built on the definition of functional urban areas by the OECD metropolitan database (2012). Urban cores and integrated hinterlands are identified using population density and commuting flows (OECD, 2012).

1.1.2.6 City

Through this dissertation we will use the word "city" to mean an agglomeration with the following characteristics: it can be monocentric or polycentric where neighbourhoods strongly linked to the central area. The city is the union of districts and peripheral areas, uniquely identified as being part of a single municipality.

A city is a process constituted by a myriad of activities stimulated by agglomeration and connectivity (Jacobs, 1969; Castells, 1996), while sociologist Louis Wirth defined a relatively large, dense and lasting settlement of socially heterogeneous people as a city. This process is sometimes referred as city-ness, which can sometimes go well beyond the territory of the municipality and the urban areas to define and characterize entire metropolitan areas as a

distinctive feature. However, the spread of the process can take years, decades or centuries to turn a greater area into a city.

The implications of continuous changings in cities are both economically and politically relevant; these changes impact on the dynamics of choice of big cities as a place for starting an international business process. The unquestionable attractiveness of cities needs suitable policies and planning in order to address the needs of entrepreneurs wishing to improve their businesses at international and global level. Business Improvement Districts[4] in municipal areas can be assumed as an interesting process of policy in this direction, with key elements of sustainable entrepreneurial urban policy that must include the establishment of innovative configurations of partnerships strengthening the role of the private actors, an increased importance of the local and urban dimension, as well as different privatization levels.

The specificity and specialization of parts of cities, which can be clearly identified in the territory, led to the creation and implementation of different agglomerates/clusters sharing common values and identity. In large cities, the identification of emerging zones capable of stimulating important economic activities different from the CBD is necessary for understanding the relocation in areas different from the urban historical central business district, thanks to the transport network improvement. The identification of substantial changes in employment rate, household income, production density, and land value are undergoing factors to the constitution of edge cities which, linked to the urban centres, are identified as sub-centres. Those sub-centres are recognized as urban districts.

Urban system features an essential form of social interaction and organization in the creation and distribution of wealth, one of the main organizational mechanism through which efficiency in production and trade is attained and distribution effected (Senn and Gorla, 1993).

1.1.3 Cities of Innovation

The relationship between urbanism and economic development is complex. Notwithstanding the pivotal role of urban agglomeration, the relation between increasing urbanization rates and increasing income levels or adequate living standards is not always

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[4] *Business Improvement Districts* are specific forms of public–private partnership and of 'local governance' structured as a network in which the boundaries between the public and the private framework are seamless. One can say that they can be a sort of quasi-public entities due to their legitimization by public law and the services that they deliver, which are usually of public 'disposition'.

positive. We stress again the fact that rising urbanization rates in developing countries are also related to high economic inequality, precarious housing, violence, pollution and increasing costs of living, issues which must be dealt with care and focus.

However, Cities are 'production' and 'productivity' engines incorporated in the broader economic system; cities are the places where innovative approaches and radical innovations happen, allowed, supported and encouraged by the magnitude of externalities relevant for local development. Such externalities are relevant in particular thanks to the human capital development in terms of education and learning (Moretti, 2004).

Literature tends to oppose two visions of local development: the specialization concept, which is pivotal in the Marshallian district, and the diversification thesis, peculiar to the literature based on Jane Jacobs. However, the debate on the nature of agglomeration externalities is still not concluded, and the focus shall shift towards where those different approaches may be applied. Modern urban areas as a whole are less keen to specialization than they are diversified, particularly in case of large metropolitan areas.

The presence in cities of specialized areas, arisen and grown thanks to infrastructure and access, is fostering the development of elements of identity featured in an evolutionary concept of districts. The above considerations lead to the Marshallian industrial districts model definition in dynamic terms and paths of local development, providing an up-to-date referent for reflection on the analytical and normative status of the industrial district (Bellandi, 2007). In order to evidence the issues relating to the evolutionary path of the industrial district model, concerning the Marshallian model in particular, the following issues should be considered:

- Local development outside industrial districts intersect with a variety of phenomena and related studies: e.g. high-tech clusters, technological districts, and high culture clusters in larger urban areas.

- The dynamic perspective also includes models of adaptation and adjustment mechanisms in industrial districts, coping with discontinuities in their development path.

- The aforementioned concept, supported by an important body of studies, illustrates that industrial districts can be compared with other types of industry territorial localization and models of local development.

The Marshallian concept of industrial agglomeration is linked to the learning role of proximity, in its broader sense (Glaeser, 1999). The urban structure starts as the primary actor in making the whole set of proximities possible. The more people are moving to cities, the most they realize the Marshallian context in specific districts[5], attracting specialized workers and enhancing proximities. Urban structures adapt as the skills demand rises, implementing different set of networks both at social and economic level reflecting the interactions between sectors. In case learning is only possible from people in the same industry, then areas featuring concentration industries may be, and indeed are, particularly important. Face to face interactions between skills tends to improve the overall learning and knowledge level: physical interactions between those more skilled and those less skilled can be minimized by the planning and design of cities (Glaeser, 1999). Finally, those people who are less skilled will learn less: they are less willing to pay for learning or have minor available resources. Another typology of segregation can be created by skill level, which can be driven by the role of information which is increasingly excluding people at neighbourhood and city level. This estrangement, which is "the fact of no longer being on friendly terms or part of a social group"[6], was perfectly addressed to a series of cities and towns where changes effectively happened in the past decades. In Italy, the case of the city of Turin is relevant for understanding the modifications affecting a big industrial city and the whole community when the manufactory leaves a locality. The reshape of the empty places is long and the urbanization shall compensate these 'wounds' and *non lieux* (Augé, 1992) with re-appropriation by the citizens.

The importance of location regarding innovation in the contemporary world seems paradoxical, thus leading to the distinction between knowledge and information. The information transmission cost may be invariant to geographical distance, but on the opposite

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[5] The proximity concept and the extent to which a level of proximity shall be envisaged is discussed mainly in Boschma (2005). However, this contribution voluntarily avoids going in details in order not to deviate from its focus.

[6] Oxford Dictionary, 2015.

the cost of knowledge transfer increases with distance, with particular reference to the so called sticky knowledge (Von Hipple, 1994), which is best transmitted via face to face (Arrow, 1971). The nature of knowledge is at the hearth of research and development innovation and technological change (Feldman and Audretsch, 1999), leading to the fact that knowledge spillovers within a given location stimulate technological advance. Relevant researches include the analysis of nonmaterial drivers of innovation as explanation of innovation capacity, such as in the learning region theory (Lundvall and Johnson 1994) and the *milieu innovateur* approach (Aydalot 1986, Aydalot and Keeble 1988, Camagni 1991). The rising of innovative industrial clusters, districts and milieu, are indeed at the core of regional planning for stimulating growth (Camagni 1995). The capacity to innovate is expected to be stronger in cities, hosting a combination of advanced manufacturing and service activities that sinergically foster creativity (Basile et al., 2012).

1.1.4 Resilient Cities: Social Networks and Social Innovation

Urbanization and globalization processes contributed to the definition of the concept of Anthropocene (Gibson-Graham et Al., 2015), with human systems which have become a geological force capable of affecting and altering earth systems (Gibson-Graham et Al., 2016). Social ecological resilience and the field of Resilience Science, stress the interdependency of changing and evolving systems, defining issues such as adaptability. Interdependence has been framed as ethical negotiations between human and non-human economies in ecologies of more than human communities. If we approach the definition of resilience with articulation, we envisage local voice, resistance and challenging of power structures (Vale, 2014), stories, symbols and politics of the environment. Nature of economies (Jacobs, 2000) and community economies (Gibson-Graham et Al., 2013) related theories have also been supportive in the building of resilience definition. Practices of ethical deliberation and building design are able to come together for producing neighbouring community economies, where resilience is linked to the ability to adapt to the mobility of people and material structures (Gibson-Graham et Al., 2015). A further notion of resilience is to be taken into account for explicating a progressive, participatory deliberation and ethical decision making (Vale, 2014), which can be found in the building of social incubators in cities.

Cities, in both developed and emerging countries, may find that it pays to focus their efforts on attracting regional head offices, as thousands of global companies, both old and new, will expand into new markets in the coming decade. The role of metropolitan areas is relevant for the choice of settling a company. Nowadays, across all geographical regions, large foreign subsidiaries seem to cluster in cities that are not just well connected and good places to do business, but where senior managers would like to live. Cities with reputations for a high quality of life – such as Sydney, Toronto, Prague, and Singapore – have been relatively more successful in attracting the foreign operations of multinationals. Large metropolitan centres are also more likely to be cosmopolitan than their provincial counterpart due to the presence of economies of knowledge and external economies due to different sources and objectives.

Cities are also places where not only large global and multinational companies can find their humus. Due to their diversification and development in the service industry, cities always attract more and more population looking for new perspectives and better life expectancy. This urbanization movement created a cradle of diversification at social level, boosting inequality and welfare needs. The specialization of workers in cities is deeply connected with the learning process thereof, providing greater productivity of labor in cities. Urban workers, indeed, hold jobs that allow them to be more productive. These jobs must be continuously created by entrepreneurial activity (à la Schumpeter) as productivity advantage is eroded and needs to be constantly recreated.

Notwithstanding the generalization of many findings in the functioning of social initiative linked with the spatial context, space and time continue to matter even more in the globalization era, thus changes in urban policies in cities show the recent tendency towards the reliance on internalization of service provisions in cities. Several public services and democratic mechanisms under restructuring in their processes and involvement in the changing of community life.

Indeed, social innovation derives from the territorial innovation and its theoretical background in local governance relations and development, in particular the urban neighbourhood level (SINGOCOM, 2001).

We presented the innovation perspective towards cities and their pivotal role in fostering, supporting and developing a fundamental boost in hard technological innovation.

However rapid urban transitions have brought increasing inequality, namely that between places (Moretti, 2012). Those cities that have the new innovative sectors have surged ahead, not only of the centres of industrial decline, but also of most other cities, and the gap is widening.

1.1.5 Social Incubators

Social Incubators are organizations aimed at supporting projects, start-ups and entrepreneurs for social change (Aernoudt, 2004). Since the end of 80's, many institutions have driven their efforts for helping social ventures increasing their social impacts, when companies, NGOs and governmental organizations fail to correct and sustain social dysfunction. Origins can be traced back to co-working and share of location models in urban areas, fostered by the making of a new creative working class located in cities (Florida, 2002, 2005, 2008; Fu, 2006).

The majority of incubators and social innovations are local initiatives, thus aiming at providing their effects within precise territories usually identified by local authorities such as, in the case of cities, municipalities. It is the case of the social incubator Coopcity of Brussels, which is funded by European social funds through a social innovation action driving social development of the city of Brussels. The case of Coopcity is amongst the case studies in Chapter 3. The case of FabriQ, the social incubator of the municipality of Milan, also featured in the case studies, is similar, having local development and urban regeneration perspectives amongst its objectives.

The literature has not yet pose attention on these organizations, as they can be considered black boxes where supporting services to the entrepreneurs and firms are provided. Even if a definition has been given above, the concept of incubator, mutuated from the biological and medical field, is still evolving at a dramatic peace.

The first step of this path can be identified in the mutuation of approach from business and technology incubators, as incubators featured a protective environment. Start-ups and R&D firms, particularly in need of investment without fast rewards, thus inappropriate for the capital market, could find protection and capital injections, followed by specialists in processes and organization. The same applied in the first steps of social incubators

development, where social entrepreneurs could find a comfortable environment for developing their ideas, supported by specialists.

The second step of the evolution consisted in the deployment and structuring of the organizations, with the building of networks at local level and the provision of standardised services.

Social incubators are therefore formal organizations, usually with legal personality in the forms of firms or consortia, both for profit and nonprofit. However, if we look from a geographical perspective, we may also define incubators as agglomeration of firms and workers, thus social incubators as agglomerations of social workers and third sector organizations. Those firms are concentrating as they see their services to be better answered and resources can be shared. This gives the rise to other forms of social incubators, as informal incubators can identify those agglomerations of third sector actors sharing the benefits of physical proximity.

The localization of the social incubators is linked to the socio-economic level of the neighbourhood, being these initiatives for fighting inequalities and unemployment through proactive community organizations. The characteristics of the neighbourhoods and the localization of incubators as well as agglomerations of nonprofits are relevant aspects connecting the diversity/specialization dichotomy, present in the Marshall-Jacobs dialogues, which will be further discussed in the next paragraph and in the second chapter. With particular reference to the diversification of sectors, it would be very much of interest to discuss the topic of social incubators as hubs of social innovation from the evolutionary point of view, which is the focus of the following pages.

The two examples previously mentioned are localized in easily accessible areas but suffering from high level of inequalities, unemployment and difficult access to public services. Changes affecting cities around the world are the results of the continuous evolutionary mechanisms presented above in this contribution. In order to better penetrate the changes affecting social structures and social capital in cities, I refer to the industrial district in its urban derivation to provide a ground root unit of analysis at local level. The concept of industrial district comes from the overlapping of social and economic forces and relations acting at local level, featured by the following characteristics:

▪ the relevant industry is mainly based on small and medium enterprises which are specialized, without the hierarchical organization present at large firm level;

- the social dimension is represented by a well-defined identity shared by the local society and industries.

Building on the meaning of the typical industrial district, the Marshallian district model has been further developed in order to help the reading of localities where the above characteristics are explicit.

However, the concept of Marshallian industrial district might be interpreted as a model of local development featuring a mono-industrial specialization in a delimited space, showing integrated production processes and a population of firms mainly composed by small ones with a high level of social cohesion and trust. This interpretation can sound old fashioned and restrictive regarding the evolutionary paths that industrial organizations and local systems are taking, in particular if applied to cities and neighbourhoods. The idea of an evolving socio-economic system must incorporate a degree of heterogeneity both on sector and dynamics. Quoting Becattini (2004): *"The Marshallian industrial district is a localized 'thickening'* (and its strength and weakness both lie in this spatial limitation) *of inter-industrial relationships which is reasonably stable over time. Its composite nature, tending towards the multi-sectoral, gives it, even in the midst of intense change, a stability which a unit such as a single industry, in the technological sense of the term, lacks; it is therefore possible to study it, in order to ascertain its permanent characteristics, the 'laws' which govern its formation, its maintenance and its decline."*[7]

Following recent studies and the revamped interest in regional economics, mainly driven by the New Economic Geography in the 90's, the observation of industrial districts led to further discussions concerning the potential impacts of regional planning policies in the fostering of localized innovation and growth (Gordon and McCann, 2005; McCann, 2008). The impetus of innovation, development and learning processes fostered the agglomeration process. As we presented earlier in the chapter, cities are at the centre on the stage of innovation.

The growing of a city implies a complex set of multifold and multi-direction co-causalities as well as cumulative iteration with positive impacts on further output growth

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[7] See p.16 of Becattini G. (2004), Industrial District: A New Approach to Industrial Change, Cheltenham: Edward Elgar.

(Hirschman, 1958; Myrdal, 1959). The labor market is therefore expanded thus influencing the output growth through positive impacts on learning and technology innovations.

The Jacobian vision of city and local development will be presented in the following chapter. Nevertheless, it is relevant to link the evolutionary perspective of city development to the social change and human capital growth deriving from the diversification and spillovers. We dealt with creative class and creative cities earlier, but Florida draws on the openness in cities, tolerance and individual freedoms that are pervading cities, encouraging creativity and inventiveness. Creativity is prompted by human capital accumulation and interaction, leading to regional economic dynamism in the guise of job growth and rising per capita income (Storper and Scott, 2009).

Cities offer a structured set of intertwined benefits and costs, with a loss/gain automatic mechanism dependant on the subset of sectors and production systems selected (Storper and Scott, 2009). With reference to the creative class, envisaging people featuring high levels of human capital that are not willing to change location for their service production if relevant employment opportunities are offered elsewhere. These people are relatively less mobile than unskilled people as they have invested their resources in know-how, education and knowledge and thus are unwilling to destroy the human capital acquired if not in presence of a relevant trade off. The cases of Los Angeles in the 50's, London and the Silicon Valley are emblematic to explicate the endogenously created human capital, acquired and developed by the agglomeration specific experiences, investments in education, training programs and learning processes evolving in response to the demands of local productive systems (Storper and Scott, 2009). The creation of communities involving a growing number of creative workers stimulates the creation of innovative answers to needs in urban areas. Creative workers are both bearers of more intrinsic extensive social involvement and social motivations, driving social movements and creation of opportunities for community engagement. As will be presented in chapter 3, the majority of social entrepreneurs are active in both Brussels and Milan as skilled workers with a medium to high level of education, producing a powerful pull effect in creating opportunities for fighting inequalities and segregation in urban areas.

1.2   The realm of innovation: an evolutionary perspective

Innovation processes have been studied since the early stages of economic science. Adam Smith's division of labor underlines the pivotal aspect of innovation in industrial revolution and division of labor. The role of technology innovation in economic change is relevant regarding the diffusion and sources of new products and services, evolution of firms and organizations, institutional development and macroeconomic dynamics.

Quoting Schumpeter, "*technological progress is increasingly becoming the business of teams of trained specialists who turn out what is required and make it work in predictable way*", thus the creation of organized innovation such as research and development departments "*has come to be the most powerful engine of that progress and, in particular, of the long run expansion of total output*" (Schumpeter, 1942).

Several studies dedicated to research and development in the innovation literature have shown that R&D brings to an increase in productivity (Lucchese and Pianta, 2012), even if the scientific community still appears to be divided on how to measure economic innovation impacts on performances and effects.

Large companies matter as they are international, and not only for their ability to create jobs and generate higher incomes. They are also forces for higher productivity, innovation, standard setting, and the dissemination of skills and technology. Their geographic re-localization will have wide-ranging implications for prosperity and growth in emerging economies, and it will shift more of the world's decision making, capital, standard setting, and innovation to emerging markets. That is why, regarding firms and innovation, geography matters. The first 20 major cities host one-third of all large companies as of 2013 – and the firms clustered in these top business hubs generate more than 40 percent of the combined revenue of all large companies (World Bank, 2015).

The emergence of these global companies will allow hundreds of new locations to host large companies for the first time by 2025. This presents an opportunity for cities to strengthen their local economic base and capture part of the next great wave of growth, assuming a role as hubs in technologically advanced global industry networks and innovative supply chains. Developed regions and metropolitan areas are home to the greater part of large companies global and subsidiary head offices. Western Europe is home to 41 percent of the global total subsidiary head offices, 3.4 times the US share, as European firms responded to

the enlargement of the continental market and relax on borders, they have expanded across national borders to penetrate more of Europe's single market (World Bank, 2015).

Companies tend to grow organically in the cities where they are founded, developing local ties that become 'sticky'. This tendency provides ground for resilient economies and local systems; as a result, company headquarter moves are relatively uncommon, while the creation of subsidiary and head offices in different regions, countries and cities is usual for global companies, in some cases shifting relevant control and command to these offices. The challenges provided by different movements in market dynamics, such as Brexit and re-tightening of borders (Schengen crisis) are yet to produce a new scenario to be investigated.

1.2.1 Knowledge workers and creative class

A fundamental interpretation for understanding the phenomenon of sharing urban spaces and services that have developed over time, lies in explaining the so-called birth of the creative class, theorized by Richard Florida in 2002, which projected a sustained growth of creative crafts as a lever for the development of the first decades of the 21st century. The socio-economic transformation of the western urban contexts is at the centre of a large literature that, driven by the "creative revolution", defines the creative cities as nodes of economic growth and development. The most important sectors of this process are telecommunications, advertising, fashion, design and all professions of a consultancy nature that gravitate around traditional sectors such as manufacturing, transport, logistics, education and finance.

Those professions, once characterized by a relevant immobilization of productive factors, have changed the approach to the location of the worker who, thanks to new technologies, is today able to work remotely from his home or in locations other than the employer's offices. This "professional relocation" did not eliminate the need to develop aggregative places where they could carry out their duties and functions. More recent studies have indicated that the creative class, the fulcrum of this change, is composed mostly of professionals with the need to maintain social relations to develop their client base, developing autonomous entrepreneurial methods and individual and relational strategies (Pratt, 2008). It is important to underline that many independent workers who met the creative requirements, then became the protagonists of the start-up movement in the

following decade, developing innovative projects with high added value, disconnected at the beginning from large companies, which in some cases supported the best ideas through capital injections. An innovative paradigm of transversal entrepreneurship has thus developed, involving different sectors and numerous stages of production of services and products.

The smart revolution, as it has been often referred, imposes the reconfiguration of internal relations within the city, both with technological innovations that are taking over even in traditional sectors and, predominantly, with the actors in the production and service sectors. The concept of smart city, highly inflated and taken on an advertising level as a black box of concepts to be filled for the configuration of economic, virtual, physical and social networks, should be applied to every aspect of urban life.

The urban landscape of jobs has undergone fundamental changes in the last two decades with the advent of innovations reshaping working conditions and the last economic crisis in 2008. Typologies of jobs that did not exist before or that did not constitute large portions of employment have gained relevance, pushing towards more and more individual jobs and professions based on projects, free-lance envisaging no more full time or permanency (Osnowitz, 2010). Policies of liberalization of the labor market have been adopted in fighting sclerosis in different parts of Europe. While the UK job market, for example, has always been more flexible and has viewed the rising of the so-called zero hour contracts, the Italian job market has always been more sclerotic. Even though this process has had relevant impacts on the job market, making it more flexible in many cases, it also provides destabilisation, eroding the possibility of establishing strong social bonds and communities.

It is worth focusing on the Italian scenario as we will deal with the city of Milan in the second chapter of this dissertation. The Italian industrial capacity dropped about 25% between 2008 and 2013 and a trend of persistent unemployment has hit the workforce all across sectors (Mazzucato et Al., 2015; Fana et al., 2015). However, the effectiveness of labor market liberalization as a policy tool able to sustain growth has strongly been disputed, with large part of the economic literature supporting the thesis of a negative relationship between liberalization and labor productivity (Boeri et al., 2007). Year 2014 saw the introduction of a substantial liberalization of the labor market in Italy (the Law 183/2014, vulgarized as Jobs Act, following other measures of 2012). Notwithstanding their success in fighting the relevant

general unemployment all over the country, they failed in providing structural social security measures. The Jobs Act is failing in meeting its main goals of boosting unemployment and reducing the share of temporary and atypical contracts, with the sole increase in employment detected regarding the transformation of previous temporary contracts in the new permanent contracts (Fana et al., 2015). The young unemployment, in particular, is still relevant, fluctuating between 35% and 45% in the years 2012-2015. The increase in permanent jobs was present only for low productive labor force and only older cohorts (over 55 years old) thanks to tax incentives. The Jobs Act seems to have eased in this initial phase the employment shift towards low skilled and low technology sectors (Fana et al., 2015). Permanent jobs collapsed and generational stabilization failed. Large part of the millennials and x-generation are still supported by the older generation. Skilled labor force, usually educated by public schools and universities, fled the country to find better conditions.

Urban areas are those who suffered the most but, as previously mentioned, created the conditions for resurgence and creation of new job opportunities, exploiting the best of a difficult situation. The knowledge workers, a segment that involves many professions of a creative nature not exclusively *stricto sensu*, are driven to look for new ways of working to deal with non-sedentary and fragmented lifestyles (Gandini, 2015). The emergence of new workplaces that exploit the ways of sharing spaces has been seen as an answer to these needs.

1.2.2 Co-working, hubs and incubators
In his book "The new geography of jobs" (2014, pg. 47), Enrico Moretti writes: *"we spend the best part of our lives working. Every morning we greet our loved ones and we reach our offices, branches, factories, laboratories; in short, the place we call -work- ".* The places where we work are changing and are being displaced while the work itself is affected by increasing specialization. The new needs emerging from society are stimulating the abovementioned creative society, an evolution of approaches, services production and answers to aggregated demand. This evolution is shaping the typologies of jobs, therefore the need of workplaces.

Innovation is one of the major factors of change in production dynamics, with the increasing introduction of automation tools and the necessary specialization and repositioning of the workforce. The places where this innovation takes place are fundamental

in supporting innovative dynamics. Co-working, incubators and spaces for informal collaboration are places of aggregation and agglomeration where exchanges of knowledge occur, acting as multipliers of human capital and creativity. The increasing specialization of the most recent generations, with a higher schooling and a greater human capital than the previous ones, have made these spaces proliferate, especially within the urban realities, with significant consequences on the habits and needs of mobility.

The places and functional spaces of innovative aggregation are defined as hubs, or nodes, which can be subdivided into:

- co-working spaces;

- hubs and technology parks;

- incubators, both social and exclusively for profit.

The co-working spaces are also called serendipity accelerator (Mariotti et al., 2017) for the workers of the creative and high-tech class, exploiting the benefits of geographic and relational proximity. Their development, starting in the mid-90s on the west coast of the United States, and in the 2000s in Europe and therefore also in Italy, has taken hold thanks to the reuse of the buildings left empty from the old manufacturing activity which abandoned central urban spaces. The need to share costs, to operate in highly interactive realities and the subsequent image associated with the type of workers strictly dependent on the locational coolness workplace, have constituted and continue to drive the development of these production sites.

Hubs and technology parks are places for innovation of products that involve a fundamental component of knowledge production for scientific and technological purposes. They are places whose intended use is generally set by public or industrial needs for aggregation of research and development departments.

Business incubators, both social and profit-making, are organizations that support and protect the creation and development of new innovative forms of enterprise (Grimaldi and Grandi, 2005), through the preparation of suitable routes to accompany production and placing it on the market for products and services. Incubators are characterized by a high heterogeneity both in the type of services or products they offer and in the mode of delivery.

Start uppers, change makers, creative professionals, apps and web engineers have therefore found and helped to create their exchange and production ecosystems with co-working spaces and, subsequently, incubators and accelerators of innovation, both in sectors and segments of pure business or aimed at social innovation, involving the large nonprofit sector. The reasons for the aggregation of these workers in urban contexts and specific localizations, both formal and informal, is still the object of study and research, but they differ substantially in:

- need for an efficient use of space;

- development of services to micro and medium enterprises that have thus found advantages in addressing professionals with different specializations with unique location and points of reference;

- public investments to support the development of youth entrepreneurship;

- real estate investments for the requalification and reuse of spaces left by declining or delocalized industrial sectors.

Two fundamental aggregation dynamics are then identified:

- the first is based on the needs of people and businesses, which we could define as "endogenous";

- the second is based on direct investments to redevelop areas or increase the values of the real estate market, through the localization of companies and services with high added value, as a driver for the development of individual neighbourhoods or urban areas.

Although incubators are the object of research and corporate-style investigation, that is nodes of creative aggregation and innovative entrepreneurship, their effects on the distribution of added value on the territory have not received the same attention. The study of the links between innovation, digitalization and urban geography aims at understanding the intrinsic relationships between the urban environment and the new production mechanisms. The redesign of the spaces, according to the flows of movement, is therefore fundamental but difficult to execute and understand due to the continuous changes that are occurring on the

urban landscape. It is also true that often these places of work and shared services are hosted in city areas that have already begun redevelopment and, in many cases, gentrification paths.

Regarding the empirical case of Milan, which will be discussed in the next parts of the contribution, the difficulty in mapping these workplaces is also given by the ATECO classification that captures the traditional functions and sectors, which as mentioned are often residual in composing the new sectors where workers in these activities operate. We face the primary difficulty in determining what are the direct and indirect effects of these new aggregations of work spaces. In the city of Milan alone, there are 68 co-working spaces distributed in different Nuclei of Local Identity and with different levels of clustering (Mariotti et al, 2017).

The case of Milan is indeed emblematic in that it is emerging as one of the most representative realities of this phenomenon of transformation of production and of the dynamics of spatial adaptation (Morandi and Di Vita, 2015). Workers active in these realities, belonging mainly to the category of Millennials or X-Generation, have very different habits and needs, compared to previous generations. The mobility habits, in particular, are affected by both greater sensitivity to environmental issues and greater digitalization.

1.2.3 The 2008 crisis, the entrepreneurship context and the middle class
President Barack Obama's inaugural address stated that entrepreneurs and entrepreneurship are pivotal for driving the United States out of the Great Recession, saying those are "who have carried us up the long, rugged path towards prosperity and freedom."[8]
The effect of the 2008 economic downturn and recession on business creation can be asserted as ambiguous, as the influences may have resulted in a relatively flat rate of business creation over the business cycle (Fairlie, 2013).
The combination of housing slump in the US restricted entrepreneurship capital access, home equity representing 60 percent of the overall wealth as per United States Census (2008). This affected business formation, as the personal wealth is one of the primary warrant for business starts. Bank loans, venture capital and angel investments were also difficult to obtain during

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[8] Presidential inaugural address, January 20[th,] 2009.

the recent recession (Federal Reserve Board of Governors, 2010).

However, the Great Recession might have increased the business starts for coping with the rising unemployment in the US. Previous studies highlight the positive correlations between unemployment and self-employment business ownership (Farber, 1999; Parker, 2009; Krashinsky, 2005).

Business ownership may therefore provide an important alternative to unemployment for many individuals facing difficult labor market conditions as those during the recession years in 2008 and 2012. It should be remembered that different countries, Belgium, Canada, Finland, France, Greece, Netherlands, Portugal, Spain, the United Kingdom as well as several states in the United States started to provide self-employment development and support programmes, starting from the 90's (OECD, 1992). These programs had the aim of assisting the unemployed in starting successful businesses. However, long term performance is difficult to ascertain regarding income generation.

The positive effects of individuals turning to self-employed business ownership because of the lack of better opportunities outweigh the negative effects of restrained demand and access to capital (Fairlie, 2013), leading to an increase in entrepreneurship rates. However, the previous assertion does not fully take into account the fact that a large number of small businesses failed and bankrupted in the wake and dawn of the Great Recession, as well as many successful ventures may have been created, contributing to the long run economy. A separate research body exists on the mortality rate of new enterprises, as well (Brüderl et Al., 1992).

The assumption that an economy of private enterprises has an automatic bias towards innovation is not to be considered an axiom (Hobsbawm, 1969), as the positive correlation between unemployment and new private ventures does not imply the innovation perspective.

The other relevant correlation deals with the crisis and the destruction of capital owned by the middle class, representing the mass market. The modern mass market lies its foundations on the middle class, featuring an increasing purchasing power leading to the consumer society (Coleman, 1983; Blumin, 1989).

The emergence of the middle class has been intimately connected with urbanization processes as the change in occupation and scholarization levels, values and expectations presented above are satisfied in local environment where different networks can gather and proliferate. Cities are the nodes where agglomeration and external economies have developed

the most relevant diversification and specialization effects, thus building the most suitable humus for human capital and value-added creation and development. Households relocate in cities and urban areas where better jobs and services are available, thus improving their status and allowing the consumption of mass market products, thus making the middle class symbols an achievable target. International marketing studies and connected research on developing markets and economies identify middle class in cities as a relevant topic to understand urban paths in the forthcoming years. The relevance of the urban middle class is inherent with the entrepreneurial side of economics, which is capable of stimulating not only innovative firms but also providing new stimuli, as much as the environment of entrepreneurial development. Cities have a double faceted role in stimulating the development of global firms and acting as gateway in the internationalization process, but also in local development.

The role of the middle class in strategic marketing has been studied and profiled. A definition of middle class has been achieved as that segment of the population with discretionary income at disposal (Banerjee and Duflo, 2008; Cavusgil and Guercini, 2014), usually identified in the 30% threshold. However other symbols concerning lifestyles, comfort goods as well as western brands consumption are associated to the emergence of the middle class in the developing economies. Together with salary disposal and discretionary consumption, other relevant features identify the middle class: different levels of education, jobs, satisfaction of third, fourth and fifth level needs (maslowian belongings classification, esteem and self-realization). Those characteristics are usually coupled with social active participation in political and social life, differentiation in attitudes, individualism and spreading of information and communication technologies, social networks and variation in the definition and perception of personal success.

The effects of the 2008 Great Recession have exposed a relevant part of urban citizens, mainly middle-class components, to the risks of being excluded from social networks because of the difficult labor markets. The resulting increase of unemployment stimulated a rise in the participation to business ventures and entrepreneurship endeavours. For cities in developed economies, the focus shifts to the strengthening of the entrepreneurial framework as the conditions to be entrepreneurial economies (Acs, 2006). In practice, technology transformation of cities and industrial areas, making start-up funding available (early stage funds) and supporting entrepreneurial activity at different institutional levels, focusing on

high value added, high technology, innovation and commercialization have been identified as major issues.

1.2.4 Welfare failures and the emergence of new social needs in cities

A relevant literature evidences the power of targeted spatial strategies in creating the conditions for socially cohesive development through social innovation, highlighting again the centrality of territory and local actions in the social innovation research (Moulaert, 2000; Hillier at al., 2004; Moulaert and Neussbaumer, 2008; MacCallum et al., 2009; Fontan and Klein, 2005; Moulaert et al., 2005). Cities in developed countries show rising levels of social exclusion driven by poverty and difficult access to welfare systems. The city was the spatial focus and engine of the industrial revolutions, social struggle against capitalist exploitation and the emergence of socioeconomic life as we are used today, introducing labor market regulation, labor protection and welfare systems as a result (Gerometta et al., 2005). The magnitude of the current crisis of the welfare state is greater in cities as the conditions for the replacement of welfare services are more suitable to erosion due to historical weaknesses of relational networks and family ties, as well as the fragmentation of the social community due to individualization and integration difficulties. Relevant market failures and absence of supply of social and welfare services led to the organization of communities for self-managing the neighbours' demands of social needs. The creation of ecosystems and interdependent ecologies of social actors, abovementioned, is at the heart of the entire co-creation and re-creation process taking place in cities.

Meanwhile, as earlier mentioned, cities are places of both crisis and innovation of governance relations and institutions, primary arenas of social movements and civil society. Civil society is an epiphenomenon associated with social capital, which Fukuyama (2001) described as an "*instantiated informal norm that promotes cooperation between individuals* ". Civil society has been demonstrated to be a potential driver of social innovation and institutional change. Indeed, this is the case of welfare restructuring processes (Offe et al., 2002; Jessop, 2002).

Edge cities, as aforementioned, are built over segregation and distance from the centre as well as difficult access to services. The evidence of a world city network impinges on social changes, with cities as centres of both wealth and culture and the exploitation or

discrimination of immigrants, crime, overcrowding or fast demographic growth, pollution, widening inequality.

Geographical proximities, specializations, funding and networks percolating the social ecosystem necessitates of deeper research for comprehending the phenomena and opening the black box of this new typology of activities having their operational base in cities. The determinants of the creation, development, success or failure of social hubs have often been left to oblivion, while the geography of innovation hubs has been widely studied in the US regarding location settings and job dynamics. Social incubators are primarily located in cities and metropolitan areas where they can benefit from different kind of externalities and spillovers. The role of urban clusters and agglomeration in creating knowledge spillovers from established firms can be traced to Porter and others regarding for-profit firms while not so much has been said on firms participating in the social economy.

1.3   Determinants, definitions and framework of Social Innovation

The literature referring to social innovation represents two different approaches (Nyssens, 2015): a "weak" approach and a "strong" approach. The "weak" one is expressed by Murray (2008) and refers to innovations "that are social both in their ends and their means", and happens through the utilization of socially oriented entrepreneurial and managerial methods (also Callorda Fossati et Al., 2017).

The "strong" approach expresses the fundamental role of local nonprofit firms and organizations, thus referring to the norms and values of the social economy. Moulaert and al. (2009) highlighted the political nature of social innovation, defining it as the "*satisfaction of alienated human needs through the transformation of social relations: transformations which 'improve' the governance systems that [...] regulate the allocation of goods and services meant to satisfy those needs [...]. This means that social innovation involves [...] the transformation of social relations in space, the production of place bound and spatially exchanged identities and culture, and the establishment of place-based and scale related governance structures.*" (Moulaert, 2009).

The literature of social science in 1990's used the term "social innovation" only for management and business administration as a dimension of innovation in business strategy.

Most recently, the concept of social innovation is treated through four domains (Moulaert et al., 2001):

- improvements in social capital leading to better working conditions in the third sector;
- the complex relations between business success and social-environmental progress;
- creativity in the arts and voluntary sector;
- local level of social innovation.

Social innovation is an answer to social – political failure in the provision of public goods, with organisations, public entities, individual citizens, firms and entrepreneurs as the players of social innovation. Social innovation theory focusses on the relationship towards the overall resilience of a system within which it arises and evolves.

In much policy and management discussions, social innovation is referred as the innovation in meeting social needs or delivering social benefits to the communities, thus creating innovative products, services and activities that are capable to answer in a more effective way to social exclusion. Forms of social innovation include microfinance and popular education.

Social innovation can be a driver of interdisciplinary and transdisciplinary in scientific research (Moulaert, 2013), being used as a label for identifying significant changes in the evolution of society, structures and ethical norms. Collective actions, public policies, socio-political movements, uprising, community organizations and other relevant actions are the genetics of social innovations.

The term "social innovation" can be tracked in the social revolts in Europe in the 60's, however another stream of thought believes it was first used by James Taylor in analysing the community development dynamics in Topeka, Kansas, United States. The terms "social change" and "social transformation" were introduced separately.

In its early stages, regarding the European student movements of 60's and 70's, social innovation was used for describing the shift towards a bottom-up economy and society, including more participation and progressive views. The need of organizational restructuring and human synergies within management is the utilization made by Peter Drucker in 1987, referring to a grand societal challenge for overcoming the "unwieldiness of large

bureaucracies in business and government" (Lévesque, 2013). The druckerian terminology refers also to social innovation in business and public life.

Finally, Jonathan Gershuny (1987) used the term "social innovation" to identify the substitution of domestic appliances for domestic labor time as a pivotal social innovation, making housework time free to be dedicated to leisure time or other activities. This social transformation, which is arguably referred to as social innovation, is particularly relevant in the wake of female participation to work or male participation to housework, which is not debated in this project.

The term social innovation in many researches not directly connected with the social economy is rarely specified, but can be derived from the arguments discussed in research, as for technological innovation in cities, leading to social innovation (Mumford, 2002) and social regulation or rationalization of the social order. Indeed, Max Weber (1920) analysed the relationships between social order and innovation, affirming that changes in living conditions are not the only determinants of social change. Schumpeter, again, considered innovation as envisaging social changes in the structure of society and its organization, going much far beyond the economic logic of the time, effectively integrating comprehensive sociology of knowledge allowing analysis of both development and innovation (Schumpeter, 1932).

Given the evolutions that have gone through the social innovation definition, the relationship with the local environment and the development of social changes are clear. The definition of social innovation which is referred in this research follows the "strong" approach, expanding the social innovation dynamics and effect outside the organization which originated the innovation itself, thus to communities and wider social groups, fostering inclusion and wellbeing through improving social relations and empowerment processes. The reference to the strong approach to social innovation can be seen as propaedeutic in setting the pillars of our analysis of subjects which, according to the review of the literature we made, are not included in relevant studies. Incubators are expressions of the society and its organization, therefore the choice of our approach is consistent.

1.3.1 Social enterprises

The origins of social enterprises are usually identified as angle Saxon but spread all over the world. United States stand as the prominent environment where social enterprises,

foundations and the third sector are engaged. However, when turning towards Europe, Italy represents an advanced country regarding institutional action and research with a 1991 legislation establishing "cooperatives of social solidarity" – *cooperative di solidarietà sociale* -. Following Italy, eleven other countries in Europe started to discuss on legislations for commercial enterprises with social objectives, establishing a plurality of institutional forms and statutory typology of firms (Roelants, 2009; Fici, 2016), in many cases applying cooperative models. Thus, Belgium followed in 1995 with "*société à finalité sociale*", the United Kingdom established the "community interest company" in 2004, France created in 2001 the "*société cooperative d'intérêt collectif*" and Poland in 2005 the "social cooperative".

Sector-specific definitions are looking only at specific types of organizations operating in the field of social inclusion, mainly by facilitating the integration of people excluded from the labor market ('work integration social enterprises', or WISEs).

The social enterprise dynamic is present in all the EU Member States and has its roots in the tradition of associations, mutual aid societies (France, Belgium), nonprofits/charities (Ireland, Slovakia), cooperatives and voluntary engagement (Poland and Italy) that preceded the creation of the contemporary state bodies. Social enterprises are still conceived in significantly different manners by national legislation, policy strategies, academics and social entrepreneurs (EU Commission, 2016), differentiating themselves in terms of organizational and sector specific definitions.

Where markets fail, social entrepreneurs often conceive of business models that look beyond profit maximization (Casasnovas and Bruno, 2013), intersecting social mission, market orientation and innovation (Nicholls, 2006). The scaling opportunity provides humus in urban local systems for taking national, local and global challenges, thus overtaking the mainstream collection of methods and principles.

Given the multiplicity of approaches and definitions surrounding the social enterprise, it is necessary to clear the field, and follow a pertaining approach which in our case is the EMES approach to the social enterprise. EMES is the acronym of the French phrase "*l'émergence des Entreprises Sociales*" (Emergence of Social Enterprises), and stands for a group of European and worldwide researchers, both academics and individuals, with specialization on the issues of the social economy and social enterprises, founded in 1996 and

supported by the EU Commission[9]. EMES built an ideal type of social enterprise, taking into account all the main features found in the emerging initiatives of social entrepreneurship in Europe. Being a Weberian abstract type of enterprise, it is useful for understanding what social enterprises are, not what they should do (Defourny and Nyssens, 2017). Furthermore, EMES ideal type is able to provide explanations of the dynamics present in social economy.

Three main dimensions are in place for identifying social enterprises through suitable indicators: economic dimension, social dimension and governance structure.
The indicators of the economic dimension envisage the continuity of production of goods and services, thus production representing one or the main objectives, a significant level of economic risk as well as a minimum level of employed personnel, not relying on voluntary action.
Indicators of the social dimension define the link to civil society. The local dimension is stressed thereto. It includes: the existence of an explicit objective of benefit to the local community or a specific group of local people; the collective dynamic which is behind the creation of the venture representing a community; the profits distribution cap.
The third and last set of indicators defines a specific governance, envisaging a high degree of autonomy from other private and public organizations, ensuring democratic participation to governance. Table 1 summarizes the three dimensions for identifying social enterprises.

Table 1: EMES approach of Social Enterprise - dimensions and indicators. Source: Defourny and Nyssens, 2017.

Economic dimension	Social dimension	Governance structure
• Continuity of production activity • Presence of economic risk • Minimum employment level	• Community services • Collective dynamics • Profit distribution caps	• Autonomy • Democratic participation • Diversification of stakeholders for • Dynamic participation

1.3.2 Social innovation incubators

We previously defined incubators as organizations supporting creation and development of innovative forms and enterprises, providing development, acceleration,

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[9] www.emes.net

mentoring and nurturing of ventures. By definition, incubators are heterogeneous and provide a wide set of intersectoral services. Incubator is an umbrella word for all those activities carried on in the early stages of the business development process. Business hubs are usually active in post start up phases such as consolidation and commercialization (Aernoudt, 2004). However, given the timeframe when this research is carried on, it is relevant to affirm that the role of incubators is evolving towards a more comprehensive set of overarching organization supporting entrepreneurship ventures featuring innovation. Following empirical experience in this research, we realized that an incubator is, however, a theoretical concept, suitable for ideal typing as per social enterprise meaning. This may be ground for future research.

Social incubators are agglomerations of social enterprises and social ventures, aiming at providing an advantageous environment of connection, knowledge transfer and experience exchange. They provide space sharing and service sharing, producing a horizontal approach which is supported, in some cases, by the public actor or by private entities with social objectives. Incubators, unlike business hubs, are created with the specific aim of stimulating the production of social innovation. They are placed in specific parts of the city for multifold purposes. The individual actors composing these agglomerations, be them individual entrepreneurs or multiple stakeholder firms, are social enterprises

Incubators possess very strong bonds with the territory in which they are created usually by virtue of local institutions, both private and public. Social incubators are organizations usually developed from co-working spaces and specific location settings. Italy has more than 100,000 social enterprises as of 2014, providing 850,000 jobs and involving 1,7 million voluntaries (Borzaga an Bodini, 2012). In Italy[10] in presence of a delivery of welfare services both decreasing and divergent between North and South, the domains of engagement of social enterprises have been much more diversified from the outset (social, educational and health services and work integration), with a tendency to enlarge in very diversified fields of general interest. In the period 2000 – 2014 the incubators formally established in Italy were

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[10] In Italy, the legislative decree n. 117 of 3/07/2017 implementing law n. 106 of 3/06/2016 "Delega al Governo per la riforma del terzo settore, dell'impresa sociale e per la disciplina del servizio civile universale".

61, with 18 dedicated to social enterprises thus identified as social incubators. Milan had 5 of these social incubators and stand as the most relevant social ecosystem (Banca d'Italia, 2014).

Therefore, one of the main objectives of the incubator is the bridging of the social gap in order to improve the possibilities of employment and reduce inequality. In origin, they were focused on those physically disadvantaged or with criminal records, but the worsened conditions of the labor market stimulated the evolution of services covering the beneficiaries of minimum income, low-skilled workers, long-term unemployed, immigrants and political refugees through the provision of support services for business development, accommodation and support activities for new ventures.

With the evolution of the third sector together with the social entrepreneurship drivers, incubators started to "specialize" for assisting social enterprises, providing specific services to social entrepreneurs and applying social innovation definition and criteria as they saw fit for their cases. Carrera ey al. (2009), affirms the existence of patterns of similarities between approaches of social incubators and business incubators. These similarities, as it emerges from the qualitative analysis presented in chapter 3, may not be due to the services provided by the incubators to social enterprises but, instead to the services and products provided by the social enterprises themselves, as well as the necessity of managerial approaches to problem solving: some incubators may attract specific enterprises as they are more focused on specific sectors.

Giordano et al. (2015) provide a framework of analysis for social incubators focusing on three aspects, applying a multiple case study analysis: identity, business model and incubation program.
With regards to identity, they identify three areas of mission:

- generation of social changes and benefits in the community;
- economic and sustainable development through the support of social and environmental ventures;
- promotion of a community of social innovators

Regarding managerial models, few incubators, as of 2015, are able to propose target – specific support. However, this has changed if we take into consideration the European environment. Milan, again, represents an exception at Italian level as the program of Make a Cube and FabriQ, for example, are more tailored to the necessity of the entrepreneurs.

With regard to the incubator program, they identified three key elements of the model: selection and admission to the program of incubation; business support; conclusion and graduation with eventual follow ups and post incubation.

1.4   Conclusions: the ecosystem of social innovation in Cities

We started this chapter by providing an overview of the relationships between globalization and urbanization, focusing on the trends of both phenomena, their multifold effects and illustrating the taxonomy useful to understand the issue of agglomerations and development of cities. We proposed a scenario where cities are presented as the nodes for innovations and knowledge transfer, nowadays representing the engine of growth, with infrastructures amongst cities overcoming the historical concepts of States and political borders.

The second section has been dedicated to present an evolutionary and dynamic perspective of innovation and its city centred development, the emergence of the creative class as well as the workplace and their different meanings. The effects of the crisis on the entrepreneurial shift was presented, followed by the introduction of innovation at social level stimulated by the emergence of new social needs and welfare failures.

The third section has been dedicated to present the definition and drivers of social innovation and social enterprises, as well as introducing social incubators. The latter agglomerate social enterprises that, stimulated by the effective needs voiced by metropolitan communities and boosted by urbanization processes, are providing welfare services. Social enterprises are in place where social welfare, provided by the private and public sectors, fails to serve the needs expressed by society. The location where the clash of different class of people happens are cities and metropolitan areas. These locations saw the decaying strength of middle class society, which once sustained their growth.

The aim of this chapter was to provide a comprehensive overview of the territorial process of social innovation and social change, which is expressed through social enterprises and the emergence of social incubators in cities. These complex networks create ecosystems of social innovation, with the interaction of other institutions such as universities, public

entities and private actors of the urban communities, providing suitable answers to the emerging local needs.

All over the world, there are many social enterprises which have been providing jobs and active in the market for years, facing different challenges and reaching sustainable business models. They often struggle to face independence from public financial resources. Social enterprises came to prominence in different countries for similar reasons, but in different institutional frameworks and conditions. Their evolution, starting from the 80's and legally framed from the 90's, impinged some similarities with for profit businesses, starting from commercialization to profit sharing (Dees, 2017). The creation of specific branches of consultancy dedicated to nonprofit and socially oriented ventures describes the needs for entrepreneurial knowledge of the third sector. Social incubators are active in providing the necessary skills, basic knowledge and funding opportunities for new social ventures. In presenting social enterprises, social innovation and social incubators, we stressed their territorial dimension in producing effective human capital at local level. However, we also presented the city as the main spatial dimension where these processes are taking place and their evolutions percolate the different urban ecosystems. Social welfare in cities is struggling as to emerging needs arising from segregation, exclusion and lack of connection are not met by the public actor, while they cannot be left to emergent for profit private actors.

The devolution and mitigation of the functions proper to central government are linked to an increase in the local political role, which is connected to the strengthening of private actors (Peyroux et al., 2012). Business Improvement Districts (BIDs from now on) are sub-municipal forms of governance representing a re-territorialization of administrative local institutions. BIDs, acting as local governments, can be actors in strategic and land-use planning, as spatially bound "interventions" in societal or economic processes are more easily achieved overcoming traditional levels of government. Again, in order to link the different aspects of cities and urban frameworks it is necessary to state that the urban system features an essential form of social interaction and organization in the creation and distribution of wealth, one of the main organizational mechanism through which efficiency in production and trade is attained and distribution effected.

Therefore, a trans-disciplinary approach involving the whole body of economics and political science, architecture, urban and regional studies, anthropology and humanities when

dealing with social needs in urban areas is paramount, as highlighted in different parts of the contribution.

The Jacobian essential, illustrated when presenting the nomenclature of cities and the agglomeration economics, is that "*cities are primary organs of cultural development; that is of the vast and intricate collections of ideas and institutions called civilization*" (Jacobs, 1969). This envisages the multifold aspects entailed in the concept of the city. The development of contemporary urbanization is a multifaceted phenomenon where cities are systems of internal transactions embedded in a wider network binding all cities together into a grid of complementary and competitive relationships (Scott, 2014). Relationships and networks are the results of a process of merger, expansions and contractions. Agglomeration economies are at the heart of much work in economic geography, and the term is often referred to as economic externalities of co-location (see Martin and Sunley, 2003; Phelps, 2004 for critical overviews), aside from the widely adopted and classical conceptual trio (Ohlin, 1933; Hoover, 1937; Glaeser et al., 1992) coupled with the Alonso, Mills and Mutt model – economies of scale, localization economies (MAR-externalities) and urbanization economies (Jacob's externalities). However, they do not, and cannot, cover all aspects of the concept. The actors composing the cities are subject to framework shifting, expanding, contracting or relaxing, but they are fully participating in many phenomena, while in most cases they are at the same time subjects and drivers of changes. The most relevant drivers of changes impacting on cities' frameworks and shapes are societal and business evolutions as well as technology introductions (Parr, 2002a, 2002b). Ecosystems are complex networks of actors driving changes and sustaining an interconnected system.

Therefore, local ecosystems are fundamental in the building of skills necessary to generate knowledge externalities leading to the development of innovative capabilities. Those capabilities are the result of the availability and effective utilization of geographical ecosystems, which are divided into three types (Tanev, 2012).

1. The first type of ecosystem pivots about universities and firms sharing the industry, thus creating a virtuous network. A flow of technological knowledge and skilled workforce can result from being part of such ecosystems. The expertise developed within the network and ecosystem results in a competitive advantage, which may be relevant for establishing business at global level.

2. The second type of ecosystem facilitates the establishment and strengthening of the connections between the local firms' headquarters and their foreign subsidiaries. The resulting networks are sources of knowledge and spillovers spreading out internationally. Contacts between the different actors are facilitated, thus providing the awareness needed or answering the specific customer needs relevant for targeting and acquiring new market shares.

3. The third type of ecosystem is anchored on foreign sales subsidiaries and local clients that are important for high quality services. Such ecosystem involves customers and provides relevant information about client needs for the product development. Firms are supported to obtain technological knowledge from the clients or through the clients' business partners that they would otherwise have to develop internally.

Provided the above characteristics of different ecosystems, it is relevant to address the specificity of the city as the pivotal ecosystem of start-up firms. Due to partial similarities between social enterprise and start up, the firm location in the domestic market is a relevant explanatory factor in different models built to explain market opening (Wiedersheim-Paul et al., 1978), applied to transport costs of physical goods and information flows. One of the main reasons provided for explaining the higher efficiency in urban regions, where global firms' birth rate has its maximum, is that a large number of firms and job opportunities are concentrated in relatively small areas. According to this, an improvement in production conditions creates a favourable enterprise environment or, mutating the terminology from above, geographical ecosystem. The evolution of manufacturing, production and services are dependent on the information technology and its supply chain, embedding a relevant proportion of face-to-face contacts. Implications of physical and geographical proximity are not denied, even today featuring more efficient means of contacts for exchange information involving uncertainty or expecting the creation of new situations demanding further exchanges and cooperation as well as competition. The lack of information flows resulting from the firms' location far away from information centres such as large metropolitan areas is envisaged as a disadvantage, also known as spatial bias. Personal contacts and proximity are relevant aspects of business opportunity, capable of changing attitudes as an environment containing exporting firms will probably create positive behaviours towards exporting and creating international firms in successful cases. In complex structures such as cities, the news

of successful or unsuccessful ventures spread quicker than outside those information centres, thus it is capable of 'trending' the successful or unsuccessful business almost immediately.

In the end, we presented the main drivers of social incubators, due to the agglomeration of the actors of the third sector and to the community based provision of welfare related services. Firms operating in the third sector are suitable for impacting on cities and local development. Their impacts are suitable to be measured in different ways and using both qualitative and quantitative model analysis for identifying the social capital and value-added production. Amongst them the analysis of variety (related and unrelated) and co-agglomeration economies correlated to the impact on employment growth.

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Chapter 2- Variety in nonprofit institutions located in different areas of cities. Evidences from Milan using census data (2001-2011)

"[...] for there, in a great city, and in all the territory that lies round it, you can scarce find five hundred, either men or women, by their age and strength capable of labor, that are not engaged in it."

- *Thomas More, Of their trade and manner of life, Utopia. 1516 -*

Introduction

Tacit knowledge based on face-to-face exchanges and interactions, reciprocity and trust constitutes routines, habits, norms and local conventions. Those are components of regional assets comprising traded and untraded interdependencies within labor markets and between firms (Storper, 1997). The experiences of successful local communities contributing to the learning regions, which are regions where the learning process follows a controlled and interacting path dependent knowledge accumulation (Malmberg and Maskell, 2006), are based on the learning properties of local networks, which in some cases are industry specialized. These sources of learning are facilitated through enhanced interdependent mutuality and reduced opportunism. Regional Innovation System can also be seen as a combination of institutions with the objectives of innovation, knowledge creation and growth, built on the previous concept of "learning by interacting" within regional system (Cooke, 1998). Knowledge is therefore a pivotal resource coupled with learning in the process of building competitive advantages of local systems (Lundvall and Johnson, 1994; Cooke, 1998).

Clusters are fundamental in providing the places for building economies of association, where innovation is encouraged by social dialog and learning based on shared knowledge and exchanges of information. The involvement of stakeholders with different origins and interests as well as different experiences is pivotal in the innovation process. The institutionalization of these relationships inside a community is fundamental in providing the community itself with effective tools for answering their needs which are evolving with social changes. Cities, as the places where the learning process is thoroughly implemented and nurtured, are the pivotal nodes of the community enhancement and social changes.

The original thread of research in local development lies on the studies of agglomeration and industrial districts, stemming in different directions. The literature on industrial districts started with Becattini and Bagnasco in the 70s, stressing the innovative capacity of small and medium enterprises with specialization strength of local networks, thus belonging to the

same sector and local space. An industrial district is a geographically localised system of production with a strong division of work between specialised small firms. A network of relationships is created and boosted amongst firms, communities and the markets, as well as outside of them (Becattini, 1987; Brusco and Solinas, 1986; Brusco, 1992; Dei Ottati, 1994; Moulaert et al., 1994). Industrial districts evolved as relevant economic structures in the 60's and 70's in Italy as well as France, Germany, Spain and United Kingdom. They were fundamental in supporting the development of human capital, trust and reciprocity and intra sector learning processes. However, in the following years many failed in opening to outer influences, failing in providing disruptive innovations and being feeble subjects of economic downturn affecting manufacturing. Notwithstanding many negative shocks and collapses, they still represent viable answers to innovation and human capital which are fundamental in social changes.

Unlike single industrial districts, cities can possess a variety of specialized neighbourhoods or clusters enclosed in one single neighbourhood. The clustering of products and services in the developed world is today peculiar of cities. Variety of sectors has been studied in regional clusters and cities, with reference to service and manufacturing (Innocenti and Lazzeretti, 2017; Boschma et al., 2013; Boschma and Iammarino, 2008).

Cities are increasingly becoming centres of economic growth and innovations. (Andersson et al., 2017), thus research should focus on understanding inner workings and organizations. Cities are composed by neighbourhoods which can be specialized in providing different services or producing different sector-related product, with the emergence of a multisector urban framework, where neighbourhoods are usually more specialized (Depropris and Lazzeretti, 2009).

Social clusters of activity have their typical location in cities. However, models of research on urban forms and dynamics of agglomeration of social enterprises and the possible interrelations of nonprofit-for profit varieties have not been analytically studied.

The aim of this contribution is to provide an exploratory analysis, using a set of databases built on the ISTAT censuses of 2001 and 2011 and Osservatorio del Mercato Immobiliare (OMI) of Italian Fiscal Agency, the local correlations of the presence and agglomeration of nonprofit institutions in the city of Milan, both with local employment and formation of nonprofit institutions. The novelty of the approach is on its application on nonprofit firms and employees, as well as the co-agglomeration patterns of nonprofit and for-

profit firms in a single city. Therefore, we want to contribute by investigating how third sector diversification relates to agglomeration economies at sub-city neighbourhood scale.

The chapter is structured in four main sections. The first section introduces the thematic of agglomeration economies and Jacobs' externalities, focusing on the variety and diversity approach, therefore highlighting the diversity between nonprofits and social enterprises. The second section depicts the emergence of ecosystems of social innovation in Milan, provided the Italian legal framework and historical background. The third section describes in a more detailed way the research questions already drafted in the first chapter, presents the data used, the descriptive statistics and the methodology of analysis. The fourth section describes the results of the analysis. The fifth section summarises the conclusions and discusses opportunities for further research.

2.1   *Agglomeration economies: externalities and knowledge exchange*

Agglomeration economies are implicitly assumed to operate across entire cities. However, the knowledge flow and people interactions can be subject to frictions thanks to geographical distances or networks, being them social or organizational (Andersson et al., 2017). Current research on innovation capability determinants has moved from a more sector based approach towards a function-based approach (Camagni and Capello, 2009), that is stressing the importance of horizontal functions for driving innovation. Functions like Research and Development locate in geographical areas were agglomeration of both scientific institutions and industrial operators are in place. This process of creation of scientific and knowledge intensive regions, hosting large and well-known scientific institutions, was deeply studied with regards to relationships between these institutions and the manufacturing, with some disappointing results concerning the direct linkages between them (MacDonald, 1987, Massey et al. 1992, Monk et al. 1988, Storey and Tether 1998).

The 90's saw a resurgence in the debate on agglomeration economies pivoting on the idea that diversity and variety among firms closely located in in the same areas are able to promotes external economies thus knowledge exchanges and growth (Glaeser et al., 1992). This debate is far from being closed as several threads of research have been speculating "through" dissection, meaning that a large number of points of view have been advanced. Some of them starts from a more neo classical perspective and pivot around amenities, while

others use a more institutional approach to the local development, stressing the importance of human capital and community engagement. Many contributions can be traced back to Jane Jacobs and analyse externalities which are in many cases linked to the diversification and its positive effect on local knowledge (Boschma, 2005). The idea contained in the definition of agglomeration is that the clustering of economic activity is in place when a firm experience benefits from being close to another. Three main sources of agglomeration have been distinguished in different streams of literature.

The first source of agglomeration is related to a local concentration of factor employment; it occurs when a single firm increases its cost efficiency by serving larger markets: this is acknowledged as internal increasing return to scale (Krugman, 1991).

The second source is represented by localization external economies available to all local firms within the same sector.

The third source is composed by two typologies of external economies (Frenken et al., 2007):

- urbanization economies are external economies driven by urban size and population density, they are available to all local firms irrespective of the sectors;
- Jacobs's externalities or economies of scope are external economies available to all local firms stemming from a variety of sectors.

Differences in theoretical conceptualization are also due to different types of sectors analysed (Bishop and Gripaios, 2010), the methodologies used and characterization of economic variety (Boschma, 2005) which incorporates two idiosyncratic economic effects: location resilience to industry specific external shocks and learning spillovers between industries. This paragraph is dedicated to present the theoretical roots of the variety approach and urbanization externalities, as well as their relations with the third sector, which is the object of research of both this paragraph and the whole dissertation.

2.1.1 The role of related/unrelated variety in manufacturing and services

Recently, following different contributions on evolutionary economic geography, variety is considered to be the most supportive factor for effective knowledge transfer and innovation, thus regional growth (Frenken et al., 2007; Boschma et al., 2005). The analysis of variety is an effective way for understanding contribution of firms of different sectors to local economic growth. The typologies of relationships between variety and local economic growth,

specified by Frenken et al. (2005) in their ground-breaking article, are the following:

- variety generates spillovers between firms and actors, thus leading to additional source of economic growth;
- variety is correlated to a higher protection of regional growth from external shocks; its implies less negative effects on demand and milder impacts from external shocks;
- variety is related to economic growth also by the long-term effect of protection from structural unemployment and stagnation.

These relationships have been tested in several empirical researches, particularly with regards to manufacturing and, later, also services (Mameli et al., 2012). The impact of variety in creative industries has instead not yet been fully investigated and empirical evidence as well as of measuring models and methodologies are not exhaustive. The territorial specificity of diversity and variety of creative industries can be an essential component not only of creative businesses but of the local economy as a whole, providing different contribution to urban economic development (Lazzeretti et al., 2017). The focus on creative sectors is fundamental in the proceeding of this contribution as the majority of nonprofit firms and social enterprises can be assimilated to creative ventures both for services provided and business models. Social economy is stimulated by the knowledge economy and is a pivotal component of the most relevant movements which are changing our cities. The contribution to regional economic growth by the so-called third sector in urban areas and the agglomeration effects are here under analysis.

The previous literature on agglomeration is partially based on the assumption, empirically corroborated, that spatial proximity of firms of the same industry, or firms related to one common industry, is pivotal in facilitating interactions, reducing opportunistic behaviours thus facilitating coordination of different aspects of the organizations, from financing to production and operations. The result is a reduction in transaction costs (Wood and Parr 2005; Helsley and Strange 2007). We do believe relevant to link this definition to the theory depicting cities as systems of internal transactions, creating a grid of complementary and competitive relationships (Scott, 2014), as cities are the geographical unit of analysis embedded in this research, as well in many others concerning innovation, knowledge transfer and development. Part of these assumptions, which will be made explicit in the following paragraphs, are considered to be applicable to the actors of social economy, starting from nonprofit institutions and their role in stimulating local development and employment. Their

participation in building a more inclusive urban society and communities are the main objectives of research of this dissertation, to be discerned and asserted through empirical corroboration using econometric tools and available data.

Folding back to variety in location featuring strong concentration, it is expected that firms in concentrated areas presents a lesser vertical integration than ventures operating outside of them (Cainelli et al., 2012), which is true for intra-industry relations (integration), but also to interindustry, given the attraction forces of setting up specific industries towards related industries' firms (Porter, 1998). As regards the relation between variety and the resilience toward shocks, the portfolio approach can be borrowed from the management science and applied to regional economic sectoral composition, to understand why an eventual derived shock will result in a mitigate effect if the territory possesses a variety of industry settlement. In particular, this will especially protect employment from regional sector specific shock. Krugman (1993) affirmed that even if interregional labor mobility is high, preventing unemployment to occur, asymmetric shocks reduce economic growth: industrial variety has the role of promoting regional economic growth and reducing unemployment. Specialization effect, in contrast, would increase risk of unemployment and might slow down growth at regional level.

More recently, starting from early 2000s, a pivotal topic of research questioned whether the most suitable driver inducing stability and growth is coming from diversification producing knowledge spillovers from a is related or unrelated diversification the most suitable driver inducing stability and growth (Innocenti and Lazzeretti, 2017; Boschma et al, 2013; Boschma and Iammarino, 2008). This empirical stream of research, concludes that the effects of related and unrelated sector variety are expected to differ.

Unrelated variety is diversification in non-related sectors at local level, protects a region against external shocks and increasing unemployment. Related variety is beneficial to create Jacobs externalities, thus stemming knowledge spillovers and faster growth on employment. The "pull and push" effect of unrelated and related variety can be summarized as follows: unrelated variety is relevant to stabilize a local economy and employment while related variety aims at their growth.

This work finds its roots in previous studies encompassing the disaggregation of data by typology of sector and typology of enterprises, analyzing the existing correlations of distance and proximity in order to assess impact on regional growth and competiveness in Europe. The

main studies encompassed Netherlands (Frenken et al., 2007), Spain (Boschma et al., 2012) and Italy (Innocenti et al., 2017, Iammarino et al., 2009; Lazzeretti et al., 2017). This work also focuses on a specific urban area, partially recalling micro geographic studies (Anderson, 2017) as well as focusing on the effects of social enterprises in neighbourhoods and urban sections at different geographical units of analysis. Relevant studies should be mentioned in this work for the methodology and data sources that have been mutuated and adopted in the following paragraph of the empirical analysis:

- Boschma and Iammarino (2009) employed export and import data to compute regional variety and find that related variety affects regional growth;
- Quatraro (2010) employed patent data to calculate regional knowledge variety and the impacts on productivity growth;
- Antonietti and Cainelli (2011) designed a structural model of research, productivity, innovation and export on a sample of large manufacturing firms, measuring local knowledge spillovers highlighting a strong relationship between related variety and R&D;
- Mameli et al. (2012) reported a different influence of related and unrelated variety on growth depending on the sectors;
- Cainelli and Iacobucci (2012) investigated the role of agglomeration forces in vertical integration choices by analysing the effect of different forms of variety.
- Innocenti and Lazzeretti (2017) identified the impacts of related and unrelated variety in the Italian provinces.

Regional growth is correlated to the diversification of the regional economy (Boschma and Iammarino, 2009). However, as knowledge externalities are limited by geography and their accumulation is regional, the overall benefits are impacting on the entire region. This does not mean that the impact of knowledge externalities alone will lead to innovation, with regions requiring relevant and critical mass of organizations providing the necessary inputs and innovation mechanisms (Boschma and Iammarino, 2008). Previous studies stressed the impact of variety on the growth of a variety of sectors, both in manufacturing and services, with a key factor identified in cognitive proximity for promoting innovation, linked in particular to related variety.

This study aims at contributing to this literature on economic geography, adding the objective of disaggregating firms in nonprofits and for profits, using census data for 2001 and

2011, thus reflecting the period of crisis of 2008-2009. For reasons above presented, 1991 census was not used as the legal framework of nonprofits was put in place after 1991.

Two main issues are differentiating this research from the previous one:

- The first has been previously mentioned and is the disaggregation of firm into nonprofits and for profits, with a focus on the variety decomposition relations of the firsts;
- The second is the geographical unit of analysis, as we are approaching a micro geographical sphere of interest, with the direct intent of identifying the least geographical locality for these economies of scope to take place, be them sections of census or ACE.

2.1.1.1 Jacobs's externalities and urbanization

As above mentioned, discussions on variety and diversification of agglomeration economics revamped since the contribution of Glaeser (1992), Henderson et al. (1995) and Krugman (1991) on New Economic Geography. Since then a large literature has questioned the impacts of different types of agglomeration on local economic growth (Rosenthal and Strange, 2004; De Groot et al., 2009).

Externalities in urban areas, are the ones considered in this contribution. It is expected that they facilitate radical novelties in processes and services, achieving innovation in knowledge from different sectors; factors are combined and recombined leading to complete new products and services, creating new markets and employment in urban areas. It is relevant to assert that the approach considered in this research is an evolutionary one (neo-Schumpeterian), as it is deemed particularly relevant and suitable for application to those firms engaged in the social "industry".

Knowledge exchange and innovation are driven by competition between companies in agglomerated areas, such as clusters, providing a competitive advantage thereof. Knowledge itself is a strategic component of global competition, stimulated by interactions at local level. The introduction of Regional Innovation Systems envisages a particular combination of institutions fostering technological development and learning processes as well as growth (Cooke, 1998). Localized learning regions have been defined as locations where learning is a cumulative and path dependent process driven by interactions amongst actors (Malmberg and Maskell, 2006). Coming back to Glaeser and his theory of knowledge spillovers and

externalities in local contexts, he listed three separate dynamic typologies of externalities (Glaeser, 1992):

- The Marshall, Arrow and Romer externalities (MAR), related to knowledge spillovers amongst companies in the same sector;
- The peculiar externalities of industrial districts and clusters, related to the maximization of their effects in areas where SME (Small and Medium Enterprises) featuring a defined specialization are concentrated, thus accelerating the knowledge exchanges;
- urban externalities, where the more positive effects of the agglomeration of firms are provided by the diversification of industries in which the enterprises are operating.

Jacobs externalities are also defined as economies of scope (Innocenti and Lazzeretti, 2017), based on the idea that diversity and variety of spatially-close firms can promote knowledge transfers and productivity. Agglomeration and urbanization processes have geographical implications and underline long term growth with new ventures pertaining to new sectors emerging typically in cities, while rural ones are dominated by older industries. Therefore, rural labor difficulties and redundancy contrasts with new opportunities or employment in cities. Urban migration counterbalances these implications together with plant migration to rural areas.

Variety and urbanization are positively related (Frenken et al., 2007) to economic growth, furthermore detailing two other empirical and theoretical distinctions in the role of variety as a source of urban economic growth. Urbanization economies are those externalities available to firms located in the same geographical area without distinction of sectors and arising from urban size and density. Jacobs's externalities (Jacobs, 1969) are those external economies available to all firms stemming from a variety of sectors. Other results, such as in Caragliu et al. (2016) can be interpreted in contrast with the Marshall/Jacobs fronting. They allow for heterogeneity of agglomeration effects across different sectors and at different density of activities levels; find out a strong evidence of concentration impacts on employment growth in Europe, especially in manufacturing, while the role of externalities is not the same for all regions. Impacts on growth from MAR externalities and Jacobs externalities are dependent from the density of regional economic activity, with MAR externalities being more impact-wise in less dense areas and Jacobs' more effective in less dense areas (Caragliu et al., 2016).

The role of institutions is pivotal in stimulating knowledge transfer, learning and innovation, as a dense presence of these organizations supporting the production, operationalization and internalization of knowledge fosters innovative behaviour thus differentiation in interregional growth. Diversity in industrial mix in cities increases interaction opportunities, replication, recombination and practice innovations as well as technologies implementation across sectors. Relevant innovations come from the recombination of knowledge, stimulated by geographical proximity fostering recombination that is more likely to occur in similar institutional conditions (Frenken et al., 2007).

2.1.2 Agglomeration in social enterprises: an overview of research and territorial approaches to social innovation

Geography perspective research has been applied to manufacturing and partially to services, while geographical relations of social enterprises and social innovation started only very recently to be investigated in economic research (Pinch and Sunley, 2016).

Social innovation is produced by different typologies of firms, identified as social enterprises. These firms, displaying different legal frameworks and scopes, are largely concentrated in cities, metropolitan and urban areas. Social enterprises, comprising of nonprofit firms and entities, are gaining prominence in European Countries employing a relevant share of workers and providing services and products in place of both public and private actors. The evidence in this paper are provided by the analysis of the ecosystems of the city of Milan, where the last ISTAT census (2011) identified 12,265 no profit firms and entities, with a 36% increase from 2001 and employing 61,450 workers, showing also a 31% increase from 2001.

Their agglomeration effects produce knowledge spillovers enabled by social innovation, taking place in urban ecosystems denominated incubators, hubs and accelerators. While social enterprises, which by their nature possess very strong territorial relationships have been studied with regards to their business models and organizational structures, their localized relations are still neglected. The relationship between social innovation and cities is here under focus: the former deriving from the creation of social enterprises and agglomeration of new services, such as social incubators; the latter where they are usually created and participate to regional economic development and growth.

Social innovation in cities is driven by third sector enterprises that are benefiting from

agglomeration effects and related external economies, such as those spillovers arising from the different typologies of variety.

Controls for urbanization, addressing different perspectives of Jacobian or Marshallian externalities diffusion, should highlight the distribution between economic growth and variety as a source of growth. Urbanization and variety in social enterprises can thus be used as a source of economic growth. The diversity embedded in social enterprises features a pivotal aspect suitable for being treated by using the variety analysis.

Third sector and social enterprises represent pivotal actors of social and economic development. Human population is increasingly urbanizing, people are looking for more occasions for prosperity in cities while jobs and firms are de-structuring their routines adapting and evolving themselves to suit a more developed service economy. Welfare needs and social necessities cannot be sustained anymore by a single actor's actions, thus nonprofit, social enterprises and cooperatives are increasingly assuming prominence.

The most relevant sectors of activity have been health, sports and culture, but today social enterprises have developed towards an increasing variety of activities. This is constituting a relevant and growing portfolio of activities. Portfolio theory, first developed by Montgomery in 1994 concerning asset composition, usually applied in business economics for evaluating product diversification, can be used to affirm that variety reduces risks.

2.1.3 Third sector and social economy: diversity and evolution of nonprofits and social enterprises

Two theoretical approaches to the third sector can be identified: the nonprofit sector approach and the social economy approach. While the first has a US-like interpretation and a more simplistic framework, the second has a more European institutional dedication. Another theoretical framework is the tripolar approach, envisaging three types of agents (the private enterprises, the state and households) or three types of resources (commercial, non-commercial, non-monetary) or according to regulation (market, public redistribution and reciprocity). Social economy definition encompasses a legal-institutional approach combined with normative or ethical framework, which establishes the common features of its elements. The legal institutional approach grouped third sector enterprises into co-operatives, mutual societies and associations. These organizations have deep historical roots, with their formality gradually institutionalized into legal forms from their associative statutes through the 19th

century. The normative approach emphasizes the principles common to the organizations of the third sector, defining their common grouping in it and differences from the private sector. A common definition of social economy is used in several countries (Defourny and Borzaga, 2001) and includes economic activities carried out by co-operatives and related organizations, mutual societies and associations whose ethical stance is represented by the following principles:

- the aim of serving members or the community, rather than generating profit;
- independent management;
- a democratic decision-making process;
- the primacy of people and labor over capital in the distribution of income.

In conclusion, the third sector is composed of organizations encompassing the following features:

- Legal personality, thus a degree of institutionalisation and formality;
- Independence from public authorities, thus they are private;
- Presence of autonomous decision-making bodies and self-governance;
- Nonprofit distribution to members, management or shareholders;
- Involvement of voluntary contribution or money donors, being founded on free and voluntary affiliation of their members.

At this stage of the contribution it is necessary to present the distinction between social enterprise and nonprofit firms, as the empirical analysis will be carried on using nonprofits as unit firms. Even if social enterprises have been presented in the first chapter, we resume the definition and approach. Social enterprises are one of the typology of nonprofit firms, and they envisage a topic of analysis of a relevant research literature in the fields of organization, management and social economy in particular, with specific features. These features where presented in the previous chapter and are here reported as the EMES ("l'émergence des Entreprises Sociales", Emergence of Social Enterprises) approach to social enterprise. EMES built an ideal type of social enterprise able to explain social economy dynamics. Three main dimensions identify social enterprises through suitable indicators: economic dimension, social dimension and governance structure. Indicators of economic dimension envisage the continuity of economic activity of production of goods and services, a significant level of economic risk as well as a minimum level of employed personnel. Indicators of social dimension defines the link to the civil society, thus stressing the local dimension, explicating

the objective of benefit to the local community or a specific group of local people. The third and last set of indicators defines a specific governance, envisaging a high degree of autonomy from other private and public organizations and a democratic governance approach.

Leaving the analysis of legal framework of social enterprises in Italy to the next paragraph, they indeed witness the development of a new entrepreneurial spirit focused on social aim and may be referred as a sub-division of the third sector (Defourny and Borzaga, 2001), however setting out an innovative trend involving the third sector as a whole. Therefore, we will refer to nonprofit institutions as organizations being part of the third sector. In the case of the empirical analysis, we did not have the separation between general nonprofits and social enterprises, given also the fact that they did not legally exist at the time of the census.

2.2   The emergence of ecosystems of social innovation in Milan

Nonprofit institutions constitute networks with strong connections and complementarities, interfacing themselves with for profit firms and public institutions. As mentioned in chapter one when addressing the roots of social innovation and social enterprises, local development issues are amongst the most relevant drivers of social innovation. However, we shall furthermore underline that nonprofit organizations and social enterprises are not synonyms, as they represent different components of ecosystems of social innovations. Social enterprises, as it was pointed out in the previous chapter, respond to specific concepts and definitions. For the sake of data availability, it was not possible to collect data from social enterprises due to the difficulties of classification; nonprofit institutions were used as they were classified by the ISTAT in both censuses of 2001 and 2011. According to the literature and research, the analysis of nonprofit institutions can be a good proxy for identifying relations of social innovations that are the object of this research.

Given the specifications provided in the earlier paragraph on the third sector, nonprofits and social enterprises, the definition of social enterprises may presuppose the institutionalization of a new typology of enterprise, featuring different legal and socio-economic frameworks and perspectives. Social enterprises have their "social aim", referring to any type of activity that is distinguished by a specific intent or merit character, legally stated. Depending from the national legislation there are two different approaches for defining social enterprises: definition and identification of specific actors or the objectives which are defined as social. The pursuit of the explicit social aim is the entrepreneur's priority over economic activities, complying with constraints of profit distributions and combined with its strong social connotation. There is a trade-off between non-distribution constraints and participation of stakeholders: a relaxed distribution of profits can be counterbalanced by the inclusion of all the involved stakeholders in the governance of the social enterprises, allowing for the safeguard of their interests (EC, 2016). More in general, social entrepreneurship is defined as a wideset envisaging all types of organizational and legal forms, including individual entrepreneurial initiatives; the aims pursued by social entrepreneurship includes the design of innovation processes integrating social, environmental, ethical human rights and consumer concerns into the business operations of conventional enterprises (Nicholls, 2006; EC, 2016). Social enterprises in Italy have been introduced only recently with the reform of

the Third Sector, while in comparison a general nonprofit institution is defined as an economic and legal unit which can be or cannot be a legal person, producing goods and services with no possibility of profit distribution, according to current legal dispositions (ISTAT, SNA, 2013).

Eco-systems of third sector do represent a paramount employment driver being the main employer in the social sectors in Italy, Belgium and France. Nonprofit institutions are key job providers and work integration opportunities for disadvantaged workers in these Countries object of the study of the European Commission of 2016 with Ireland, Poland, Slovakia and Spain.

As presented in Chapter 1, social innovation definitions can be multifold and go beyond the materialist understanding of development and growth (Moulaert at al., 2013) aiming at transformation of institutions as well as collective agency to address unsatisfied social needs, using a bottom up cohesion building approach. The localization of social innovation in cities, therefore stressing the urbanization correlation, is connected to the spread of increasing inequality and widespread social insecurity. A solid example lies in the urban degradation of French *banlieue* and security issues related to immigrants and refugees. Different prospects at EU level touched the analysis of social innovation for combating poverty, resulting in the necessary needs of empowerment.

The next two paragraphs address the Italian framework of the third sector which is the object of reform in these years and the historical framework of social innovation in Milan, underlying the reasons why this city, and not others, has been chosen for this research.

2.2.1   Italian framework

The third sector assumes a particular meaning if framed in the complex scenario of the crisis of the social state and its pervasive welfare policies. Welfare policies, as a form of state intervention in the economy has its roots in the second half of the nineteenth century (Salinas, 1997).

In Italy, the crisis of social state and the welfare policies fleshed out following two paths: the first aimed at limiting the influence of the Church (an example for Italy is the law for the confiscation of the assets of the Church involved in the welfare field in 1866 and in 1890 with the Crispi law); the second aimed at integrating the working class with targeted policies of public intervention.

The reference act for European countries is the Beveridge plan (1948) approved in England, inspired by the principles of egalitarian universalism.

Figure 3: Map of Italian nonprofits distribution (absolute number, 2011). Source: ISTAT.
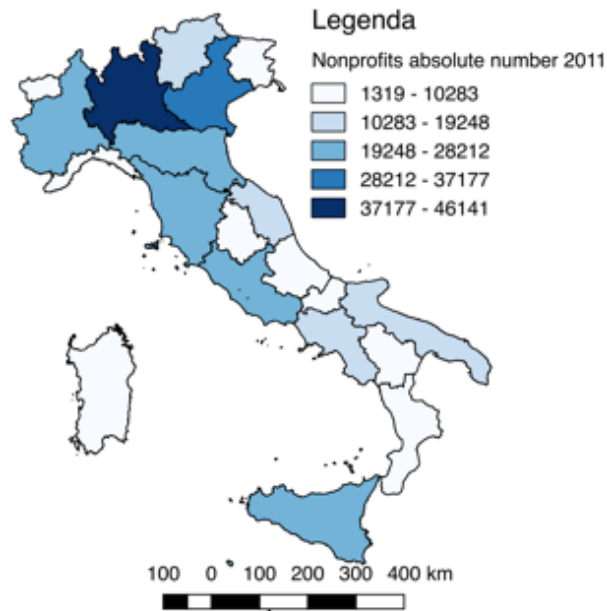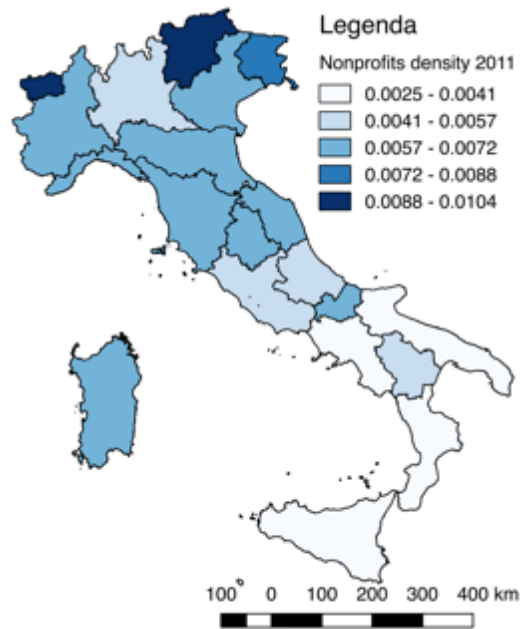

Figure 4 : Map of Italian nonprofits distribution (density per 1,000 inhabitants 2011). Source: ISTAT.

According to the data of the 9th census of industry, services and nonprofit institutions (2011), Italy had 301.191 active organizations, constituting the so called Third Sector.

Without repeating the definition of nonprofit institution presented above, it envisages: associations, foundations, committees, social and non-social cooperatives, consortia (of cooperatives), clerical organizations, non-governmental organizations, voluntary organizations, nonprofit organizations with social utilities. In practice, nonprofits can do any activity of production and service deployment. However, even if there was a shift in sectors in the decade observed in this research (2001 – 2011), the majority of them is historically engaged in welfare and social services. The ATECO 2007 classification adopted by ISTAT is considered not to be consistent with the variety of services provided by nonprofits, but we decided to adopt this classification as we deemed necessary to include a comparison as well as an interaction between for profits and nonprofits organizations in the research. Other classifications such as International Classification of Nonprofit Organizations (ICNPO by the John Hopkins University; Salamon, 1996) adopts 12 sectors and 26 class of activities instead of 12 sectors and 39 classes of activities, and are more focused on the sectors where nonprofits are engaged.

Heterogeneous administrative sources have strong impacts on the statistics of nonprofits with several registers implemented in the past decades. Starting from a statistical report of 1996, ISTAT included nonprofit institutions in its censuses from 2001 and carried on partial surveys in 1998 and 2008. With regards to the decade from 2001 to 2011, the third sector experienced a growth of 28% from 235,000 firms in the first year to more than 300.000 firms in 2011; the employment in the sector (full time and part time contracted employment) increased by 39,4%, while voluntary workers increased by 43,5%. Nonprofits featured indeed, in the afterwards of the crisis, the most active industry in the Italian productivity system with strong capacity of employment involvement and attraction. In fact, nonprofits engaged 956,000 total employees in 2011 of which 275,000 external and temporary workers with the addition of 78,000 people as workers, religious volunteers and young people from the civil service. The prevailing legal form is the association up to 269,000, equal to 89%, of which 201,000 unrecognized associations (66.7%) without legal personality, and 68,000 recognized associations (22.7%) publicly instituted. Social cooperatives represent the 3.7% with 11,000 units; foundations are 6,000 representing the 2.1% and the remaining 14,000 are other nonprofits such as ecclesiastical bodies, committees, mutual aid societies, health and educational institutions (4.8%).

157,197 nonprofit institutions, 50% of the total, are located in the north of Italy with

Lombardy and Veneto with the higher number; the remaining two thirds are almost equally distributed between centre and south. Figures 3 and 4 illustrate the distribution of nonprofits in the country.

Nonprofit institutions account for 64 billion of resources raised and 57 billion in revenues from the sales of services and products. However, the nonprofit revenue of the average nonprofit institutions does not exceed 30,000 Euros per year in revenues; moreover, less than 14,000 institutions absorb the 81.8% of the whole revenue capital, but employ only the 2,4% of total employment. Those figures are suitable to relevant variations due to the selection of typologies of legal forms, such associations, cooperatives, etc., employment contract and services provided.

Finally, nonprofits are strong equality empowerment generators as the female occupation accounts for 67% of paid employees and external workers, and 1.8 million of the volunteers, equal to 38% of their total. Among the volunteers 950,000 are young, mostly under 29 years of age with both a high school diploma and another employment for more than 50% of cases.

2.2.2   Legal Framework

An intense work of reform for nonprofits has been in motion since the 1991 with the framework law on voluntary involvement (n. 266, 1991) and the law on social cooperatives (n. 381, 1991). However, nonprofits have not been organically treated by the Italian legislator (Salinas, 1997), even if its figures have been historically relevant, as it is shown above.

In Italy, nonprofit institutions and third sector operators related to the public administration have been recognized with the enactment of the law n. 328/2000, also known as law for the implementation of the integrated system of interventions and social services. Article 5 of the law is in line with the subsidiarity principle, regulating the promotion of those subjects operating in the third sector. With the emanation of D.P.C.M. March 30, 2001 the legislator proceeded to regulate the relationships between the municipalities and local communities on the basis of the same provision with which the Regions adopted specific guidelines to regulate the relations between local authorities and the third sector, with particular reference to the issue of the assignment of social and welfare services.

The proxy law (*legge delega*) n. 106 for the reform of the third sector, of social enterprise and for the universal civil service discipline was approved as a law of the State on

6th June 2016 and entered into force on the following July. However, the decrees of approval necessary for its activation have to be still approved.

The law of 2016 implements the first organic reform concerning a sector governed by a plant inorganic and fragmented legislation, regulated at the same time by:

- provisions of general character contained in the civil code;
- sector laws;
- tax and fiscal provisional measures for non-commercial entities and nonprofits

The structure of the provisions, in addition to give an incentive for the growth of the nonprofit and social economy, develops in 12 articles and provides innovations that will have considerable impact on the physionomy and functioning of the sector in the years to come. Some articles present the general principles of the subject and have been included in the perspective of clarify and simplify current legislation introducing obligation of transparency.

The articles at the core of the law aim at reorganizing and reordering (Carbone, 2017) the existing discipline always guaranteeing the Constitutional rights and freedoms such as the right of association, the principle of solidarity, the value of autonomy statute, the recognition of private economic initiative to social utility in the borders established by the legislator.

In these articles, the legislator reserves particular attention to the harmonization and coordination of the overall legislation and the process of qualification of the social enterprise in the areas of general interest. Further articles, on the other hand, suggest a change in the system of governance, methods, rules and institutional actors functional to carry out activities of common and participatory interest. According to this, its action will have to be based on responsibility and transparency, in compliance with quality standards and the pursuit of objectives for an effective social impact and, therefore, its results must be able to be reported, verified, measured, and evaluated. This is indeed in line with other European standards and definitions.

The system of tax relief and financial support for institutions has been homogenized and simplified alongside supporting measures such as social finance, donations, the establishment of a fund at the Ministry of Labor and Social Policy and a more transparent adjustment of the 5 per mille funds, which is a donation from each tax payer to be done on their fiscal declaration. Those organizations in the same sector but too different from each other (big and small, rich and less rich) must follow a rebuilt accounting system according to company size and fairer taxation.

In conclusion, the reform does not go far from the previous guidelines with a complex structure resulting from a meticulous work of concertation that has highlighted the wealth of contents and issues that characterize the sector and that have brought it to the current evolutionary phase (Carbone, 2017). Among other things, the reform contributes to the social identity of the third sector with the creation of a single national register of the third sector, divided into specific sections, to be established at the Ministry of Labor and Social Policies. The register will allow to have a tool as transparent as possible, accessible, updated and supported by digital tools.

2.2.3 Milan historical background

The last decades and in particular the years afterwards 2008, experienced a concrete change in social and aesthetical landscapes of Milan. Whereas its social traditions can be traced back to the Renaissance period, Milan experienced its last resurgence as a social and creative ecosystem. Milan has been the economic engine of Italy since its unification in 1861, as well as the cradle of the most relevant social and art movements in the following centuries. The Futurism movement, both in literature and visionary arts, started in Milan in 1909 where its café in the Galleria Vittorio Emanuele, example of Neo-Renaissance style, provided the proper set to attack and deconstruct the decadent romantic and Neo-Renaissance culture itself.

The socialist movement was indeed born in Milan from the movement of Italian workers (founded in 1882) while the Italian Socialist Party was founded in Genoa in 1892. The Italian Socialist Party held Milan as a stronghold until the 80's, where the boom of trade and financial investments led to a *Milanese sti*le ("*Milano da bere*", Milan to drink) as the epitome of the bombastic and industrious life. However, Milan was also the place where shades of black started to shiver Italian and European history.

Apart from the never-ending battle between the Milanese rebels and the Holy Roman Empire in the twelfth century, more recent historical happenings took place, such as the founding of the fascist party in 1919 and its influence in the world, which is as unfortunate as undebatable. As well as the founding of the fascism, Milan saw the end of it, when the City liberated itself from the black beam and killed Mussolini on April 25th, which is today the Liberation Day. To conclude this short but intense list, the last great scandal of the political history of Italy, *Manipulite (*Hands cleaned*)*, started to be uncovered in Milan where the

director of a historical retirement home for poor people, the *Pio Albergo Trivulzio*, founded in 1766, was caught with bribes; the man, in order to save himself from harsher punishments, started to testify unveiling a trail of political bribery and illegal financing. In the following months, the whole political environment was shaken and the main political parties, which ruled the country for more than forty years, disappeared at the following elections. In brief, Milan has a prominent role in the contemporary and modern history of Italy as a whole. The social movements and innovations created in the city by the continuous migration flows set a benchmark as a Smart City. A Smart City is defined as a strictly interconnected urban area by digital devices and ICT (McLaren and Agyeman, 2015), but also as a city which has implemented its technologies, be them from ICT or social innovations, for positively affecting the local communities. To this effect, investments in human and social capital and traditional transport and modern ICT communication infrastructures sustain and boost sustainable economic development and high quality of life, involving also a democratic and participative engagement of the local communities (Caragliu et al., 2009). With regards to Milan, to the effect of this research, we will focus on the social infrastructures and participative characteristics, which are features of the social innovation at the core. Historical backgrounds of social enterprises in neighbourhoods in Milan can be considered a resilient vocational characteristic of the city.

In 2015 Milan has become the first Italian Smart City and is positioned among the most innovative cities in the world (ICIRate, 2015). In 2014 the majority of the 470 start-ups created had social vocation, confirming the importance assumed by the phenomenon of social innovation and how the metropolitan area of Milan represents a centre capable of promoting and encouraging innovative projects whose objective is to improve the quality of life of citizens. Therefore, Milan plays a leadership role with regards to social innovation with regards to experimenting innovative solutions. The city, in fact, is trying to promote social innovation as one of the founding aspects of the idea of smart city, striving not to be limited to the ICT, digital and hardware or software technologies, but expanding it to an instrument capable of contributing to the development of new methods to solve social problems arising from the continuous influxes of migration from other parts of Italy and Europe as well. This is done also with the involvement of a large number of stakeholders and through the use of digital technologies to support collaborative processes (Libro Bianco Innovazione Sociale, 2016).

The Municipality acted according to a movement which started in the first decade of 2000, and in line with the principles characterizing the European Strategy 2020 to which a smart city does not only cultivate its technological component but is also capable of combining economic development and social inclusion, innovation and training, research and participation. Milan, together with other local Institutions such as the House of Commerce, approved a package of guidelines on the smart city in order to define a governance framework including models, indicators, policies and guidelines to allow local administrators to pursue, on an ongoing basis, the improvement of the quality of life of citizens and development economic activity.

The process of defining the strategic objectives for Milano Smart City started in April 2013 with the organization of the different public initiative for engaging the different stakeholders. The objective was the creation of an ecosystem elevating the stakeholders as active players of a concrete process of governance. Universities, local institutions, nonprofit institutions participated to different networks and round tables with the following topics: Smart Europe, Smart Mobility, Smart Environment, Smart Citizenship, Smart Inclusion, Smart PA and Expo. With regards to the latter, it is relevant to affirm, but it is not at the stake of this research, the organization of the International Exposition on Food in 2015 in Milan, which attracted millions of people in the same years and others in the following years. The evaluation of such a big event is still to be concluded and clarified, however it is far from being the object of this research.

The abovementioned process is pursued and it objectives achieved through the identification and creation of physical place. Milan has more than 80 co-working places, with the Municipality which has invested in these innovative typologies of sharing and social opportunities, providing vouchers for utilizations of the 49 co-working venues of the Municipality and House of Commerce. Another relevant innovation is the concept of the Living Lab, which envisages the creation of environment for the support of research and development with the involvement of multiple stakeholders such as final users, firms, institutions and universities. The final objective of a living lab is the support of co-creation process for innovative services, products, social networks and infrastructures, being defined as an operative methodology featuring systemic and multidisciplinary approach, involving open innovation and sustainability (Testoni, 2016).

In order to conclude, Milan can count on more than 60 experiences of diffuse social

innovation such as social streets, which are pictured in the map in Figure 5. The most relevant are the ones of San Gottardo, in the south (the biggest Social Street in Europe), Lambrate in the East, and Maiocchi in the North East. Those streets are living in virtual social networks (with a range between 1.500 and 9.000 Facebook members) as well as real life events. However, it is relevant to affirm that those innovations are earlier to be found and positively contributing to the social life and development of areas closer to the city centres, while they are keen to be less "effective" in peripheral areas. As of December 2017, the Municipality of Milan created an official register for informal groups of active citizenship, which can be included if they possess features of improving the social relations and recreational promotions and quality of life. Social Streets are thoroughly identified by the official documents of the Municipality as amongst these "precious resources inside institutional and non-institutional networks of welfare"[11].

Figure 5: Maps of Social Streets and Active Local Groups identified and registered in Milan. Source: author's elaboration

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[11] Determinazione dirigenziale Comune di Milano direzione Politiche Sociali, deliberazione di Giunta 812/2016.

2.3   Research design, methodology and variables

The last two decades saw the increasing focalization on the evolution of collective learning and knowledge spillovers processes, which interested all the sectors of the economy and social activities in particular. Amongst the other, diversity and variety play paramount roles in the development of cities and their local areas; the debate between diversification and specialization as the main drivers of economic growth is still very hot in the economic literature. However, several authors who participated to the debate, were not able to provide a single answer; often this divergence in interpretations depends from the territorial context of analysis (Van Oort et al., 2015). We have introduced the term variety to describe diversification in a specific local area. Variety is identified not as variety of products but variety of sectors in regional and local economies that is their industrial composition.

Proximity (Frenken et al., 2007) is another relevant concept for the development of knowledge transfers and learning amongst subjects, often used in the variety approach. It is declined in the five physical dimensions of cognitive, organizational, social, institutional (Amin et al., 2003) and geographical (Boschma, 2005).

As mentioned before, variety can be decomposed in related variety and unrelated variety: related variety should capture an explicit degree of cognitive proximity, thus identifying the existence of sectors that are neither too close nor too distant from each other in terms of technology and knowledge; unrelated variety, instead, identifies the cognitive distance of industries (Boschma et al., 2012). Relevant results highlighted the achievement of innovation in presence of a certain degree of variety allowing cross cutting relationships and enhancement to their related technologies. The concept of relatedness is also relevant for the smart specialization policy used in spatial perspective endorsing and envisaging specialized diversification with relations to those technologies driving regional development and growth (Boschma, 2014; McCann and Ortega-Argilés, 2015).

The research question concerns with the concrete relations of nonprofit institutions and their agglomerations, as incubators are, in the City. What are the relations of the creation of nonprofits with the employment growth? Is their agglomeration in incubators, identified in different parts of the city, affecting the creation of spillovers effects and innovation? Are these spillovers effects, identified through the analysis of different kind of externalities, impacting on the employment growth or the creation of jobs?

In conclusion, we add to the above questions the investigation of possible effects of variety and Jacobs externalities on the creation of new nonprofit institutions. For both path of questions, those concerning the effects on employment growth and those on nonprofits creation, we will identify if combination of nonprofits and for profits externalities are correlated with the two dependent variables.

2.3.1 Hypothesis

Two main paths are present in this contribution, related to the research questions: the identical set of hypothesis is tested on both the employment growth and the creation of nonprofits. Three hypotheses are tested and empirically analysed in this contribution: the relations between the different typologies of variety on the creation of new jobs and employment growth, the sensitivity of those effects to the change of geographical unit (from sections to ACE), and the effects of the different typologies of variety on the nonprofits creation. The first hypothesis leads to the second one, focusing more on the typology of agglomeration effects we are looking for, that are Jacob's externalities for job creation and employment growth in the city.

Hypothesis number one, therefore, affirm that Jacob's externalities in social enterprises are related to creation of new jobs and employment growth in urban areas, while hypothesis number two will identify what is the change of importance of the different varieties in terms of relations with employment at different geographical units.

Hypothesis number three is set to understand if variety is linked to the creation of nonprofit in sections as well as in ACE.

2.3.2 Data and variables

The present research adopts data built on the 8th and 9th Italian Census of Industry, Services and nonprofit and the population Census by Italian Institute of Statistics – ISTAT for the years 2001 and 2011, selecting only those censorial sections of Milan, thus with municipal code 15146. The main data consist in the number of employees subdivided by ATECO code (3-digit level), gathered from the ISTAT Census of Industries and Services for the years 2001 and 2011. It is a rather long period characterized by many changes at all levels in the city of Milan, which is considered the economic engine of Italy and of the regional area encompassing

Piedmont, Liguria, Veneto and parts of Tyrol and Southern France.

This work also uses OMI data for the prices per square meter of residences in Milan in the first semester of 2002, which was the first available since the start of the survey, and the second semester of 2011. In order to reach a balanced database between sections and ACE it was necessary to proceed with the homogenization of the spatial units, thus the final databases have the same numbers of employees, firms, etc. even if the observations represent different spatial units. Figure 6 illustrates the separation of the city of Milan in sections of census (left) and ACE (right).

Figure 6: Milan ISTAT sections of census (left) and ACE (right). Source: author's elaboration on ISTAT.
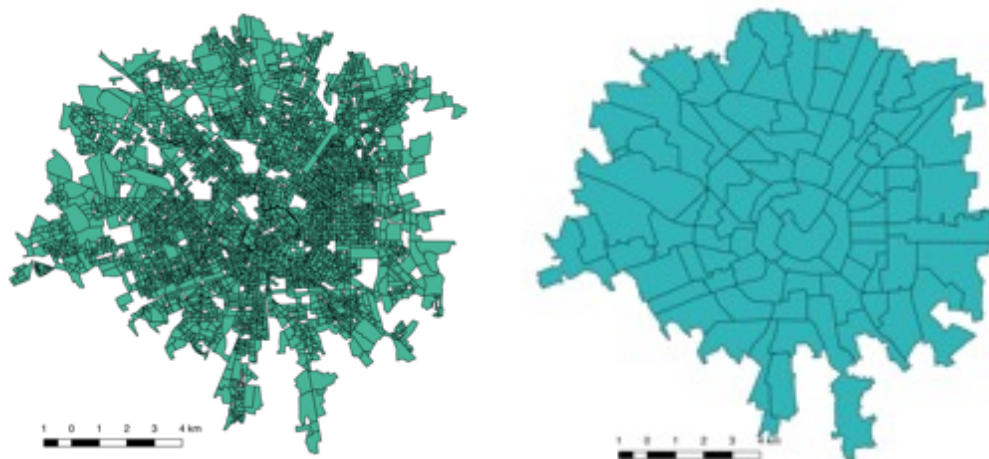
Employment growth and variety

In order to identify if the correlation with variety on the growth of employment (first question to which we want to answer) differs if we use different geographical agglomerations, data are presented and analysed both as sections of census (5,346) and areas of census (ACE: 85). The first empirical analysis has as dependent variables the *employed growth* and the *employment growth*. The first is calculated as the difference of employed resident people located in sections and ACE between 2001 and 2001; the second is calculated as the difference of resident employment rate in sections and ACE between 2001 and 2001. The following maps shows the employed growth trends in the city of Milan, illustrating a broadly dispersed pattern of growth, with the most relevant increases, up to 33%, concentrated in the North West and Eastern part of the city. The selection of the dependent variables on employment and employed growth is provided mainly three reasons:

- the relevance of these variables connected to the commitment on the support to

stimulating the creation of quality jobs, equitable growth, and the advancement of participatory democracy and sustainable development (Vickers et Al., 2017);

- the importance of employment and employed growth on the vocational sectors of the nonprofits, in particular at the micro-geographical level;

- the absence of data on productivity at section and ACE level, or sufficiently reliable data on nonprofits.

Figure 7: Growth of residents employed (%) in Milan sections of census (left) and ACE (right). Source: author's elaboration on ISTAT
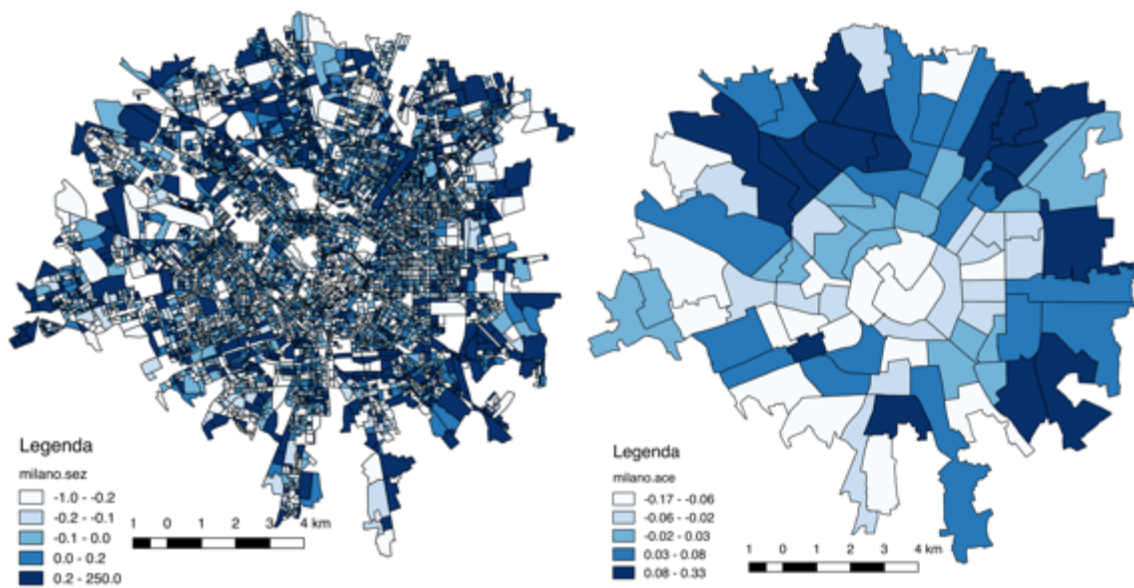
Figure 8: variation of employment rate (%) in Milan sections of census (left) and ACE (right). Source: author's elaboration on ISTAT
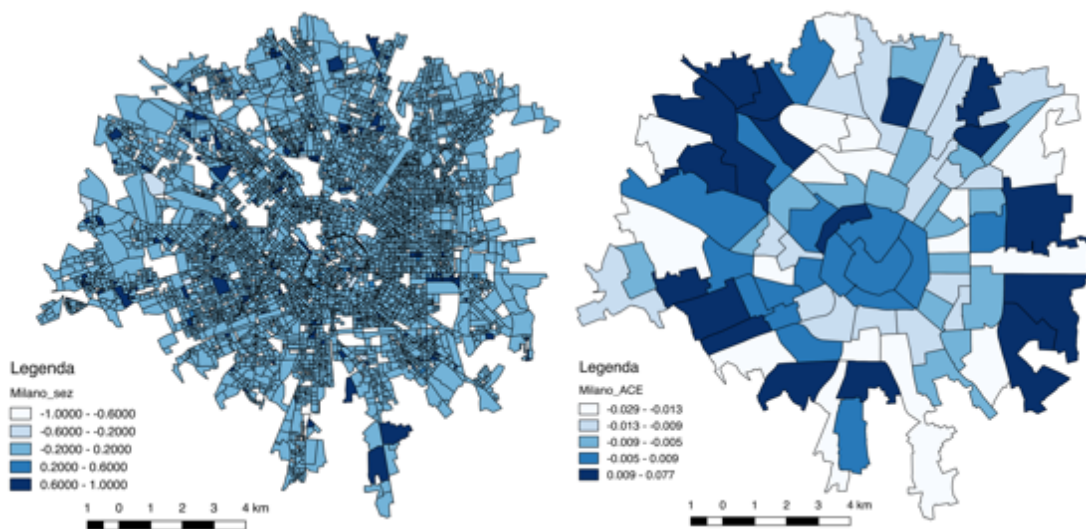
Creation of nonprofit institutions and variety

In order to identify if the correlation with variety on the creation of nonprofits (second question to which we want to answer) differs if we use different geographical agglomerations, data are presented and analysed both as sections of census (5,346) and areas of census (ACE: 85). This second empirical analysis has as dependent variable the *nonprofit creation*, which is calculated as the difference of employed resident people located in sections or ACE between 2001 and 2001. The maps in Figure 9 illustrate the trends of the creation of nonprofits in the city of Milan between 2001 and 2011. The most relevant increases occurred in the North East and Western part of the city. The city centre, in general, showed stability in nonprofits if not a declining trend.

Figure 9: Nonprofits Growth (%) in Milan sections of census (left) and ACE (right). Source: author's elaboration on ISTAT
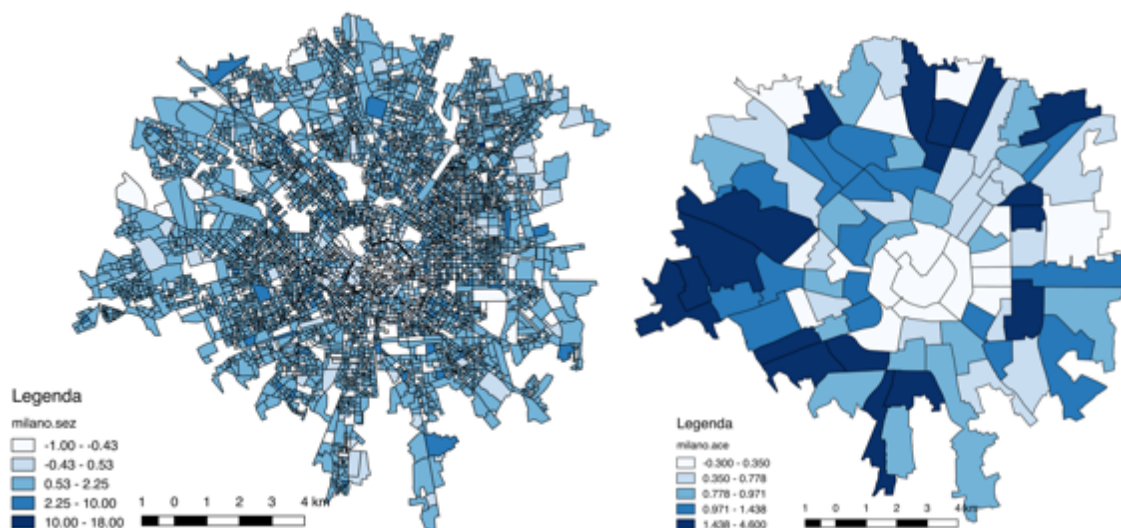
The selection of the dependent variable for the creation of new nonprofits in sections and ACE is connected to the same reasons defining the selection of the previous dependent variables concerning employment. Studies conducted by OECD and independent research institutions (Rae et al, 2016;Vickers et al., 2017), found that deprivation in cities is due to varying causes, reinforcing the position of those scholars reconsidering the urban economic development plans according to the role of social economy in creating inclusive growth (Vickers at al., 2017).

Variety

With regards to variety, two main methodologies were considered:

- From Hidalgo et al. (2007) the creation of a dedicated space to compute the relatedness density of the area; this method is the result of an application to development and diversification of technology (Neffke et al.,2011; Boschma et al., 2013; Boschma et al., 2014), using co-occurrence analysis but NACE classification to calculate distance between categories.
- From Frenken et al. (2007) the use of entropy indexes to decompose variety into related and unrelated variety.

Following previous empirical studies, we opted for the utilization of entropy calculated on the employed, as the objective of this analysis is the relation with variety on the employment growth, thus allowing us to test for the three different types of variety. The calculation of *Variety* and its decomposition of Related Variety and Unrelated Variety are presented below (Frenken at al., 2007; Hartog et al., 2012). Variety is calculated both for sections (Variety_S) and ACE (Variety_A).

$$Variety\_S = \sum_{i=1}^{N} P_{iS} \log \left(\frac{1}{P_{iS}} \right) \quad (1)$$

$$Variety\_A = \sum_{i=1}^{N} P_{iA} \log \left(\frac{1}{P_{iA}} \right) \quad (2)$$

Where i is the sector ATECO 3 digit, S is the section of census; A is the area of census (ACE). Variety measure the overall entropy at 3 digits level, therefore an increase in the index of variety explains a higher sector diversification. Building on the characteristics of entropy, variety is then decomposed in UnRelated and Related Variety.

$$UnRelated \ Variety\_S = \sum_{g=1}^{G} P_{gS} \log \left(\frac{1}{P_{gS}} \right) \quad (3)$$

$$UnRelated \ Variety\_A = \sum_{g=1}^{G} P_{gA} \log \left(\frac{1}{P_{gA}} \right) \quad (4)$$

Where g is the sector ATECO 2 digits, S is the section of census; A is the area of census (ACE). UnRelated Variety measures the total entropy at 2 digits level and P_g is the shares of 2-digit sectors. UnRelated Variety explains the level of entropy thus the relations between more wide sectors of activities in each area considered. Following the literature, an assumption must be made: it is assumed that sectors that do not share the same 2 digits code are not related to each other. The degree of unrelatedness between sectors in the area highlights a lower occurrence of knowledge spillovers.

$$Related\ Variety\_S = \sum_{g=1}^{G} P_{gS} H_{gS} \quad (5)$$

$$Related\ Variety\_A = \sum_{g=1}^{G} P_{gA} H_{gA} \quad (6)$$

Where H_g, is equal to:

$$H_{gS} = \sum_{i \in g} \frac{P_{iS}}{P_{gS}} log \left(\frac{1}{\frac{P_{iS}}{P_{gS}}} \right) \quad (7)$$

$$H_{gA} = \sum_{i \in g} \frac{P_{iA}}{P_{gA}} log \left(\frac{1}{\frac{P_{iA}}{P_{gA}}} \right) \quad (8)$$

Where g is the sector ATECO 2 digits, S is the section of census; A is the area of census (ACE). Related Variety measures the entropy of 3digits sectors i within each 2 digits sector g, where H_g defines the level of variety within the 2-digit sectors for each section of census and ACE. As for the unrelated variety, here the assumption is that those sectors sharing the same 2-digit codes are related to each other, thus a higher value of related Variety impinges on more presence of knowledge spillovers between sectors that are more closely related.

A number of control variables were used for controlling for residential population, human capital, and competition, economic situation of the section and ACE and the presence of incubators.

Residents_2011 is used to control for population density levels and urbanization in the different parts of the city. Therefore, it is the ratio between the number of residents and the square meters area for both sections and ACE.

Human capital measures the level of education in one section or ACE; in line with literatures on human capital in regional studies, it is calculated as the ratio between residents with higher school education and the number of residents.

Competition_2011 variable controls for competition in sections of census and ACE. It is calculated as the proportion of firms with less than ten workers in sections and ACE, divided by the same measure at city level. It takes into account all sectors involved irrespective of being manufacturing or services, both for profits and nonprofits. It should be evaluated and interpreted with extreme care as it is also relevant for identifying the typical size of the industries in the section or ACE compared to the average of the city (Bishop and Gripaios, 2010; Innocenti and Lazzeretti, 2017).

OMIndex is the indicator built on the data provided by the OMI regarding the market of

buildings (residential, commercial, service, etc.). This index is a weighted average obtained by separating the residential houses in different conditions (very good, mediocre, and poor) in all sections and ACE. All sections and ACE presented figures for all the buildings separated per conditions, thus these figures were combined with the average provided by the OMI for each condition.

$$OMI_i = \frac{\sum_{d=1}^{m}\sum_{k=1}^{3}(h_{dik}a_{ik})}{\sum_{i=1}^{n}a_{i\cdot}} \ (9)$$

Where *i* is the section or ACE, *d* is the related homogeneous zone of price per sq.m, *k* the different conditions of the building, *h* is the average value of residence type in the zone and *a* the number of residences per type in the section and ACE. Unfortunately, data for income and average wage of the area were missing, thus in part OMI index provides an indicator on the economic status of the section and ACE.

The last control variable, *incubator*, is the dummy presence of agglomerations of nonprofits, that we identified as incubators. This variable is activated in presence of more than 20 nonprofit firms in one section and 200 nonprofits firm in one ACE. The decision on the numbers of firms for bot sections and ACE derives from interviews with managers and personnel working in incubators and nonprofits in the years of analysis. Maps in figure 10 illustrate the presence of incubators in sections (left) and ACE (right).

Figure 10: nonprofits "incubators" in Milan for sections (left) and ACE (right). Source: author's elaboration
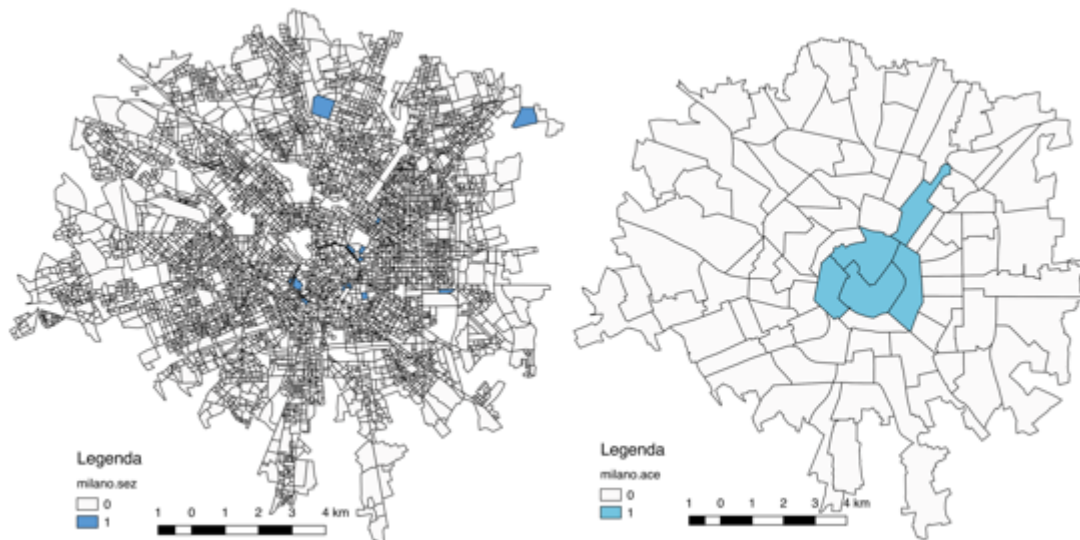
Table 2. Descriptive statistics of sections of census data from 2001 to 2011 (Observations 5394). Source: author's elaboration on ISTAT data

Variables	vars	n	mean	sd	median	min	max	range
ΔEmployment	y	5346	0.01	0.18	-0.01	-1.00	1.00	2.00
ΔEmployed	y	5346	1.02	32.97	-2.00	-227.00	559.00	786.00
Δnonprofit	y	5346	0.42	2.50	0.00	-20.00	111.00	131.00
Variety_np2011	1	5346	0.15	0.16	0.12	0.01	2.44	2.43
Variety_im2011	2	5346	0.49	0.80	0.17	0.00	5.31	5.31
RelVariety_np2011	3	5346	0.11	0.06	0.10	0.01	0.58	0.58
RelVariety_im2011	4	5346	0.06	0.16	0.01	0.00	1.34	1.34
UnRelVariety_np2011	5	5346	0.04	0.15	0.00	0.00	2.25	2.25
UnRelVariety_im2011	6	5346	0.46	0.73	0.17	0.00	4.72	4.72
Residents_2011	7	5346	0.02	0.01	0.02	0.00	0.09	0.09
Residents_2001	8	5346	0.02	0.01	0.02	0.00	0.10	0.10
HumanCapital_2011	9	5346	0.31	0.09	0.31	0.00	1.00	1.00
Competition2011	10	5346	0.70	0.50	0.98	0.00	1.15	1.15
OMIndex	11	5346	0.37	0.16	0.32	0.15	1.00	0.85
Incubator	12	5346	0.00	0.05	0.00	0.00	1.00	1.00

Table 3 Descriptive statistics of ACE data from 2001 to 2011 (Observations 85). Source: author's elaboration on ISTAT data

Variables	vars	n	Mean	sd	median	min	max	range
ΔEmployment	y	85	0.00	0.02	-0.01	-0.03	0.08	0.11
ΔEmployed	y	85	64.01	547.16	59.00	-1237.00	1920.00	3157.00
Δnonprofit	y	85	26.18	42.66	26.00	-303.00	137.00	440.00
Variety_np2011	1	85	2.80	0.44	2.83	1.42	3.75	2.33
Variety_im2011	2	85	5.32	0.59	5.50	2.73	6.00	3.28
RelVariety_np2011	3	85	0.27	0.17	0.22	0.00	0.73	0.73
RelVariety_im2011	4	85	0.81	0.16	0.83	0.33	1.21	0.88
UnRelVariety_np2011	5	85	2.53	0.32	2.58	1.42	3.23	1.82
UnRelVariety_im2011	6	85	4.51	0.47	4.64	2.40	5.08	2.69
Residents_2011	7	85	0.01	0.01	0.01	0.00	0.02	0.02
Residents_2001	8	85	0.01	0.01	0.01	0.00	0.02	0.02
HumanCapital_2011	9	85	0.31	0.02	0.31	0.23	0.35	0.12
Competition2011	10	85	1.04	0.05	1.05	0.88	1.14	0.25
OMIndex	11	85	0.42	0.13	0.38	0.30	1.00	0.70
Incubator	12	85	0.06	0.24	0.00	0.00	1.00	1.00

The evolution in the intercensus period of the variables in tables 2 and 3, shows an overall increase in nonprofits creation, with peaks of average increase of 137 units in ACE and 111 in sections, resulting in almost 43% increase up to 7.420 in 2011 from 5195 in 2001. In the same period for profit firms increased to 179.590 units, thus by a 9% from 164.617 units. The overall employment increased by 1% from 510.810 workers to 516.251, while the average density in ACE and sections stood still. With regards to variety, the progression is quite slow, with all indexes increasing from 2001 to 2011 in sections, with the only exception of the value of related variety of nonprofit for ACE. That result implies a sensitivity to spatial aggregation of the spillovers between sections and ACE, with a decreasing effect in more dispersed spaces.

Figure 11 Average values of nonprofit variety 2001 – 2011, sections (left) and ACE (right). Source: author's elaboration.

Figure 12 Average values of nonprofit unrelated variety 2001 - 2011, sections (left) and ACE (right). Source: author's elaboration.
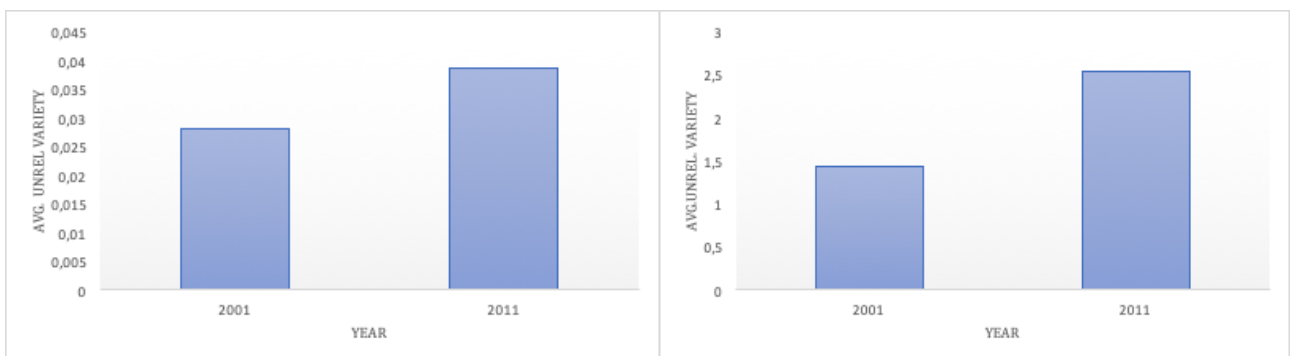
Figure 13: Average values of related variety for nonprofits 2001 - 2011, sections (left) and ACE (right).

Source: author's elaboration.
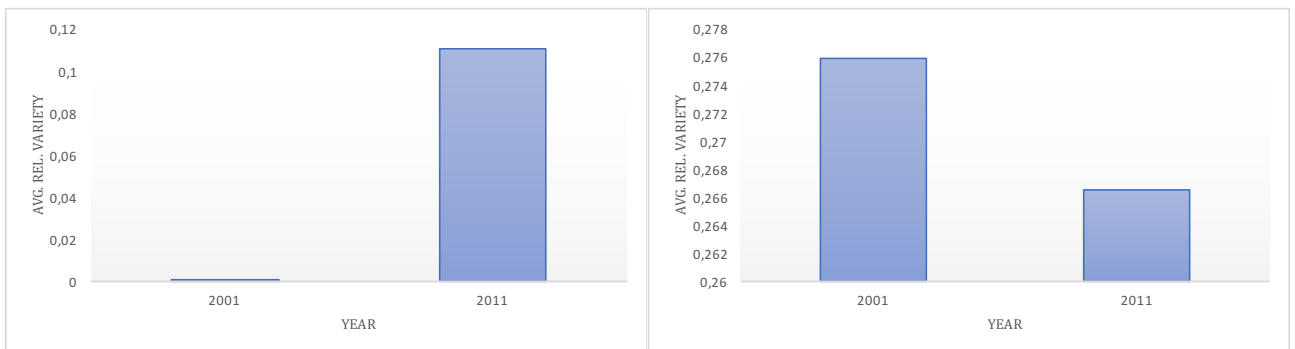
With regards to sections of census, the most relevant increase occurred in nonprofit variety with the contribution of related variety (Figure 13, left), which constituted the main actor in rising the index. The opposite happened with regards to ACE (Figure 13, right), where the most relevant contribution to the value of variety appears to come from unrelated variety (Figure 12), thus supporting the hypothesis of Milan as being driven towards a more specialized model of city in the first decade of 2000's.

Figure 14 nonprofits trends 2001 - 2011. Source: author's elaboration on ISTAT.
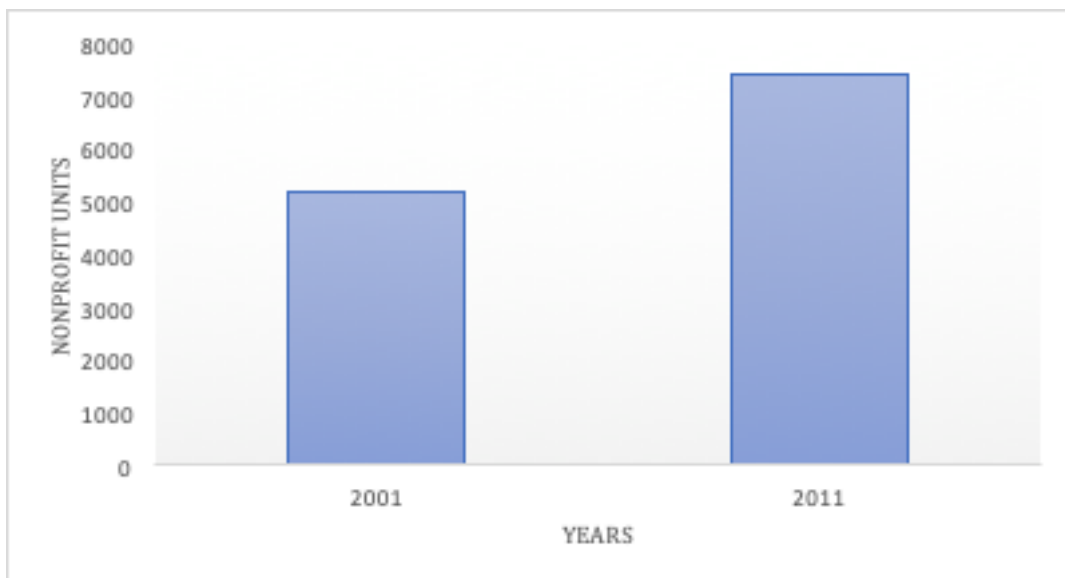
Figure 15 for profits trends 2001 - 2011. Source: author's elaboration on ISTAT.
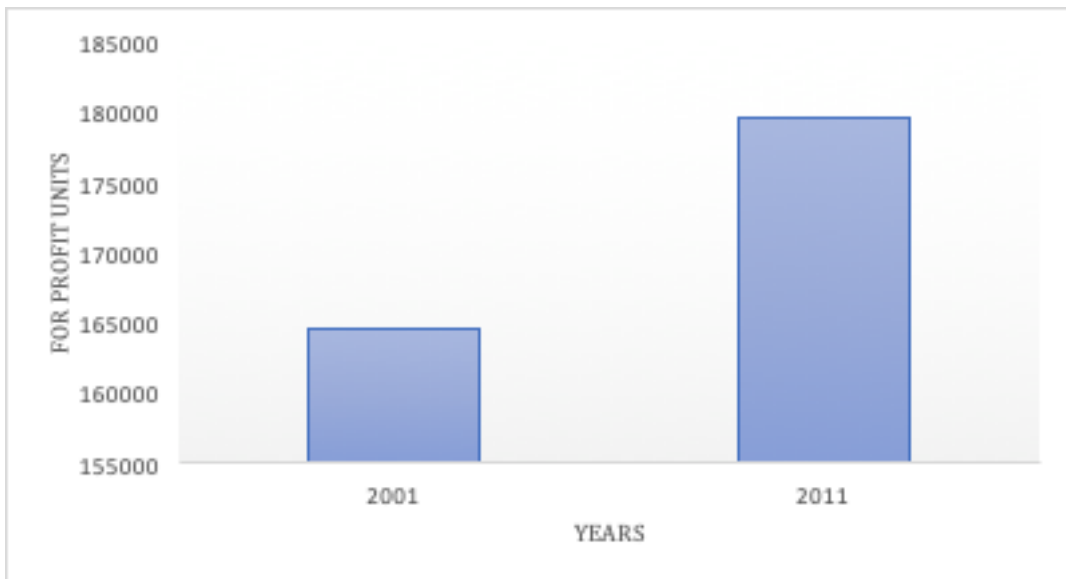
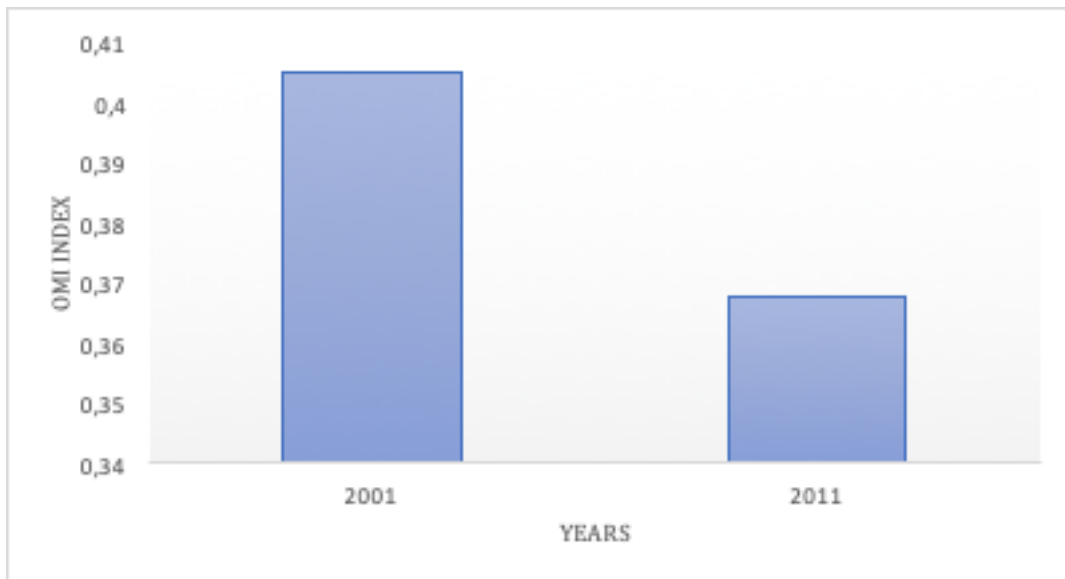*Figure 16 Employment trends 2001 - 2011. Source: author's elaboration on ISTAT.*
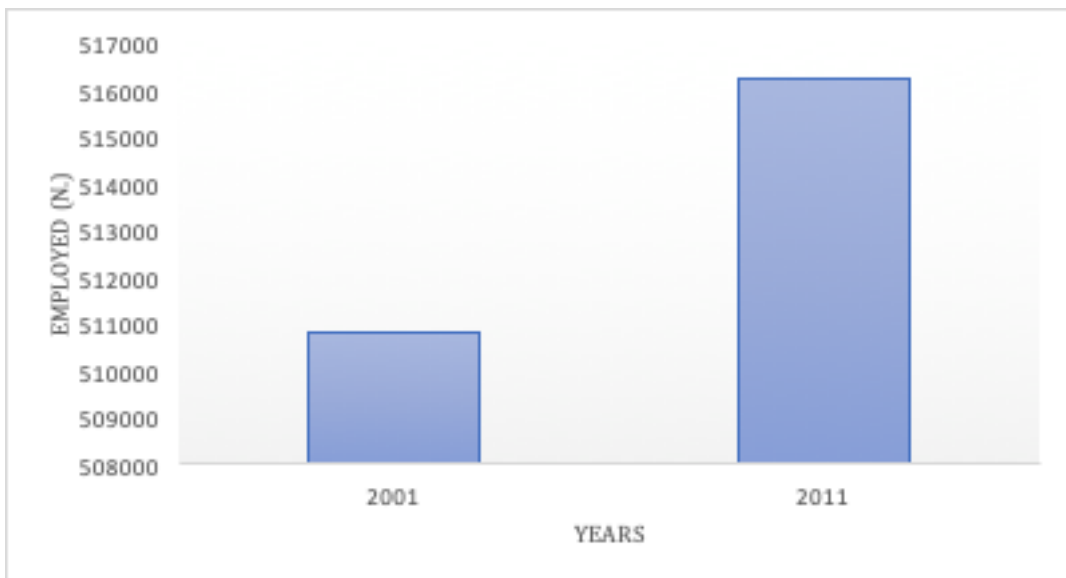
The OMIndex variable illustrated in Figure 17, representing the prices of residential areas indexed to the relative average, experiences a decrease of almost 30% in relative values, however the maximum value, which is instrumental for calculating the index, rose from 12.950 Euro per sq.m in 2002 to 19.950 Euro per sq.m in 2011, compensating the increase by more than 54%.

Figure 18 Resident population density trends 2001 - 2011. Source: author's elaboration on ISTAT.
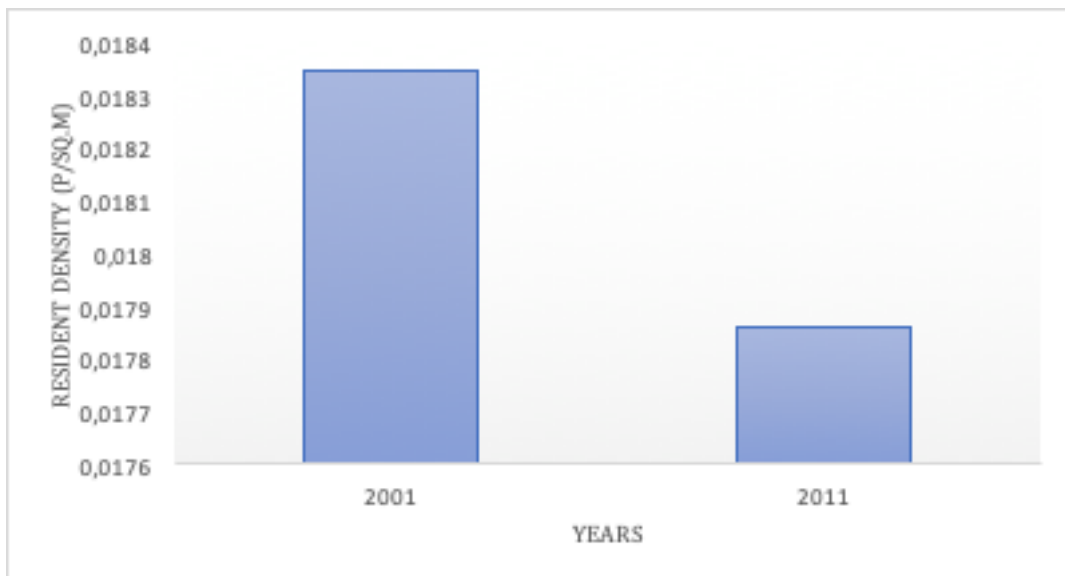
The population density per sq.m, illustrated in Figure 18, experienced a decrease from 0.018 to 0.017, equal to 18,347 residents per sq.km in 2001 and 17,861 residents per sq.km in

2011. The population in the intercensus period experienced an overall decrease from 1,175,428 residents to 1,163,177 in 2011, while in the following years the population started to increase again to reach 1,331,000 inhabitants in 2014 (ISTAT, 2017). These figures put Milan at the top of the most densely populated area in Europe, almost at the same level of the Benelux area, and far away if compared to the average density in Italy with 201 inhabitants per sq.km and Lombardy with 419.

Figure 19 Human Capital trends 2001 - 2011. Source: author's elaboration on ISTAT.
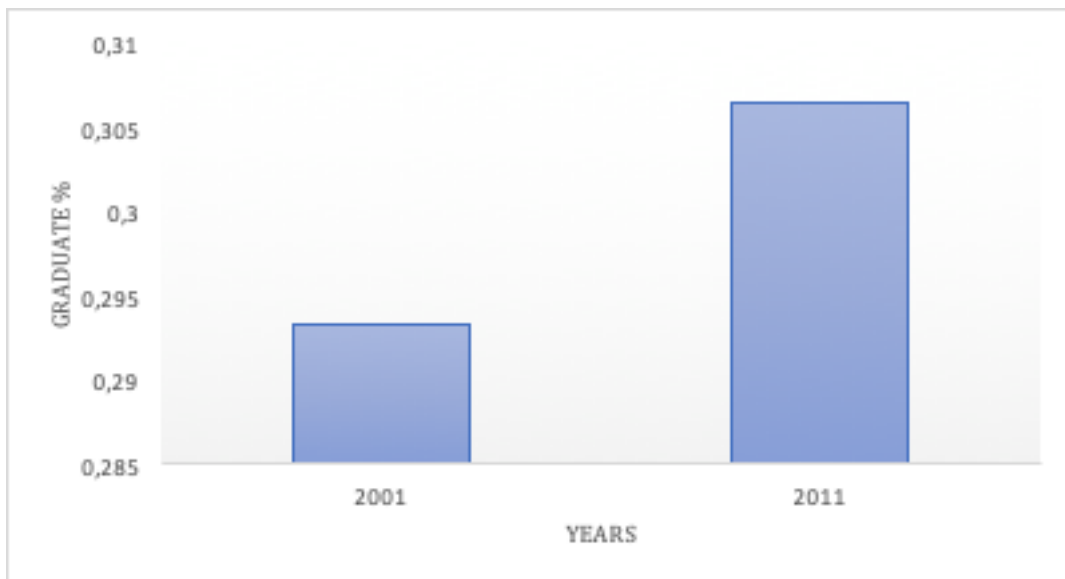
The Human Capital index is illustrated in Figure 19 as the ratio of people with a university degree over the population. The average value increased in the intercensus period rising from 29,3% of residents to 30,7%.

The following maps in Figures 20 – 23 are relevant for identifying the locations of those sections of census and ACEs the most diversified (Figure 20) and subject to the effects of variety, also decomposed in related (Figure 22) and unrelated (Figure 23).

Nonprofits variety appears to be more sparsely distributed than for profits variety, which is concentrated in the CBD and the areas characterized by an intense presence of financial and commercial firms (Duomo, Fashion Triangle and Buenos Aires – Loreto – Viale Monza), connecting the city centre with other urban areas with strong connections with Milan, such as Monza and the northern Hinterland of the city, historically the most rich and industrialized.

According to the maps in Figure 20, nonprofits appear to show a lesser degree of variety,

particularly concentrated in those areas connected with the for profits location, however higher degrees of variety are present in the more peripheral neighbourhoods of the city on the West, as well as those areas on the North that in the following years (2012 – 2015) experienced a boost in investments, renovation thus hyper gentrification (Isola, City Life, Ghisolfa and Maggiolina).

Figure 20: values of variety in Milan sections for nonprofits (left) and for profits (right). Source: author's elaboration.
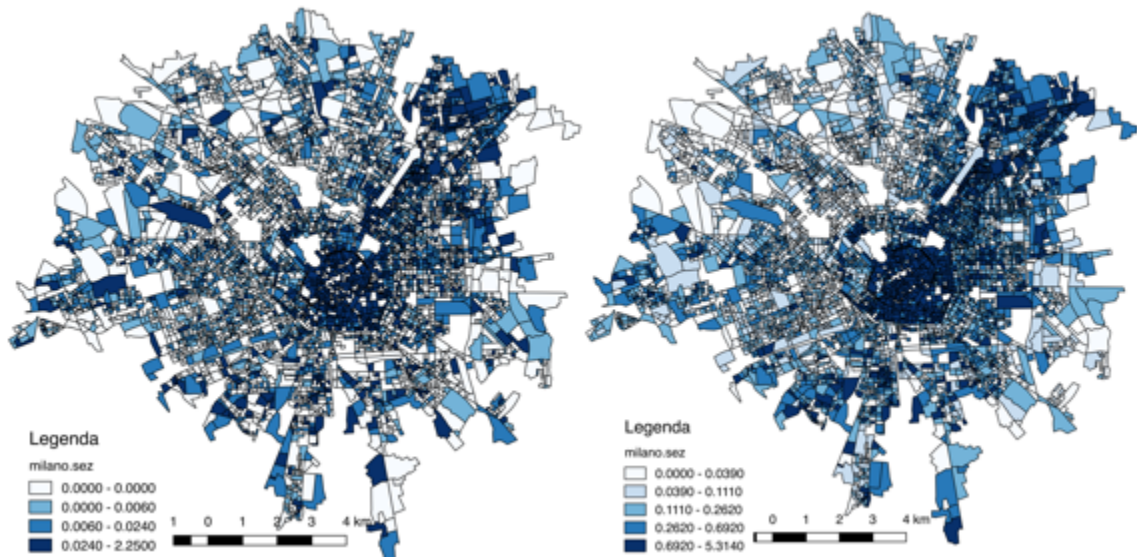

Figure 21: values of variety in Milan ACE for nonprofits (left) and for profits (right). Source: author's elaboration.
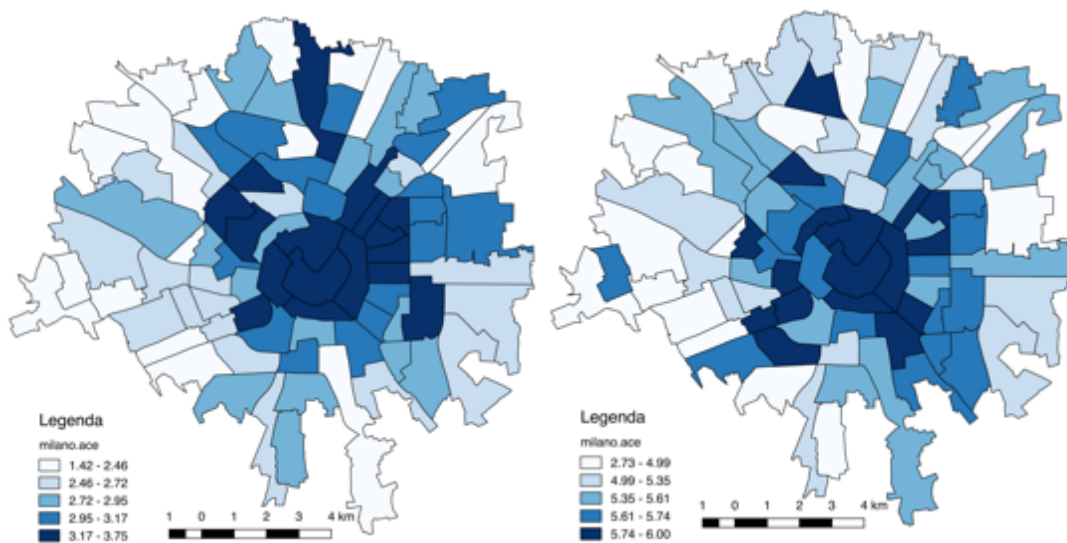
Figure 22: values of related variety of nonprofits in Milan for sections (left) and ACE (right). Source: author's elaboration.
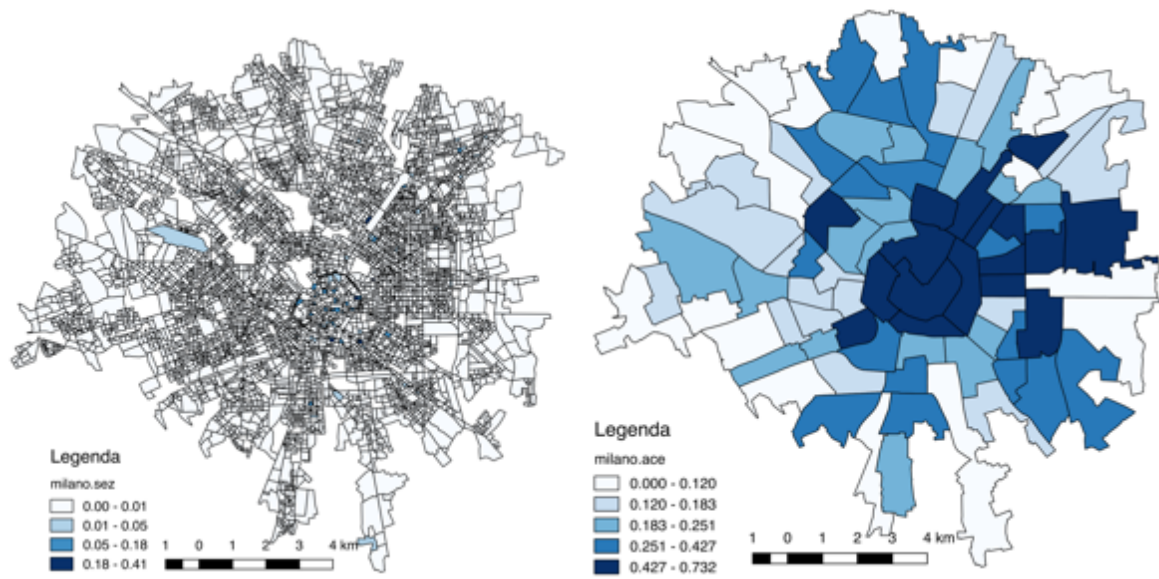

Figure 23: values of unrelated variety of nonprofits in Milan for sections (left) and ACE (right). Source: author's elaboration
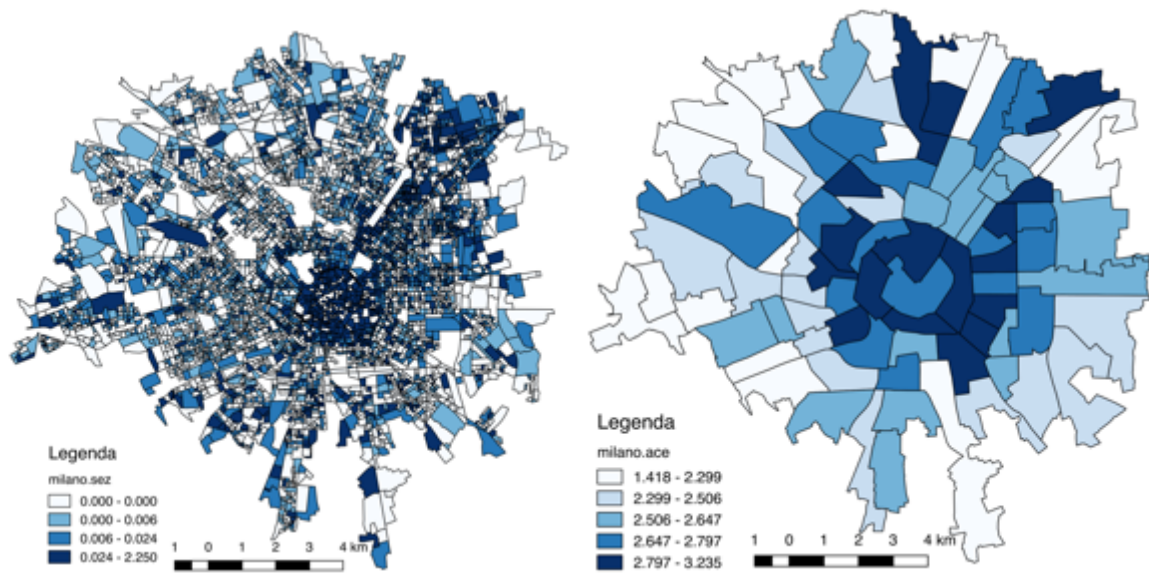
Table 4 Correlation matrix for sections of census. Source: author's elaboration on ISTAT and OMI data

| Variables	DeltaEmployed	DeltaEmployment	DeltaNP	variety2011np	variety2011im	Related_Variety2011np	Related_Variety2011im	URelvariety2011np	URelvariety2011im	Resident2011	Resident2001	HumanCapital2011	Comp2011	indiceomi2011	Agglomeration
DeltaEmployed	1.00	0.01	-0.03	-0.03	-0.04	0.01	-0.04	-0.03	-0.04	0.01	-0.19	-0.01	0.04	-0.06	-0.03
DeltaEmployment	0.01	1.00	0.03	-0.02	-0.05	0.01	-0.04	-0.02	-0.05	0.00	-0.01	-0.02	-0.03	-0.06	0.01
DeltaNP	-0.03	0.03	1.00	-0.11	-0.10	-0.04	-0.13	-0.11	-0.10	-0.02	-0.03	0.00	0.00	-0.10	0.34
variety2011np	-0.03	-0.02	-0.11	1.00	0.48	0.46	0.48	0.94	0.47	-0.10	-0.09	-0.06	0.08	0.26	-0.02
variety2011im	-0.04	-0.05	-0.10	0.48	1.00	0.06	0.88	0.52	1.00	-0.11	-0.09	-0.05	0.21	0.51	0.05
Related_Variety2011np	0.01	0.01	-0.04	0.46	0.06	1.00	0.04	0.13	0.06	-0.04	-0.04	-0.04	-0.04	-0.24	-0.04
Related_Variety2011im	-0.04	-0.04	-0.13	0.48	0.88	0.04	1.00	0.52	0.85	-0.11	-0.09	-0.04	0.15	0.48	0.04
UnRelvariety2011np	-0.03	-0.02	-0.11	0.94	0.52	0.13	0.52	1.00	0.51	-0.10	-0.09	-0.05	0.11	0.39	0.00
UnRelvariety2011im	-0.04	-0.05	-0.10	0.47	1.00	0.06	0.85	0.51	1.00	-0.11	-0.09	-0.05	0.21	0.51	0.05
Resident2011	0.01	0.00	-0.02	-0.10	-0.11	-0.04	-0.11	-0.10	-0.11	1.00	0.95	-0.03	0.06	-0.13	-0.05
Resident2001	-0.19	-0.01	-0.03	-0.09	-0.09	-0.04	-0.09	-0.09	-0.09	0.95	1.00	-0.03	0.05	-0.11	-0.05
HumanCapital2011	-0.01	-0.02	0.00	-0.06	-0.05	-0.04	-0.04	-0.05	-0.05	-0.03	-0.03	1.00	-0.01	-0.05	-0.03
Comp2011	0.04	-0.03	0.00	0.08	0.21	-0.04	0.15	0.11	0.21	0.06	0.05	-0.01	1.00	0.14	0.02
indiceomi2011	-0.06	-0.06	-0.10	0.26	0.51	-0.24	0.48	0.39	0.51	-0.13	-0.11	-0.05	0.14	1.00	0.08
Agglomeration	-0.03	0.01	0.34	-0.02	0.05	-0.04	0.04	0.00	0.05	-0.05	-0.05	-0.03	0.02	0.08	1.00

Table 5 Correlation matrix for ACE. Source: author's elaboration on ISTAT and OMI data

Variables	DeltaEmployed	DeltaEmployment	DeltaNP	varietyACE2011np	varietyACE2011im	URelvarietyACE2011np	URelvarietyACE2011im	Related_Variety2011np	Related_Variety2011im	Resident2011	Resident2001	HumanCapital2011	Comp2011	indiceomi2011	Agglomerations
DeltaEmployed	1.00	0.25	0.25	-0.09	0.05	-0.05	0.01	-0.13	0.13	-0.15	-0.26	0.16	0.03	0.02	-0.24
DeltaEmployment	0.25	1.00	-0.06	-0.16	-0.24	-0.15	-0.28	-0.12	-0.03	-0.22	-0.24	-0.22	0.10	-0.01	-0.06
DeltaNP	0.25	-0.06	1.00	0.09	-0.06	0.14	-0.03	-0.03	-0.12	0.13	0.11	0.18	0.12	-0.02	-0.34
varietyACE2011np	-0.09	-0.16	0.09	1.00	0.36	0.94	0.37	0.78	0.24	0.29	0.31	-0.13	-0.50	0.15	0.34
varietyACE2011im	0.05	-0.24	-0.06	0.36	1.00	0.37	0.98	0.22	0.78	0.30	0.30	0.03	-0.38	-0.02	0.17
UnRelvarietyACE2011np	-0.05	-0.15	0.14	0.94	0.37	1.00	0.37	0.52	0.27	0.28	0.29	-0.08	-0.40	0.12	0.21
UnRelvarietyACE2011im	0.01	-0.28	-0.03	0.37	0.98	0.37	1.00	0.24	0.63	0.27	0.28	0.07	-0.43	-0.02	0.16
Related_Variety2011np	-0.13	-0.12	-0.03	0.78	0.22	0.52	0.24	1.00	0.11	0.21	0.23	-0.17	-0.51	0.15	0.47
Related_Variety2011im	0.13	-0.03	-0.12	0.24	0.78	0.27	0.63	0.11	1.00	0.28	0.28	-0.10	-0.14	0.00	0.14
Resident2011	-0.15	-0.22	0.13	0.29	0.30	0.28	0.27	0.21	0.28	1.00	0.99	-0.05	0.07	0.12	-0.11
Resident2001	-0.26	-0.24	0.11	0.31	0.30	0.29	0.28	0.23	0.28	0.99	1.00	-0.06	0.07	0.10	-0.09
HumanCapital2011	0.16	-0.22	0.18	-0.13	0.03	-0.08	0.07	-0.17	-0.10	-0.05	-0.06	1.00	0.03	-0.06	-0.26
Comp2011	0.03	0.10	0.12	-0.50	-0.38	-0.40	-0.43	-0.51	-0.14	0.07	0.07	0.03	1.00	-0.32	-0.63
indiceomi2011	0.02	-0.01	-0.02	0.15	-0.02	0.12	-0.02	0.15	0.00	0.12	0.10	-0.06	-0.32	1.00	0.39
Agglomerations	-0.24	-0.06	-0.34	0.34	0.17	0.21	0.16	0.47	0.14	-0.11	-0.09	-0.26	-0.63	0.39	1.00

Tables 4 and 5 illustrates the values of correlation between the variables that will be used in the regressions both in sections of census and ACE. As it is apparent, the correlation values between variety in nonprofits, related variety in nonprofits and unrelated variety in nonprofits are highly correlated, identifying an issue of multicollinearity. However, in order to avoid these issues, the variables variety (both for profits and nonprofits), will never be included in regressions together with related and unelated variety.

The following graph in Figure 24 is to be considered useful tools in order to reach a better understanding between the values taken into account, those are employment at local level in section and related and unrelated variety.

Figure 24: employment rate and nonprofit units in 2001, sections of census. Source: author's elaboration on ISTAT.
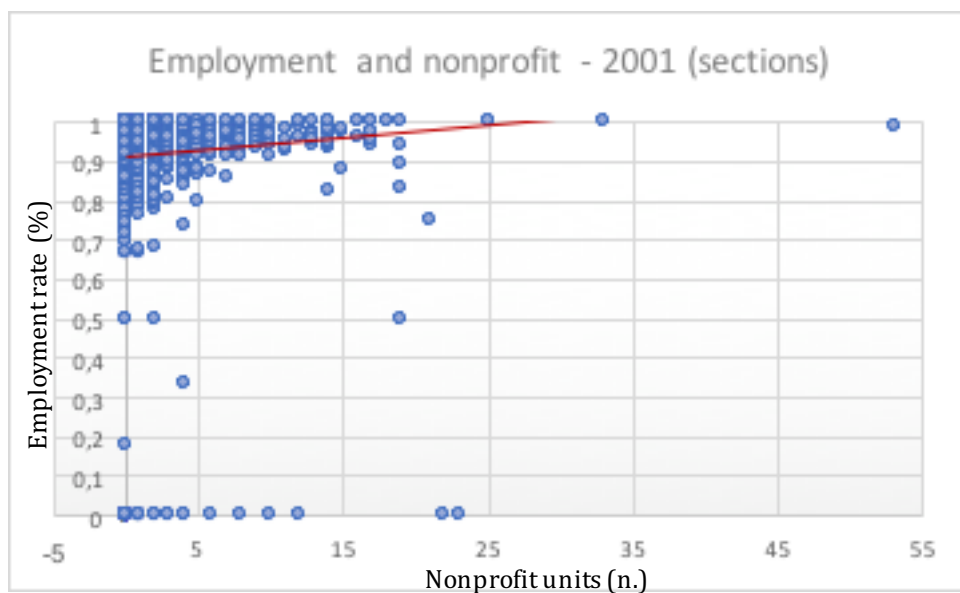
The graph appears to identify a relation between employment growth and the presence of nonprofits in sections in 2001. The graph illustrates that nonprofits were more often to be found in areas where employment rate used to be quite high, between 0,68 and full employment. However, the number of nonprofits, thus identifiable as a proxy for the intensity, may indicate the lack of agglomeration. Relevant outliers are present.

Figure 25: employment rate and nonprofit units in 2011, sections of census. Source: author's elaboration on ISTAT.
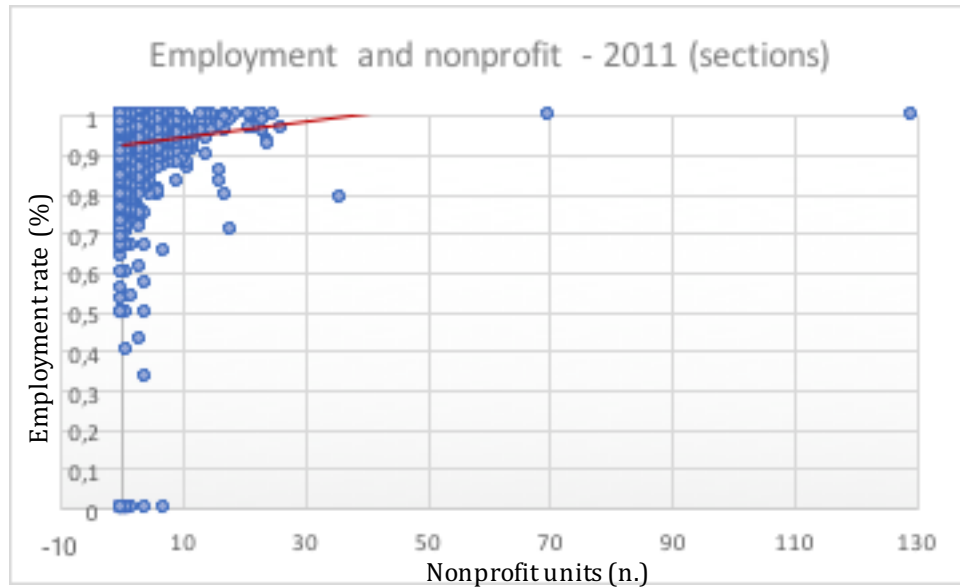
Also in 2011, the graph in Figure 25 appears to identify a relation between employment growth and the presence of nonprofits in sections. The graph illustrates that nonprofits were more often to be found in areas where employment rate used to be quite high but less than ten years before, thus positioning themselves in locations with more occupational distress. However, the number of nonprofits, thus identifiable as a proxy for the intensity, may indicate an even stronger tendency in spatial dissemination.

Figure 26: employment rate and nonprofit units in 2001, ACE. Source: author's elaboration on ISTAT.
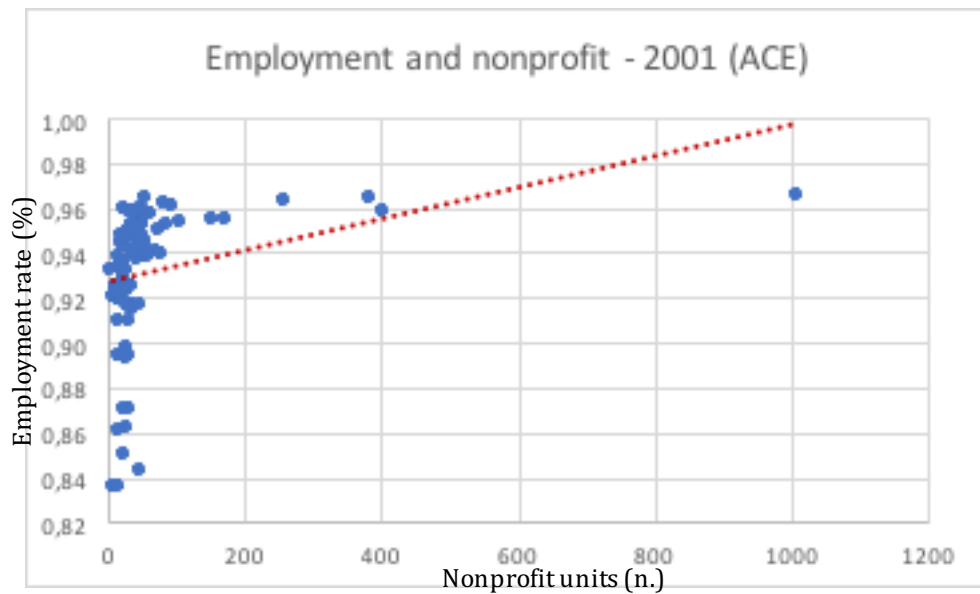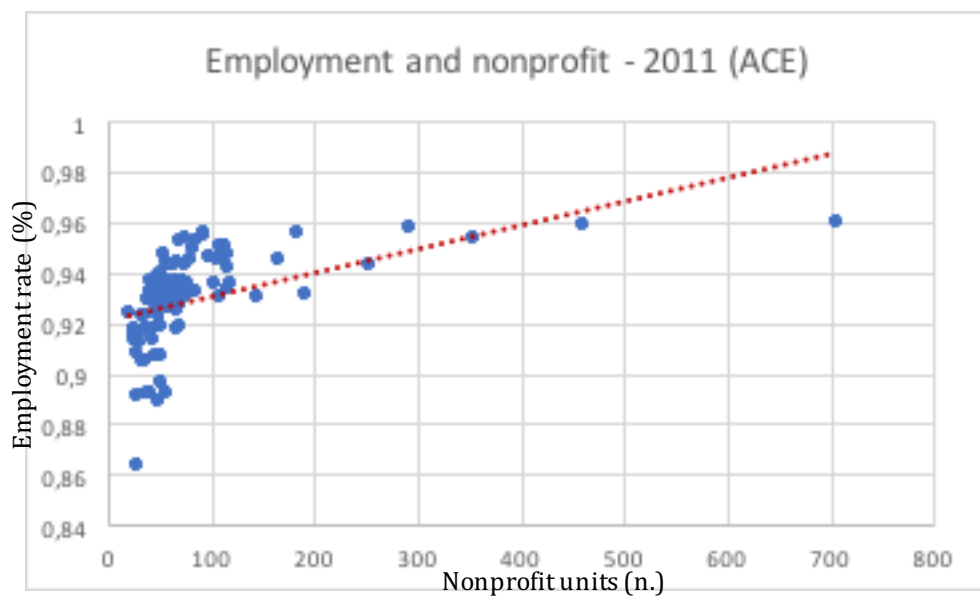

Figure 27: employment rate and nonprofit units in 2011, ACE. Source: author's elaboration on ISTAT.


The figures 26 and 27 are referred to the plotting of both 2001 and 2011 relations between the employment growth and nonprofit units at ACE level. It appears that between 2001 and 2011 the nonprofits and employment rate clustered in ACE where the rate of those

with a job was between 0,9 and 0,96.

Therefore, we shall understand where nonprofit units are present in the city of Milan. Are there located in areas with high, average or low income? An interesting body of literature is currently debating about the presence of nonprofits in more poor areas or the need of their services (Peck, 2008). As we did not have the availability of income data, we shall rely on the Index of residential prices per sq.m. *OMI index* is the indicator built as the weighted average obtained by separating the residential houses in different conditions (very good, mediocre, and poor) in all sections and ACE. All sections and ACE presented figures for all the buildings separated per conditions, thus these figures were combined with the average provided by the OMI for each condition. We plotted in simple graphs the index (only for ACE for the sake of a more readable graph) along the axis *y* and the nonprofit units number along the axis *x*. It is apparent that in 2001 the nonprofit units were more easily to be found in average priced areas, however a relevant outlier was present in a cheaper area (1,00 units) and others in very expensive areas.

Figure 28: index of housing prices and nonprofits in 2001 in ACE. Source: author's elaboration on ISTAT and Agenzia delle Entrate.
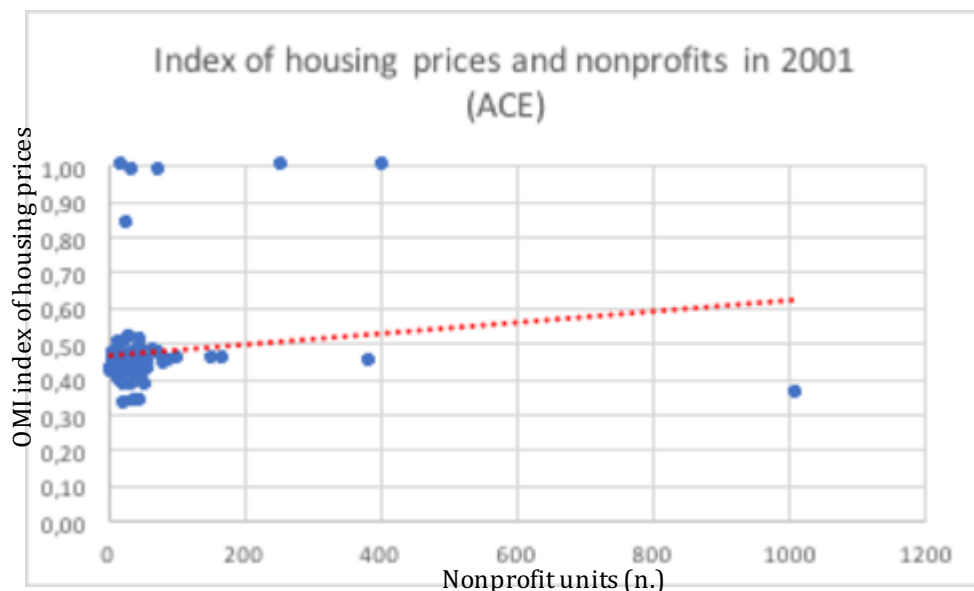

According to Figure 28 and 29, 2011 saw a more dispersed distribution but a relative tendency of finding isolated nonprofits in cheaper ACEs. It is paramount to state that the data

on nonprofits, as well as related to for profits, take into account units recorded, usually as legal headquarters, while they do not take into account where their services are provided.

We shall add that the trends highlighted in presenting the locational patterns of nonprofits are very similar to for profits both in 2001 and 2011.

Figure 29: index of housing prices and nonprofits in 2011 in ACE. Source: author's elaboration on ISTAT and Agenzia delle Entrate.
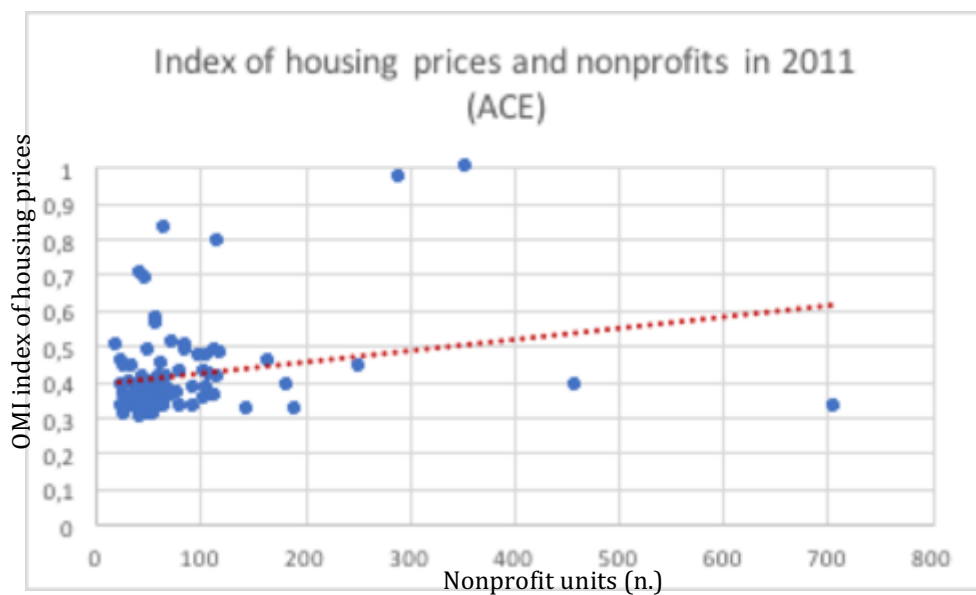
The next graphs in Figures 30, 31 and 32 show the relations between variations of local employment in the period 2001-2011 and the so called "stock variables" of related variety, unrelated variety and density of nonprofit units on the residents (the rate of nonprofits per resident). All the graphs are at ACE level for the sake of a better readability.

The pattern of relation between related variety a local employment is clear and negative, as it will be defined in the following pages with regards to the regressions performed through the use of different approaches. Almost the same can be said for the unrelated variety. Density in nonprofits appears to be also negative in relation with variation of employment, as a less dense nonprofit concentration is shown in connection with a negative variation of employment at local level.

Figure 30: variations of local employment and related variety of nonprofits in 2001 ACE. Source: author's elaboration on ISTAT.
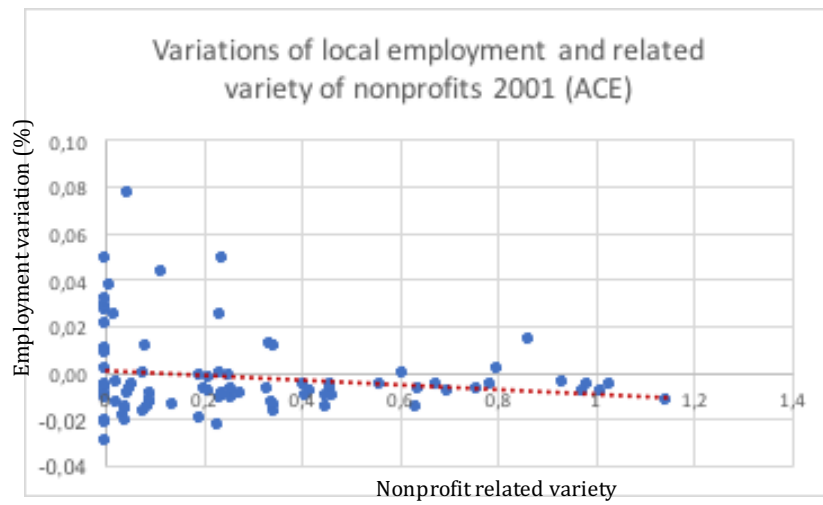

Figure 31: variations of local employment and unrelated variety of nonprofits in 2001 ACE. Source: author's elaboration on ISTAT.
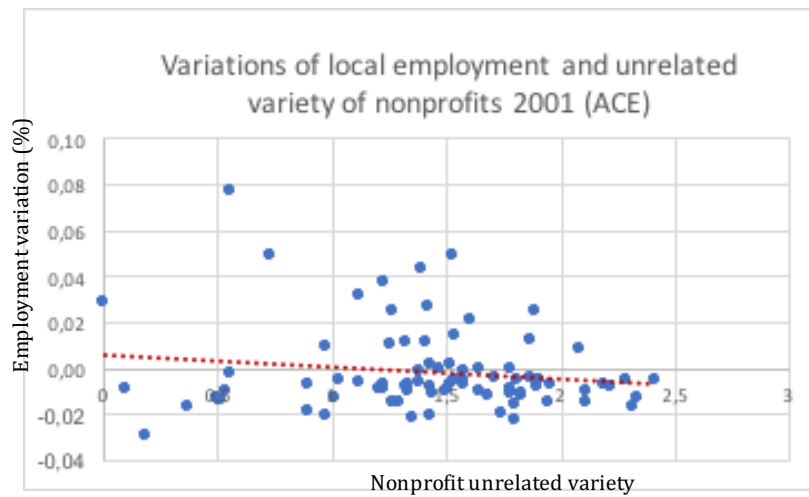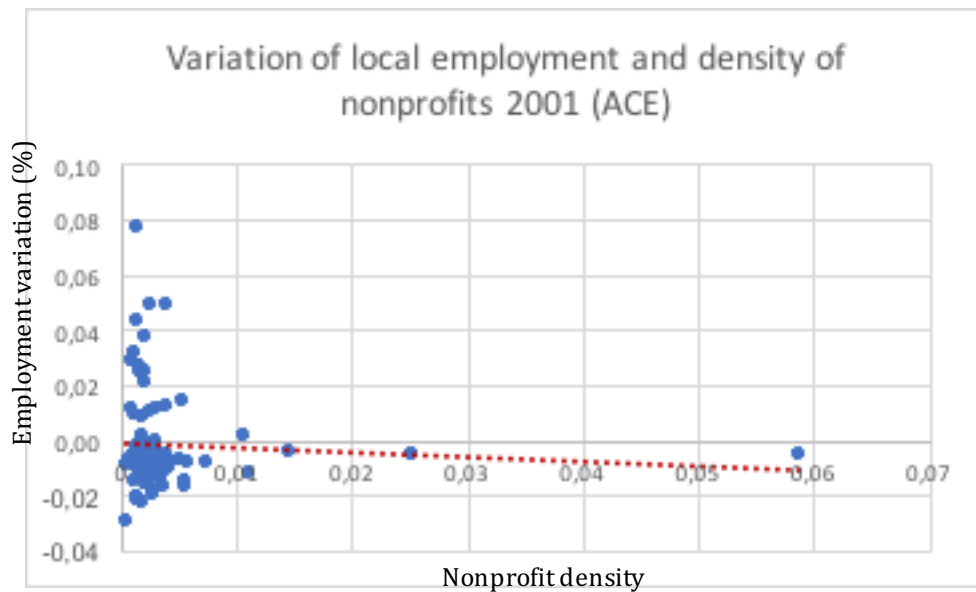
Figure 32: variation of local employment and density of nonprofits in 2001 ACE. Source: author's elaboration on ISTAT.

2.3.3 Models for estimation

This contribution applies a multiple linear regression model for identifying the relationship between employment growth in sections and ACE and the three types of variety, as well as relationship between variety and the creation of nonprofit firms. When considering the model to be adopted for the empirical analysis, we took into account two main bias: the missing data for the average wage of the sections and ACE, and the presence of potential endogeneity, as variety can be influenced by growth. While the first bias can be partly mitigated by the presence of OMI index, our data did not allow the use of methods to deal with endogeneity issues, such as instrumental variable or variables identifying region–specific fixed effects or random effects; more time intervals would be necessary but detailed data at municipal level, or provincial ones, were not available (Hartog et al., 2012). However, more complex econometric methodologies have taken floor in order to identify and define in more detail the relationship between variety, related variety and growth, but they need relevant and consistent series of data from larger observations. These methodologies can provide interesting trends and indications of patterns, as well as solving endogeneity issues (Quatraro, 2010; Hartog et al., 2012; Cortinovis and Van Oort, 2015). The recent study of Andersson et al. (2017) on economic micro geography of diversity and specialization in cities, using a non-

aggregated database of firms in cities, finds a robust empirical evidences of diversity externalities both at neighbourhood and city-wide levels. This study seems to be very interesting as it finds that wide diversity and specialization of firms - exerting positively on total factor productivity (Andersson et al., 2017). Andersson study starts from a Cobb Douglas-type of production function, which is modelled as a function of diversity and specialization at sub city neighbourhood and city-wide levels. The model is built estimating TFP by the semi-parametric technique (Levinsohn and Petrin, 2003; Martin et al., 2011). Multiple linear regression methodology has been mostly adopted in the first studies on related variety (Frenken et al., 2007; Boschma and Iammarino, 2009; Bishop and Gripaios, 2010), and it has not lost its importance and relevance when applied to variety in relation with growth and development (Van Oort et al., 2014; Ercole and O'Neill, 2015; Eriksson and Forlsund, 2014; Witte et al., 2014; Xu and Warner, 2015; Fritsch and Wyrwich, 2017). The structure of the model, in line with the previous researches (Frenken et al., 2007; Boschma, Iammarino, 2009) is an OLS baseline model, is presented below.

(A)

$$\Delta Emp_{it} = \beta_1 + \beta_2 RelVariety_{it} + \beta_3 UnRelVariety_{it} + \beta_4 Residents_{it} + \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it} + \beta_8 Incubator_{it} + \varepsilon_{it}$$

(B)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety_{it} + \beta_3 UnRelVariety_{it} + \beta_4 Residents_{it} + \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it} + \beta_8 Incubator_{it} + \varepsilon_{it}$$

The basic OLS models are subject to changes with the different typologies of variety, in order to identify the relevant interactions amongst them.

In fact, we present three approaches to the modelling:

- the first using first difference estimators OLS (Wooldridge, 2010), building three models of OLS for the growth of employed people and fours for the variation of nonprofits;
- the second uses six models of OLS for both ACE and sections, as well as for the two dependent variables;
- the third uses first different estimators and stock variables at 2001 with regards to explicative and control variables, while dependent variables are the growth of

employed people in sections of census and ACE as well as the creation of new nonprofits;

Differential OLS regressions – Model I

The model presented in the following pages has a differential approach, the so called "first difference", deviating from the original model as it takes into account the variation of all variables between t and t-1, thus in the intercensus period 2011-2001. This approach is relevant as it takes into account all differences, thus all-time variant variables except for agglomeration, which is a dummy taking into account those aggregations of nonprofits occurred during the period which still are in place at the end of the census period. A number of control variables were used for controlling for residential population, human capital, and competition, economic situation of the section and ACE and the presence of agglomerations. Descriptive statistics of the variables are depicted in Table 6 and 7.

The independent variables of interest are represented by changes in variety (*ΔVariety*), related variety (*ΔRelVariety*) and unrelated variety (*ΔUnRelVariety*). The objective of this analysis is the understanding of the existence of correlation between diversification and employment change as well as nonprofit variation in neighbourhoods.

- A change in variety is the variation in sectoral diversification of the territory of analysis, identified as a possible additional source of economic growth (Jacobs, 1969; Glaeser et al., 1992; Van Oort, 2004, Frenken et al., 2007; Boschma, 2009);
- A change in related variety identifies a variation in the extent of diversification amongst related sectors, thus the economies of scope at local level, knowledge spillovers within the region occurring primarily among related sectors. Those are the so-called Jacobs externalities (Frenken et al., 2007);
- A change in unrelated variety measures a variation in the extent of diversification of sections of census and ACE in very different types of activity (Frenken et al., 2007), being instrumental in contrasting unemployment and protecting the local economy from sectoral shock.

Dependent variables

The dependent variables for the OLS First Difference Model are:

- *ΔEmployed*, which is the difference in employed residents within the intercensus period for each sections and ACE. With regards to sections, the mean of the difference is positive and equal to 1.02, showing a high standard deviation of 32.97. With regards to ACE, the mean of the difference is still positive and is 64.01 for each area, showing a high standard deviation of 547.16.
- *Δnonprofit*, which is the difference in unit of nonprofits within the intercensus period for each sections and ACE. With regards to sections, the mean of the difference is positive and equal to 0.42 with a standard deviation of 2.50. With regards to ACE, the mean of the difference is 26.18 with a standard deviation of 42.66.

Independent variables of interest

ΔVarietynp is the variety of nonprofit. This variable is considering the difference occurred in general diversification at 3digit sector in both the sections of census and the ACE. With regards to sections, the mean is 0.12 and the standard deviation is 0.13. With regards to ACE, the mean is 1.10 and the standard deviations is 0.53.

ΔVarietyim is the variety of for profit workers. This variable is considering the general diversification occurred at 3digit sector in both the sections of census and the ACE. With regards to sections, the mean is – 0.01 and the standard deviation is 0.50. With regards to ACE, the mean is 0.12 and the standard deviations is 0.52. The variety of for profits, and its following decompositions, can be useful for identifying interactions between third sector and for profits.

ΔRelVarietynp is the related variety of nonprofit workers. This variable is considering the diversification of related sectors occurred (workers working in related sectors) in both the sections of census and the ACE. With regards to sections, the mean is 0.11 and the standard deviation is 0.06. With regards to ACE, the mean is -0.01 and the standard deviation is 0.21.

ΔRelVarietyim is the related variety of for profit workers. This variable is considering the diversification of related sectors occurred (workers working in related sectors) in both the sections of census and the ACE. With regards to sections, the mean is -0.03 and the standard deviation is 0.12. With regards to ACE, the mean is -0.43 and the standard deviation is 0.24.

ΔUnRelVarietynp is the unrelated variety of nonprofit workers. This variable is considering the diversification of non-related sectors occurred (workers working in non-related sectors,

thus 2 digit) in both the sections of census and the ACE. With regards to sections, the mean is 0.01 and the standard deviation is 0.12. With regards to ACE, the mean is 1.11 and the standard deviation is 0.45.

ΔUnRelVarietyim is the unrelated variety of for profit workers. This variable is considering the diversification of non-related sectors occurred (workers working in non-related sectors, thus 2 digit) in both the sections of census and the ACE. With regards to sections, the mean is 0.02 and the standard deviation is 0.43. With regards to ACE, the mean is 0.56 and the standard deviation is 0.46.

Control Variables

ΔPopDensity is used to control for population density levels and urbanization changes occurred in the intercensus period. Therefore, it is the difference of the ratios between the number of residents and the square meters area for both sections and ACE in the year 2011-2001. Despite the city's relative shrinkage in population during the intercensus period, as indicated in the general statistics of the city, the difference was minor on the density per square meter (Milan "lost" 12.251 residents in the areas of analysis, equal to almost 1% of its resident population).

ΔHumanCapital measures the difference occurred in level of education of one section or ACE, in line with literatures on human capital in regional studies, it is calculated as the difference of the ratios between residents with high school education or higher and the number of residents. The mean for section is 0.01 while standard deviation 0.11. The mean for ACE is 0.01 and standard deviation 0.03.

ΔCompetition variable controls for the difference in variation of competition both in sections of census and ACE. It is calculated as the intercensus difference of the proportion of firms with less than ten workers in sections and ACE, divided by the same measure at city level. It takes into account all sectors involved irrespective of being manufacturing or services, both for profits and nonprofits. It is relevant for identifying the typical size of the industries in the section or ACE compared to the average of the city. The mean of the variable is -0.31 and standard deviation is 0.55 for sections, while the mean and standard deviation for ACE non-significant changes occurred.

ΔOMIndex is the difference occurred in the index, above described, of the market of buildings (residential, commercial, service, etc.) for the first semester of 2011. The mean for the sections is -0.04 and the standard deviation is 0.10. With regards to ACE, the mean is -0.06

while standard deviation is 0.53.

Agglomerations variable is used only in those regressions with Δnonprofit as dependent variables as it is a dummy being activated in presence of more than 20 firms in sections and more than 200 in ACE.

Table 6. Descriptive statistics of sections of census data used in the OLS (model2) (Observations 5394). Source: author's elaboration on ISTAT data

Variables	vars	n	mean	sd	median	min	max	range
ΔEmployed	y	5346	1.02	32.97	-2.00	-227.00	559.00	786.00
Δnonprofit	y	5346	0.42	2.50	0.00	-20.00	111.00	131.00
ΔVarietynp	1	5346	0.12	0.13	0.11	-1.07	2.18	3.25
ΔVarietyim	2	5346	-0.01	0.50	0.01	-3.89	2.52	6.41
ΔRelVarietynp	3	5346	0.11	0.06	0.10	-0.29	0.58	0.87
ΔRelVarietyim	4	5346	-0.03	0.12	0.00	-1.28	0.35	1.62
ΔUnRelVarietynp	5	5346	0.01	0.12	0.00	-1.44	1.99	3.43
ΔUnRelVarietyim	6	5346	0.02	0.43	0.01	-3.16	2.34	5.50
ΔPopDensity	7	5346	0.00	0.00	0.00	-0.03	0.05	0.08
ΔHumanCapital	9	5346	0.01	0.11	0.00	-1.00	1.00	2.00
ΔCompetition	10	5346	-0.31	0.55	-0.04	-1.16	1.15	2.31
ΔOMIndex	11	5346	-0.04	0.10	-0.05	-0.57	0.50	1.07

Table 7 Descriptive statistics of ACE data used in OLS (model II) (Observations 85). Source: author's elaboration on ISTAT data

Variables	vars	n	Mean	sd	median	min	max	range
ΔEmployed	y	85	64.01	547.16	59.00	-1237.00	1920.00	3157.00
Δnonprofit	y	85	26.18	42.66	26.00	-303.00	137.00	440.00
ΔVarietynp	1	85	1.10	0.53	1.02	0.05	2.58	2.53
ΔVarietyim	2	85	0.12	0.52	0.20	-2.94	1.08	4.03
ΔRelVarietynp	3	85	-0.01	0.21	0.04	-0.51	0.52	1.03
ΔRelVarietyim	4	85	-0.43	0.24	-0.44	-0.99	0.16	1.15
ΔUnRelVarietynp	5	85	1.11	0.45	1.07	0.24	2.47	2.23
ΔUnRelVarietyim	6	85	0.56	0.46	0.59	-1.95	1.35	3.30
ΔPopDensity	7	85	0.00	0.00	0.00	0.00	0.00	0.00
ΔHumanCapital	9	85	0.01	0.03	0.01	-0.05	0.08	0.13
ΔCompetition	10	85	0.00	0.00	0.00	-0.02	0.00	0.02
ΔOMIndex	11	85	-0.06	0.07	-0.06	-0.31	0.15	0.46

All variables in this Differential Model (Model I) have been normalized, thus they are "centred and scaled" subtracting the average of the variable (the difference 2011-2001) and divided for its standard deviation. This is due in order to make the results more readable while not affecting the outputs.

The structure of the model, in line with the previous researches (Frenken et al., 2007; Boschma and Iammarino, 2009) is an OLS baseline model for the linear regression, presented below.

(A)

$$\Delta Emp_{it} = \beta_1 + \beta_2 \Delta RelVariety_{it} + \beta_3 \Delta UnRelVariety_{it} + \beta_4 \Delta PopDensity_{it} + \beta_5 \Delta HumanCapital_{it} + \beta_6 \Delta Competition_{it} + \beta_7 \Delta OMIndex_{it} + \varepsilon_{it}$$

(B)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 \Delta RelVariety_{it} + \beta_3 \Delta UnRelVariety_{it} + \beta_4 \Delta PopDensity_{it} + \beta_5 \Delta HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 \Delta OMIndex_{it} + \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

The basic OLS models are subject to changes with the different typologies of variety, in order to identify the relevant interactions amongst them.

Following different modelling, six models of OLS are built starting from the above ones, run for both ACE and sections, as well as for the two dependent variables. The numbers in brackets identify the specific regressions in the tables of results.

a) Variety of nonprofits.

   (1; 4)

$$\Delta Employed_{it} = \beta_1 + \beta_2 \Delta Variety\_np_{it} + \beta_3 \Delta PopDensity_{it} + \beta_4 \Delta HumanCapital_{it} + \beta_6 \Delta OMIndex_{it} + \beta_7 Incubator_{it} + \varepsilon_{it}$$

   (7; 11)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 \Delta Variety\_np_{it} + \beta_3 \Delta PopDensity_{it} + \beta_4 \Delta HumanCapital_{it} + \beta_5 \Delta Competition_{it} + \beta_6 \Delta OMIndex_{it} + \beta_7 Agglomerations_{it} + \varepsilon_{it}$$

b) Related Variety of nonprofits and Unrelated variety of nonprofits.

   (2; 5)

$$\Delta Employed_{it} = \beta_1 + \beta_2 \Delta RelVariety\_np_{it} + \beta_3 \Delta UnRelVariety\_np_{it} + \beta_4 \Delta PopDensity_{it} + \beta_5 \Delta HumanCapital_{it} + \beta_6 \Delta Competition_{it} + \beta_7 \Delta OMIndex_{it} + \varepsilon_{it}$$

   (8; 12)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 \Delta RelVariety\_np_{it} + \beta_3 \Delta UnRelVariety\_np_{it} + \beta_4 \Delta PopDensity_{it}$$
$$+ \beta_5 \Delta HumanCapital_{it} + \beta_6 \Delta Competition_{it} + \beta_7 \Delta OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

c) Interaction variable of Related Variety of nonprofits and for profits, together with Unrelated variety of nonprofits. The interaction variable between related variety of nonprofits and for profits can identify relevant spillovers relations coming from the mix of typologies of firms in the location (sections and ACE).

(3; 6)

$$\Delta Employed_{it} = \beta_1 + \beta_2 \Delta RelVariety\_np * im_{it} + \beta_3 \Delta UnRelVariety\_np_{it} + \beta_4 \Delta PopDensity_{it}$$
$$+ \beta_5 \Delta HumanCapital_{it} + \beta_6 \Delta Competition_{it} + \beta_7 \Delta OMIndex_{it} + \varepsilon_{it}$$

(9; 13)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 \Delta RelVariety\_np * im_{it} + \beta_3 \Delta UnRelVariety\_np_{it} + \beta_4 \Delta PopDensity_{it}$$
$$+ \beta_5 \Delta HumanCapital_{it} + \beta_6 \Delta Competition_{it} + \beta_7 \Delta OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

d) Related Variety of nonprofits and interaction variable between Unrelated Variety of nonprofits and for profits.

(10; 14)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 \Delta RelVariety\_np_{it} + \beta_3 \Delta UnRelVariety\_np * im_{it} + \beta_4 \Delta PopDensity_{it}$$
$$+ \beta_5 \Delta HumanCapital_{it} + \beta_6 \Delta Competition_{it} + \beta_7 \Delta OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

Moran I test for autocorrelation controlling has been conducted for all models as well as Akaike information test and Log Likelihood in order to catch those variables either spatially related to each other or suffering from spatially dependence pattern. With regards to the Moran I test, the tool is used for measuring spatial autocorrelation based on both the features of location and values at the same time; it calculates the index and its p-value. The interpretation of the Spatial Autocorrelation is an inferential statistic, thus to be interpreted in the context of its null hypothesis, which is the random distribution among the featured analysed by the model in the area (Getis and Ord, 1992). In case of p-value non-statistically

significant, the null hypothesis of random distribution cannot be rejected, thus the spatial distribution of the feature values can be the result of a random spatial distribution. In case of p-value statistically significant, the null hypothesis can be rejected and the Moran I Index is bounded by -1.0 and 1.0. In case of positive index, the values in the dataset are more spatially clustered than it would be expected (if spatial processes were random); in case of negative index, the spatial distribution of high and low values in the dataset is more spatially dispersed than random spatial distribution, with the possibility of some competitive process which is taking place in the area.

With regards to the models of regressions correlating employment growth (1-6) the Moran I is never statistically significant, thus the null hypothesis cannot be rejected thus random distribution is assumed.

In the case of the models of regression correlating the variation of nonprofits in sections and ACE (7-14), the Moran I index for Spatial Autocorrelation is statistically significant only for the regressions 7 and 8, however it is very low, indicating a slight clustering of nonprofit firms in the sections of census.

Standard OLS regressions – Model II

After regression first difference OLS, we apply standard OLS regression models to identify relevant correlations between variation in level of employment growth and nonprofits variation with 2011 data, which are illustrated in Table 6 and Table 7.

Dependent variables

The dependent variables for the OLS are:

- *ΔEmployed*, which is the difference in employed residents within the intercensus period for each sections and ACE. With regards to sections, the mean of the difference is positive and equal to 1.02, showing a high standard deviation of 32.97. With regards to ACE, the mean of the difference is still positive and is 64.01 for each area, showing a high standard deviation of 547.16.

- *Δnonprofit*, which is the difference in unit of nonprofits within the intercensus period for each sections and ACE. With regards to sections, the mean of the difference is positive and equal to 0.42 with a standard deviation of 2.50. With regards to ACE, the mean of the difference is 26.18 with a standard deviation of 42.66.

Independent variables of interest

The independent variables of interest are represented by variety (Variety), related variety (RelVariety) and unrelated variety (UnRelVariety). The objective of this analysis is the understanding of the existence of correlation between diversification and employment change as well as nonprofit variation in neighbourhoods.

Variety is the sectoral diversification of the territory of analysis, identified as a possible additional source of economic growth (Jacobs, 1969; Glaeser et al., 1992; Van Oort at al., 2004, Frenken et al., 2007; Boschma, 2009);

Related variety identifies the extent of diversification amongst related sectors, thus the economies of scope at local level, knowledge spillovers within the region occurring primarily among related sectors (the so-called Jacobs externalities: Frenken et al., 2007); Unrelated variety measures the extent of diversification of sections of census and ACE in very different types of activity (Frenken et al., 2007), being instrumental in contrasting unemployment and protecting the local economy from sectoral shock.

_Variety_np2011_ is the variety of nonprofit at year 2011, calculated as described in the previous paragraphs. This variable is considering the general diversification at 3digit sector in both the sections of census and the ACE. With regards to sections, the mean is 0.15 and the standard deviation is 0.16. With regards to ACE, the mean is 2.80 and the standard deviations is 0.44.

_Variety_im2011_ is the variety of for profit workers at year 2011, calculated as described in the previous paragraphs. This variable is considering the general diversification at 3digit sector in both the sections of census and the ACE. With regards to sections, the mean is 0.49 and the standard deviation is 0.80. With regards to ACE, the mean is 5.39 and the standard deviations is 0.59. The variety of for profits, and its following decompositions, is useful for identifying interactions between third sector and for profits.

_RelVariety_np2011_ is the related variety of nonprofit workers at year 2011, calculated as described in the previous paragraphs. This variable is considering the diversification of related sectors (workers working in related sectors) in both the sections of census and the ACE. With regards to sections, the mean is 0.11 and the standard deviation is 0.06. With regards to ACE, the mean is 0.27 and the standard deviation is 0.17.

_RelVariety_im2011_ is the related variety of for profit workers at year 2011, calculated as described in the previous paragraphs. This variable is considering the diversification of

related sectors (workers working in related sectors) in both the sections of census and the ACE. With regards to sections, the mean is 0.06 and the standard deviation is 0.16. With regards to ACE, the mean is 0.81 and the standard deviation is 0.16.

UnRelVariety_np2011 is the unrelated variety of nonprofit workers at year 2011, calculated as described in the previous paragraphs. This variable is considering the diversification of non-related sectors (workers working in non-related sectors, thus 2 digit) in both the sections of census and the ACE. With regards to sections, the mean is 0.04 and the standard deviation is 0.15. With regards to ACE, the mean is 2.53 and the standard deviation is 0.32.

UnRelVariety_im2011 is the unrelated variety of for profit workers at year 2011, calculated as described in the previous paragraphs. This variable is considering the diversification of non-related sectors (workers working in non-related sectors, thus 2 digit) in both the sections of census and the ACE. With regards to sections, the mean is 0.46 and the standard deviation is 0.73. With regards to ACE, the mean is 4.51 and the standard deviation is 0.47.

Control Variables

A number of control variables are used for controlling for residential population, human capital, and competition, economic situation of the section and ACE and the presence of incubators.

PopDensity_2011 is used to control for population density levels and urbanization. Therefore, it is the ratio between the number of residents and the square meters area for both sections and ACE in the year 2011, which is the second census year. With regards to sections, the mean is 0.02 and the standard deviation is 0.01, while for ACE the mean is 0.01 and the standard deviation is 0.01.

HumanCapital_2011 measures the level of education of one section or ACE, in line with literatures on human capital in regional studies, it is calculated as the ratio between residents with high school education or higher and the number of residents. The mean for section is 0.02 while standard deviation 0.01. The mean for ACE is 0.31 and standard deviation 0.02.

Competition2011 controls for the competition in sections of census and ACE. It is calculated as the proportion of firms with less than ten workers in sections and ACE, divided by the same measure at city level. It takes into account all sectors involved irrespective of being manufacturing or services, both for profits and nonprofits. It is relevant for identifying the typical size of the industries in the section or ACE compared to the average of the city. The

mean of the variable calculated on sections is 0.70 and standard deviation is 0.50, while the mean and standard deviation for ACE are 1.04 and 0.05 respectively.

OMIndex is the indicator built on the data provided by the OMI Agenzia delle Entrate of Italy regarding the market of buildings (residential, commercial, service, etc.) for the first semester of 2011. It is the weighted average of the sum of the values for residences (€\sq.m) indexed to the highest average for sections and ACE. The detailed calculation is provided in the above paragraphs. The mean for the sections is 0.37 and the standard deviation is 0.16. With regards to ACE, the mean is 0.42 while standard deviation is 0.13.

Agglomerations variable is used only in those regressions with Δnonprofit as dependent variables as it is a dummy being activated in presence of more than 20 firms in sections and more than 200 in ACE.

The structure of the model (Model II), in line with the previous researches (Frenken et al., 2007; Boschma and Iammarino, 2009) is an OLS baseline model, presented below.

As in Model I the two dependent variables are the growth in employment in the period and the growth in the number of nonprofit organizations, which are regressed against variety variables and other variables in the following way:

The basic OLS models are subject to changes with the different typologies of variety, in order to identify the relevant interactions amongst them.

Following different modelling, six models of OLS are built starting from the above ones, run for both ACE and sections, as well as for the two dependent variables. The numbers in brackets identify the regression in the tables of results.

    a) Variety of nonprofits.

      (15; 21)

$$\Delta Employed_{it} = \beta_1 + \beta_2 Variety\_np_{it} + \beta_3 PopDensity_{it} + \beta_4 HumanCapital_{it} + \beta_6 OMIndex_{it} + \varepsilon_{it}$$

      (27; 33)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 Variety\_np_{it} + \beta_3 PopDensity_{it} + \beta_4 HumanCapital_{it} + \beta_5 Competition_{it} + \beta_6 OMIndex_{it} + \beta_7 Agglomerations_{it} + \varepsilon_{it}$$

    b) Related Variety of nonprofits and Unrelated variety of nonprofits.

      (16; 22)

$$\Delta Employed_{it} = \beta_1 + \beta_2 RelVariety\_np_{it} + \beta_3 UnRelVariety\_np_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it} + \varepsilon_{it}$$

(28; 34)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety\_np_{it} + \beta_3 UnRelVariety\_np_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

c) Interaction variable of Related Variety of nonprofits and nonprofits, together with Unrelated variety of nonprofits. The interaction variable between related variety of nonprofits and for profits can identify relevant spillovers relations coming from the mix of typologies of firms in the location (sections and ACE).

(17; 23)

$$\Delta Employed_{it} = \beta_1 + \beta_2 RelVariety\_np * im_{it} + \beta_3 UnRelVariety\_np_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it} + \varepsilon_{it}$$

(29; 35)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety\_np * im_{it} + \beta_3 UnRelVariety\_np_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

d) Related Variety of nonprofits and interaction variable between Unrelated Variety of nonprofits and for profits.

(18; 24)

$$\Delta Employed_{it} = \beta_1 + \beta_2 RelVariety\_np_{it} + \beta_3 UnRelVariety\_np * im_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it} + \varepsilon_{it}$$

(30; 36)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety\_np_{it} + \beta_3 UnRelVariety\_np * im_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

e) Related Variety f for profits and Unrelated variety of for profits.

(19; 25)

$$\Delta Employed_{it} = \beta_1 + \beta_2 RelVariety\_im_{it} + \beta_3 UnRelVariety\_np_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it} + \varepsilon_{it}$$

$(31; 37)$

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety\_im_{it} + \beta_3 UnRelVariety\_np_{it} + \beta_4 PopDensity$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

f) Related Variety of nonprofits and Unrelated Variety of for profits.

$(20; 26)$

$$\Delta Employed_{it} = \beta_1 + \beta_2 RelVariety\_np_{it} + \beta_3 UnRelVariety\_im_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it} + \varepsilon_{it}$$

$(32; 38)$

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety\_np_{it} + \beta_3 UnRelVariety\_im_{it} + \beta_4 PopDensity_{it}$$
$$+ \beta_5 HumanCapital_{it} + \beta_6 Competition_{it} + \beta_7 OMIndex_{it}$$
$$+ \beta_8 Agglomerations_{it} + \varepsilon_{it}$$

As in the preceding model, the Moran I index provides different results for the different equations. The values of the Moran I index are statistically significant for the regressions 15 – 26 (tables 13-14) regarding the correlation with Employment Growth. An indication of more aggregation can be identified both for sections and ACE, however it is not particularly relevant. With regards to the regressions analyzing nonprofits variations, the random distribution hypothesis cannot be rejected.

Differential OLS regressions with stock variables – Model III

The model presented in the following pages has a differential approach, deviating from the original model as it takes into account the variation of employment rate between t and t-1, thus in the intercensus period 2011-2001. In addition, we perform the regression using "stock variables", thus all those variables at time t (2001). Descriptive statistics of the variables are depicted in Table 8 and 9.

The independent variables of interest are represented by the level of variety (Variety), related variety (RelVariety) and unrelated variety (UnRelVariety). The objective of this analysis is the understanding of the existence of correlation between diversification and

employment change as well as nonprofit variation in neighbourhoods. As we take into account the initial level of variety, we may infer partial causal relations.

A change in variety is the variation in sectoral diversification of the territory of analysis, identified as a possible additional source of economic growth (Jacobs, 1969; Glaeser et al., 1992; Van Oort, 2004, Frenken et al., 2007; Boschma, 2009);

A change in related variety identifies a variation in the extent of diversification amongst related sectors, thus the economies of scope at local level, knowledge spillovers within the region occurring primarily among related sectors. Those are the so-called Jacobs externalities (Frenken et al., 2007);

A change in unrelated variety measures a variation in the extent of diversification of sections of census and ACE in very different types of activity (Frenken et al., 2007), being instrumental in contrasting unemployment and protecting the local economy from sectoral shock.

Dependent variables

The dependent variables for the OLS First Difference Model are:

- *ΔEmployment*, which is the difference in employment rate at local level within the intercensus period for each sections and ACE. With regards to sections, the mean of the difference is positive and equal to 0.01, showing a standard deviation of 0.18. With regards to ACE, the mean of the difference is irrelevant for each area, showing a standard deviation of 0.02.

- *Δnonprofit*, which is the difference in unit of nonprofits within the intercensus period for each sections and ACE. With regards to sections, the mean of the difference is positive and equal to 0.42 with a standard deviation of 2.50. With regards to ACE, the mean of the difference is 26.18 with a standard deviation of 42.66.

Independent variables of interest

Varietynp2001 is the variety of nonprofit. This variable is considering the difference occurred in general diversification at 3digit sector in both the sections of census and the ACE. With regards to sections, the mean is 0.03 and the standard deviation is 0.18. With regards to ACE, the mean is 1.70 and the standard deviations is 0.71.

Varietyim2001 is the variety of for profit workers. This variable is considering the general diversification occurred at 3digit sector in both the sections of census and the ACE. With

regards to sections, the mean is 0.50 and the standard deviation is 0.88. With regards to ACE, the mean is 5.20 and the standard deviations is 0.45. The variety of for profits, and its following decompositions, can be useful for identifying interactions between third sector and for profits.

UnRelVarietynp2001 is the unrelated variety of nonprofit workers. This variable is considering the diversification of non-related sectors occurred (workers working in non-related sectors, thus 2 digit) in both the sections of census and the ACE. With regards to sections, the mean is 0.03 and the standard deviation is 0.13. With regards to ACE, the mean is 1.43 and the standard deviation is 0.52.

UnRelVarietyim2001 is the unrelated variety of for profit workers. This variable is considering the diversification of non-related sectors occurred (workers working in non-related sectors, thus 2 digit) in both the sections of census and the ACE. With regards to sections, the mean is 0.44 and the standard deviation is 0.73. With regards to ACE, the mean is 3.95 and the standard deviation is 0.28.

RelVarietynp2001 is the related variety of nonprofit workers. This variable is considering the diversification of related sectors occurred (workers working in related sectors) in both the sections of census and the ACE. With regards to sections, the mean is 0.00 and the standard deviation is 0.01. With regards to ACE, the mean is 0.28 and the standard deviation is 0.31.

RelVarietyim2001 is the related variety of for profit workers. This variable is considering the diversification of related sectors occurred (workers working in related sectors) in both the sections of census and the ACE. With regards to sections, the mean is 0.06 and the standard deviation is 0.16. With regards to ACE, the mean is 1.24 and the standard deviation is 0.27.

Control Variables

PopDensity2001 is used to control for population density levels and urbanization at the start of the period of analysis.

HumanCapital2001 measures the level of education of one section or ACE, in line with literatures on human capital in regional studies, it is calculated as the ratios between residents with high school education or higher and the number of residents. The mean for section is 0.29 while standard deviation 0.10. The mean for ACE is 0.30 and standard deviation 0.03.

Competition2001 variable controls for competition both in sections of census and ACE. It is calculated as the proportion of firms with less than ten workers in sections and ACE, divided

by the same measure at city level. It takes into account all sectors involved irrespective of being manufacturing or services, both for profits and nonprofits. It is relevant for identifying the typical size of the industries in the section or ACE compared to the average of the city. The mean of the variable is 1.01 and standard deviation is 0.25 for sections, while the mean and standard deviation for ACE the mean is 1.04 and the standard deviation 0.05.

OMIndex2001 is the index of the market price of buildings (residential, commercial, service, etc.) for the first semester of 2002. The mean for the sections is 0.40 and the standard deviation is 0.15. With regards to ACE, the mean is 1.04 while standard deviation is 0.05.

Agglomerations variable is used only in those regressions with Δnonprofit as dependent variables as it is a dummy being activated in presence of more than 20 workers in sections and more than 200 in ACE.

Table 8. Descriptive statistics of sections of census data used in the OLS (model2) (Observations 5394).

Source: author's elaboration on ISTAT data

Variables	vars	n	mean	sd	median	min	max	range
ΔEmployment	*y*	5346	0.01	0.18	-0.01	-1.00	1.00	2.00
Δnonprofit	*y*	5346	0.42	2.50	0.00	-20.00	111.00	131.00
Varietynp2001	1	5346	0.03	0.14	0.00	0.00	1.95	1.95
Varietyim2001	2	5346	0.50	0.88	0.16	0.00	4.78	4.78
UnRelVarietynp	3	5346	0.03	0.13	0.00	0.00	1.92	1.92
UnRelVarietyim	4	5346	0.44	0.73	0.15	0.00	3.93	3.93
RelVarietynp	5	5346	0.00	0.01	0.00	0.00	0.41	0.41
RelVarietyim	6	5346	0.06	0.16	0.01	0.00	1.34	1.34
PopDensity2001	7	5346	0.02	0.01	0.02	0.00	0.10	0.10
HumanCapital2001	9	5346	0.29	0.10	0.31	0.00	1.00	1.00
Competition2001	10	5.346	1.01	0.25	1.09	0.00	1.16	1.16
OMIndex2001	11	5346	0.40	0.15	0.35	0.23	1.00	0.77
Agglomerations	12	5346	0.00	0.05	0.00	0.00	1.00	1.00

Table 9 Descriptive statistics of ACE data used in OLS (model II) (Observations 85). Source: author's elaboration on ISTAT data

Variables	vars	n	Mean	sd	median	min	max	range
ΔEmployment	y	85	0.00	0.02	-0.01	-0.03	0.08	0.11
Δnonprofit	y	85	26.18	42.66	26.00	-303.00	137.00	440.00
Varietynp2001	1	85	1.70	0.71	1.74	0.00	3.07	3.07
Varietyim2001	2	85	5.20	0.45	5.30	3.52	5.82	2.30
UnRelVarietynp2001	3	85	1.43	0.52	1.47	0.00	2.41	2.41
UnRelVarietyim2001	4	85	3.95	0.28	3.99	2.90	4.53	1.63
RelVarietynp2001	5	85	0.28	0.31	0.20	0.00	1.15	1.15
RelVarietyim2001	6	85	1.24	0.27	1.28	0.62	1.68	1.06
PopDensity2001	7	85	0.01	0.01	0.01	0.00	0.02	0.02
HumanCapita2001l	9	85	0.30	0.03	0.30	0.18	0.36	0.18
Competition2001	10	85	1.04	0.05	1.05	0.88	1.14	0.25
OMIndex2001	11	85	0.48	0.14	0.44	0.33	1.00	0.67
Agglomerations	12	85	0.06	0.24	0.00	0.00	1.00	1.00

The structure of the model, in line with the previous researches (Frenken et al., 2007; Boschma, Iammarino, 2009) is an OLS baseline model for the linear regression, presented below.

(E)

$$\Delta Employment_{it}$$
$$= \beta_1 + \beta_2 RelVariety_{it-1} + \beta_3 UnRelVariety_{it-1} + \beta_4 PopDensity_{it-1}$$
$$+ \beta_5 HumanCapital_{it-1} + \beta_6 Competition_{it-1} + \beta_7 OMIndex_{it-1} + \varepsilon_{it}$$

(F)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety_{it-1} + \beta_3 UnRelVariety_{it-1} + \beta_4 PopDensity_{it-1}$$
$$+ \beta_5 HumanCapital_{it-1} + \beta_6 Competition_{it-1} + \beta_7 OMIndex_{it-1}$$
$$+ \beta_8 Agglomerations_{it-1} + \varepsilon_{it}$$

The basic OLS models are subject to changes with the different typologies of variety, in order to identify the relevant interactions amongst them.

Following different modelling, six models of OLS are built starting from the above ones, run for both ACE and sections, as well as for the two dependent variables. The numbers in brackets identify the specific regressions in the tables of results.

e) Variety of nonprofits.

(39; 41)

$$\Delta Employment_{it}$$
$$= \beta_1 + \beta_2 Variety\_np_{it-1} + \beta_3 PopDensity_{it-1} + \beta_4 HumanCapital_{it-1}$$
$$+ \beta_6 OMIndex_{it-1} + \varepsilon_{it}$$

(42)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 Variety\_np_{it-1} + \beta_3 PopDensity_{it-1} + \beta_4 HumanCapital_{it-1}$$
$$+ \beta_5 Competition_{it-1} + \beta_6 OMIndex_{it-1} + \beta_7 Agglomerations_{it-1} + \varepsilon_{it}$$

f) Related Variety of nonprofits and Unrelated variety of nonprofits.

(40)

$$\Delta Employment_{it}$$
$$= \beta_1 + \beta_2 RelVariety\_np_{it-1} + \beta_3 UnRelVariety\_np_{it-1} + \beta_4 PopDensity_{it-1}$$
$$+ \beta_5 HumanCapital_{it-1} + \beta_6 Competition_{it} + \beta_7 \Delta OMIndex_{it-1} + \varepsilon_{it}$$

(43)

$$\Delta nonprofit_{it} = \beta_1 + \beta_2 RelVariety\_np_{it-1} + \beta_3 UnRelVariety\_np_{it-1} + \beta_4 PopDensity_{it-1}$$
$$+ \beta_5 HumanCapital_{it-1} + \beta_6 Competition_{it-1} + \beta_7 OMIndex_{it-1}$$
$$+ \beta_8 Agglomerations_{it-1} + \varepsilon_{it}$$

2.3.4   Results

The following tables illustrate the results of the estimation of the different models described above, firstly for Model I (tables 10-12) and after for Model II (tables 13-16). Model III is illustrated in tables 17 and 18.

Differential equations (Model I)

The dependent variable for the first set of regressions in Table 10 is Employed Growth in sections of census (1-3) and ACE (4-6) using first difference OLS. Significance at 0.05 is identified for general diversification of nonprofits (variety), which is negatively related to employed growth at local level. At sections of census level, the most negative relation to Employed growth is the coefficient linked to the (slightly positive) change in nonprofit unrelated variety (regression 2), not producing particular spillovers of knowledge, hence are not related with employed growth. Even if the significance at statistical level can be debated, the relations between employment growth and change in variety, related variety and unrelated variety becomes positive when we analyse the ACE geographical dimension, as it could be expected with a larger spatial unit of analysis. All others control variables result to be very significant and positive in sections of census, only Human Capital and the OMIndex lose their statistical significance in ACE. As it could be expected, the population density in the sections of census and ACE plays a pivotal role in the growth of employed residents.

Tables 11 (regressions 7 to 10) and 12 (regression 11 to 14) show the results of the same regressions having the change in the number of nonprofit firms as dependent variable. Table 13 is related to sections of census, while table 14 to ACE.

It is relevant to see the positive relation between variety increase and the growth of nonprofits firms in sections of census, both in general and particularly with unrelated variety. The coefficient of the variable of interaction between for profits and nonprofits related variety is positive and significant, signalling that general diversification favours the creation of new nonprofit firms.

All variety variables, except for the one measuring the interaction between for profits and nonprofits Related variety, lose significance in ACE. Control variables are in line with the hypothesis of location of nonprofits in more unequal and poor areas, showing a negative relation between nonprofits and human capital both in sections and ACE. The variable "incubator" is positive in sections, identifying the tendency of agglomeration in small areas.

Standard OLS equations – 2011 independent variables (Model II)

Moving to standard OLS regressions in model II (tables 13 to 16, regressions 15 – 38) and starting from the dependent variable "Employed Growth" (tables 13 and 14), it can be seen that the more significant result is the negative relation between variety in nonprofit and employed growth, in particular this is true for unrelated variety. This is particularly true for sections of census (table 13), however if we turn to regression for ACE areas, it seems that there are no differences.

The relation between the variety and the creation of nonprofits (tables 15 and 16) is significant and negative if we look at sections of census, and slightly significant in ACE, mainly sustained by unrelated variety. The correlation between the interaction of variety of nonprofits and for profits may indicate a more positive nexus between diversification in for profits and relevant knowledge spillovers.

The dependent variable for the first set of regressions in Table 13 is Employment Growth in sections of census (15-20) and ACE (21-26) in Table 14; results do not show significant spatial autocorrelation, as well as a low R2 and Adjusted R2. No significance is found for all the typologies of variety, while control variables for competition and OMIndex are usually very significant, with the first having coefficient ranging from 3.224 for each increase in competition index correlated with employment growth to 3.297; as expected, the prices of residences have a negative relation with the variation of employment in the sections, ranging from a value of – 12.707 for each increase of index to -13.463. This can be explained by the rising prices of the area, thus decreasing the attraction for firms.

Table 14 shows the results of the same regressions in the previous table as applied to the ACE database, thus 85 observations. We move directly to the regressions 23 and 25 that show more relevance with regards to Akaike information criterion, Moran I Index and results for the variety. Regression 23, in particular, shows a Moran I Index indicating a more concentrated spatial distribution in the ACE of the city of Milan. With regards to the variables

of interests to the research, the interaction of Related Variety for nonprofits and for profits is shown to have highly significant relation on the employment growth, with a negative coefficient of -7,003.218. This result, also corroborated by the positive interaction resulting from the for profit related variety shown in regression 25, identifies a negative relation between for profit and nonprofit externalities. This negative effect deployed by the interaction, supports the literature showing that nonprofits locate in more difficult areas of cities, in particular in their initial phase of development (Bielefeld and Murdoch, 2004).

Tables 15 and 16 show the effects on the creation of nonprofits as the dependent variable both in sections (Table 15) and ACE (Table 16). When measuring the relation with employment growth, variety variables appear to be significant and negative, with a prevalence of negative relations between related variety and increase of the number of nonprofits firms in the sections of census. However, in sections the deviations from the expected dispersion does not seem to be particularly relevant. With regards to ACE, on the opposite, we have a positive relation between variety of nonprofit and nonprofit institution creation, particularly sustained by unrelated variety in nonprofits.

Table 15 indicate that all measures of variety, be them related or unrelated, have negative effects on the creation of nonprofits in the neighbourhood. It is interesting to note that the presence of incubators is, in this case, is particularly relevant and statistically significant, identifying a relation of about 17 new organizations in presence of an agglomeration. This correlation can be partly explained by the driving role of informal agglomerations and formal organizations sustaining new firms' creation in specific areas.

The negative effect of residential areas (OMI index) is supportive of the locations of nonprofits in areas with lower affluence of population, thus more affordable houses. Results of regression 33 and regression 37 for ACE in Table 16, are the only statistically significant results implying a positive effect of nonprofit variety in creating new institutions in larger areas. In these cases, related variety of nonprofits is less relevant than unrelated variety, while incubators are particularly negative in the process.

OLS with stock variables (Model III)

The dependent variable for the first set of regressions in Table 17 is the growth of Employment rate in sections of census (39-40) and ACE (41) using stock variables both for explanatory independent and control variables. Significance at 0.1 is identified for general

diversification of nonprofits (variety) in 2001, which is negatively related to employment growth at local level. At sections of census level, the most negative relation to Employment growth is the coefficient linked to the negative change in nonprofit unrelated variety (regression 40), not producing particular spillovers of knowledge. With regards to ACE geographical dimension we can identify a general positive relation of nonprofits diversification stemming from a starting diversified ACE, however not statistically significant. OMIndex is again negative and relevant in sections. It is very interesting to see that HumanCapital variable is negatively affecting the growth of employment in ACE (regression 41), with a relevant statistical significance ($p<0.01$): this may suggest that people with a scholarization above the high school grade can be employed more easily in other firm but nonprofits, while in the areas a lesser degree of education might install an employment driver.

Table 18 (regressions 42 and 43) shows the results of the same regressions having the change in the number of nonprofit firms as dependent variable. They are only for sections of census as non-significant results arose for ACE.

It is relevant to see the negative relation between variety and the growth of nonprofits firms in sections of census, both in general and particularly with unrelated variety. The coefficient of the variable of interaction between for profits and nonprofits related variety is positive and significant, suggesting that a starting situation of general diversification does not favour the creation of new nonprofit firms.

In this case we have a negative relation with the population density and, as it could be foreseen, a negative relation with the location prices per sq.m. Nonprofits confirm to prefer their localization in areas with relatively lower prices. This does not take into account the location where their services are provided, which may be different or in other neighbourhoods. The variable for human capital is very relevant and positive, suggesting a more prone attitude of highly skilled "areas" to welcome nonprofit headquarters or offices.

In the end, we shall spend some words on the dummy variable Agglomerations, which identifies the presence of aggregations of nonprofits in the section in 2001. As we can appreciate it is very significant and relevant, suggesting a possible path dependency in agglomerating, as suggested by previous literature (Pinch and Sunley, 2016).

Table 10: Results of first difference OLS estimation for dependent variable Employment Growth in sections of census and ACE (model I)

	Dependent variable:					
	Employed Growth	Employed Growth	Employed Growth	Employed Growth	Employed Growth	Employed Growth
	Variety in nonprofit in sections	Related Variety in nonprofit in sections	Related Variety in nonprofit*for profit in sections	Variety in nonprofit in ACE	Related Variety in nonprofit in ACE	Related Variety in nonprofit, URelvariety2011im in ACE
	(1)	(2)	(3)	(4)	(5)	(6)
ΔVarietynp	-0.023** (0.010)			0.098 (0.064)		
ΔRelated_Varietynp		-0.012 (0.010)			0.003 (0.071)	
ΔRelated_Varietyim						
ΔRelated_Varietynp*im			0.003 (0.004)			-0.026 (0.068)
ΔUnRelvarietynp		-0.020** (0.010)			0.101 (0.063)	
ΔPopDensity	0.633*** (0.011)	0.633*** (0.011)	0.632*** (0.011)	0.810*** (0.075)	0.811*** (0.075)	0.820*** (0.079)
ΔHumanCapital	0.081*** (0.010)	0.082*** (0.010)	0.082*** (0.010)	-0.049 (0.078)	-0.035 (0.083)	-0.034 (0.080)
ΔComp	0.040*** (0.010)	0.040*** (0.010)	0.040*** (0.010)	0.193*** (0.063)	0.194*** (0.064)	0.200*** (0.064)
ΔOMIndex	0.037*** (0.010)	0.037*** (0.010)	0.037*** (0.010)	0.063 (0.064)	0.061 (0.064)	0.068 (0.065)
Constant	0.000	0.000	-0.00005	0.000	0.000	0.008
Observations	5,346	5,346	5,346	85	85	85
R2	0.436	0.436	0.436	0.697	0.698	0.689
Adjusted R2	0.436	0.436	0.435	0.678	0.675	0.669
Residual Std. Error	0.751 (df = 5340)	0.751 (df = 5339)	0.752 (df = 5340)	0.568 (df = 79)	0.570 (df = 78)	0.575 (df = 79)
F Statistic	691.608*** (df = 6; 5339)	688.297*** (df = 6; 5339)	824.442*** (df = 5; 5340)	36.330*** (df = 5; 79)	30.058*** (df = 6; 78)	34.925*** (df = 5; 79)
Moran I	0.0090	0.0091	0.0086	0.0541	0.0567	0.0260
Lagrange Multiplier	1.2471	1.259	1.1346	0.6245	0.68627	0.14476
Akaike Info	12121.27	12123.24	12125.95	152.7466	154.4169	155.0689
Log-Likelihood	-6053.637 (df=7)	-6053.619 (df=8)	-6055.975 (df=7)	-69.37328 (df=7)	-69.20845 (df=8)	-70.53447 (df=7)
Note:		*p<0.1; **p<0.05; ***p<0.01				

Table 11: Results of first difference OLS estimation for dependent variable nonprofits creation in sections of census (model I).

	Dependent variable:			
	Nonprofit creation	Nonprofit creation	Nonprofit creation	Nonprofit creation
	Variety in nonprofit in sections	*Related Variety in nonprofit in sections*	*Related Variety in nonprofit*for profit in sections*	*Related Variety in nonprofit, URelvariety2011np*im in sections*
	(7)	(8)	(9)	(10)
ΔVarietynp	0.035*** (0.013)			
ΔRelated_Varietynp		-0.012 (0.013)		
ΔRelated_Varietyim				
ΔRelated_Varietynp*im				0.043*** (0.006)
ΔUnRelvarietynp		0.044*** (0.013)		
ΔUnRelvarietyim				
ΔUnRelvarietynp*im			-0.033*** (0.005)	
Δ PopDensity	0.041*** (0.013)	0.041*** (0.013)	0.041*** (0.013)	0.043*** (0.013)
ΔHumanCapital	-0.046*** (0.013)	-0.044*** (0.013)	-0.047*** (0.013)	-0.049*** (0.013)
ΔComp	-0.015 (0.013)	-0.017 (0.013)	-0.015 (0.013)	-0.012 (0.013)
ΔOMIndex	-0.018 (0.013)	-0.018 (0.013)	-0.018 (0.013)	-0.016 (0.013)
Incubator	0.343*** (0.013)	0.342*** (0.013)	0.343*** (0.013)	0.338*** (0.013)
Constant	0.000	0.000	0.001	0.003
Observations	5,346	5,346	5,346	5,346
R2	0.122	0.123	0.127	0.129
Adjusted R2	0.121	0.122	0.126	0.128
Residual Std. Error	0.938 (df = 5339)	0.937 (df = 5338)	0.935 (df = 5339)	0.934 (df = 5339)
F Statistic	123.519*** (df = 6; 5339)	106.669*** (df = 7; 5338)	129.573*** (df = 6; 5339)	132.264*** (df = 6; 5339)
Moran I	0.0032***	0.0034***	0.0033***	0.0035***
Lagrange Multiplier	16.308***	17.749***	16.535***	18.714***
Akaike Info	14491.39	14488.37	14459.55	14445.45
Log-Likelihood	-7237.695 (df=8)	-7235.187 (df=9)	-7221.773 (df=8)	-7214.726 (df=8)
Note:			**p<0.1; **p<0.05; ***p<0.01*	

Table 12: Results of first difference OLS estimation for dependent variable nonprofit creation in ACE (model I).

	Dependent variable:			
	Nonprofit creation	Nonprofit creation	Nonprofit creation	Nonprofit creation
	Variety in nonprofit in ACE	Related Variety in nonprofit in ACE	Related Variety in nonprofit*for profit in ACE	Related Variety in nonprofit, URelvariety2011im in ACE
	(11)	(12)	(13)	(14)
ΔVarietynp	0.016 (0.062)			
ΔRelated_Varietynp		-0.078 (0.070)		
ΔRelated_Varietyim				
ΔRelated_Varietynp*im			0.134* (0.068)	
ΔUnRelvarietynp		0.049 (0.059)		
ΔUnRelvarietyim				
ΔUnRelvarietynp*im				0.152 (0.099)
Δ PopDensity	0.058 (0.071)	0.065 (0.071)	0.028 (0.071)	0.060 (0.070)
ΔHumanCapital	-0.163** (0.078)	-0.140* (0.080)	-0.146* (0.076)	-0.152* (0.077)
ΔComp	0.863*** (0.065)	0.857*** (0.065)	0.846*** (0.064)	0.861*** (0.064)
ΔOMIndex	0.026 (0.060)	0.023 (0.060)	0.045 (0.059)	0.050 (0.061)
Incubator	-0.023 (0.071)	-0.049 (0.074)	-0.088 (0.075)	-0.012 (0.069)
Constant	0.000	0.000	-0.040	-0.010
Observations	85	85	85	
R2	0.735	0.741	0.748	0.743
Adjusted R2	0.715	0.717	0.729	0.723
Residual Std. Error	0.534 (df = 78)	0.532 (df = 77)	0.521 (df = 78)	0.526 (df = 78)
F Statistic	36.141*** (df = 6; 78)	31.465*** (df = 7; 77)	38.586*** (df = 6; 78)	37.590*** (df = 6; 78)
Moran I	-0.0728	-0.0728	-0.0140	-0.0970
Lagrange Multiplier	1.1311	0.95838	0.041874	2.0064
Akaike Info	143.1847	143.396	139.0585	140.7149
Log-Likelihood	-63.59237 (df=8)	-62.69802 (df=9)	-61.52923 (df=8)	-62.35745 (df=8)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 13: Results of OLS estimation for dependent variable employment growth in sections of census (model II)

	Dependent variable:					
	Employed Growth	*Employed Growth*	*Employed Growth*	*Employed Growth*	*Employed Growth*	*Employed Growth*
	Variety in nonprofit in sections	*Related Variety in nonprofit in sections*	*Related Variety in nonprofit*for profit in sections*	*Related Variety in nonprofit URelvariety2011np*imin sections*	*Related Variety in for profit, URelvariety2011np in sections*	*Related Variety in nonprofit, URelvariety2011im in sections*
	(15)	(16)	(17)	(18)	(19)	(20)
Variety2011np	-3.090 (2.849)					
Related_Variety2011np		-2.897 (8.580)		-2.248 (8.661)		-3.341 (8.512)
Related_Variety2011im					-2.872 (7.116)	
Related_Variety2011np*im			31.397 (65.691)			
UnRelvariety2011np		-3.135 (3.426)	-2.910 (3.769)		-2.816 (3.642)	
UnRelvariety2011im						-0.613 (0.748)
UnRelvariety2011np*im				-0.586 (2.841)		
PopDensity 2011	-15.090 (36.578)	-15.056 (36.611)	-15.779 (36.641)	-15.675 (36.637)	-14.860 (36.567)	-15.056 (36.619)
HumanCapital2011	-5.283 (5.074)	-5.279 (5.078)	-5.298 (5.079)	-5.326 (5.080)	-5.203 (5.071)	-5.293 (5.079)
Comp2011	3.206*** (0.921)	3.207*** (0.922)	3.249*** (0.926)	3.270*** (0.939)	3.244*** (0.925)	3.287*** (0.934)
OMIndex	-14.076*** (3.015)	-14.043*** (3.320)	-13.540*** (3.541)	-13.291*** (3.617)	-13.228*** (3.339)	-13.810*** (3.528)
Constant	6.285	6.251	6.325	6.020	5.648	6.324
Observations	5,346	5,346	5,346	5,346	5,346	5,346
R2	0.007	0.007	0.007	0.007	0.007	0.007
Adjusted R2	0.006	0.005	0.005	0.005	0.005	0.005
Residual Std. Error	32.869 (df = 5340)	32.882 (df = 5339)	32.887 (df = 5337)	32.887 (df = 5337)	32.882 (df = 5339)	32.883 (df = 5339)
F Statistic	7.023*** (df = 5; 5340)	5.851*** (df = 6; 5339)	4.433*** (df = 8; 5337)	4.428*** (df = 8; 5337)	5.859*** (df = 6; 5339)	5.824*** (df = 6; 5339)
Moran I	0.0173**	0.0173**	0.0173**	0.0173**	0.0174**	0.0174**
Lagrange Multiplier	4.5366**	4.5361**	4.571**	4.5718**	4.5822**	4.5469**
Akaike Info	52524.74	52526.74	52530.37	52530.42	52526.69	52526.91
Log-Likelihood	-26255.37 (df=7)	-26255.37 (df=8)	-26255.19 (df=10)	-26255.21 (df=10)	-26255.35 (df=8)	-26255.45 (df=8)

Note:	**p<0.1; **p<0.05; ***p<0.01*

Table 14: Results of OLS estimation for dependent variable employment growth in ACE (model II)

	Dependent variable:					
	Employed Growth	*Employed Growth*	*Employed Growth*	*Employed Growth*	*Employed Growth*	*Employed Growth*
	Variety in nonprofit in ACE	*Related Variety in nonprofit in ACE*	*Related Variety in nonprofit*for profit in ACE*	*Related Variety in nonprofit, URelvariety2011np*imin ACE*	*Related Variety in for profit, URelvariety2011np in ACE*	*Related Variety in nonprofit, URelvariety2011im in ACE*
	(21)	(22)	(23)	(24)	(25)	(26)
Variety2011np	-5.206 (170.851)					
Related_Variety2011np		-314.862 (450.650)		-278.585 (455.224)		-219.507 (426.140)
Related_Variety2011im					772.094** (384.639)	
Related_Variety2011np*im			-7,003.218*** (2,369.869)			
UnRelvariety2011np		107.149 (228.535)	-30.518 (218.314)		-1.793 (213.139)	
UnRelvariety2011im						121.289 (155.185)
UnRelvariety2011np*im				-560.782 (485.496)		
PopDensity 2011	-15,639.890(11,997.630)	-15,235.060(12,044.130)	-21,124.890*(11,719.600)	-13,689.400(13,443.530)	-22,800.940*(11,950.400)	-17,565.610(12,578.440)
HumanCapital2011	3,982.346 (2,807.324)	3,712.713(2,838.616)	3,143.274(2,700.893)	2,304.009 (3,045.050)	4,490.560(2,747.704)	3,511.298(2,841.975)
Comp2011	641.305 (1,472.045)	380.297 (1,517.467)	720.667 (1,441.736)	705.629 (1,707.736)	1,148.510(1,360.707)	840.074 (1,676.549)
OMIndex	269.650 (485.502)	260.335 (487.046)	317.084 (459.006)	472.585 (514.591)	369.206 (477.832)	348.934 (501.478)
Constant	-1,731.782	-1,579.967	-3,483.867	-7,976.745	-3,006.648	-2,308.517
Observations	85	85	85	85	85	85
R2	0.053	0.060	0.195	0.082	0.100	0.065
Adjusted R2	0.007	0.012	0.111	0.015	0.031	0.007
Residual Std. Error	548.996 (df = 79)	550.560 (df = 78)	515.985 (df = 76)	551.144 (df = 76)	538.545 (df = 78)	549.189 (df = 78)
F Statistic	0.888 (df = 5; 79)	0.828 (df = 6; 78)	2.307** (df = 8; 76)	0.849 (df = 8; 76)	1.452 (df = 6; 78)	0.897 (df = 6; 78)
Moran I	0.1300**	0.1226**	0.1586***	0.1178**	0.1261**	0.1084**
Lagrange Multiplier	3.6042**	3.2068*	5.3645**	2.9594*	3.3933*	2.5076
Akaike Info	1321.373	1322.773	1313.54	1324.746	1319.022	1322.35
Log-Likelihood	-653.6864 (df=7)	-653.3867 (df=8)	-646.7699 (df=10)	-652.373 (df=10)	-651.5112 (df=8)	-653.1748 (df=8)

Note: $p<0.1$; **$p<0.05$; ***$p<0.01$

Table 15: Results of OLS estimation for dependent variable nonprofits creation in sections of census (model II)

	Dependent variable:					
	Nonprofit creation	Nonprofit creation	Nonprofit creation	Nonprofit creation Related Variety in nonprofit,	Nonprofit creation Related Variety in for profit, URelvariety2011np in	Nonprofit creation Related Variety in nonprofit, URelvariety2011im in
	Variety in nonprofit in sections	Related Variety in nonprofit in sections	Related Variety in nonprofit*for profit in sections	URelvariety2011np*imin sections	sections	sections
	(27)	(28)	(29)	(30)	(31)	(32)
Variety2011np	-1.144*** (0.201)					
Related_Variety2011np		-2.288*** (0.606)		-2.067*** (0.611)		-2.359*** (0.601)
Related_Variety2011im					-2.825*** (0.502)	
Related_Variety2011np*im			-17.397*** (4.622)			
UnRelvariety2011np		-0.876*** (0.242)	-0.169 (0.265)		-0.505** (0.257)	
UnRelvariety2011im						-0.192*** (0.053)
UnRelvariety2011np*im				-0.259 (0.200)		
PopDensity 2011	-4.799* (2.587)	-5.005* (2.588)	-5.320** (2.580)	-5.205** (2.588)	-4.948* (2.581)	-5.032* (2.588)
HumanCapital2011	-0.111 (0.359)	-0.140 (0.359)	-0.140 (0.357)	-0.155 (0.359)	-0.082 (0.358)	-0.145 (0.359)
Comp2011	0.083 (0.065)	0.078 (0.065)	0.102 (0.065)	0.097 (0.066)	0.114* (0.065)	0.105 (0.066)
OMIndex	-1.906*** (0.214)	-2.103*** (0.235)	-1.667*** (0.250)	-1.853*** (0.256)	-1.373*** (0.236)	-1.989*** (0.249)
Incubator	17.122*** (0.625)	17.120*** (0.625)	17.102*** (0.623)	17.141*** (0.625)	17.191*** (0.624)	17.220*** (0.625)
Constant	1.304	1.508	1.254	1.429	1.011	1.512
Observations	5,346	5,346	5,346	5,346	5,346	5,346
R2	0.141	0.141	0.148	0.143	0.144	0.141
Adjusted R2	0.140	0.140	0.147	0.141	0.143	0.140
Residual Std. Error	2.323 (df = 5339)	2.322 (df = 5338)	2.313 (df = 5336)	2.321 (df = 5336)	2.318 (df = 5338)	2.322 (df = 5338)
F Statistic	145.676*** (df = 6; 5339)	125.507*** (df = 7; 5338)	103.082*** (df = 9; 5336)	98.625*** (df = 9; 5336)	128.403*** (df = 7; 5338)	125.530*** (df = 7; 5338)
Moran I	0.0066	0.0074	0.0074	0.0059	0.0057	0.0067
Lagrange Multiplier	0.67818	0.82874	0.84288	0.5392	0.49863	0.68909
Akaike Info	24190.75	24188.74	24150.31	24184.65	24171.34	24188.6
Log-Likelihood	-12087.37 (df=8)	-12085.37 (df=9)	-12064.16 (df=11)	-12081.33 (df=11)	-12076.67 (df=9)	-12085.3 (df=9)

Note: $p<0.1$; **$p<0.05$; ***$p<0.01$

Table 16: Results of OLS estimation for dependent variable nonprofits creation in ACE (model II)

	Dependent variable:					
	Nonprofit creation	Nonprofit creation	Nonprofit creation	Nonprofit creation Related Variety in nonprofit, URelvariety2011np*imin ACE	Nonprofit creation Related Variety in for profit, URelvariety2011np in ACE	Nonprofit creation Related Variety in nonprofit, URelvariety2011im in ACE
	Variety in nonprofit in ACE	Related Variety in nonprofit in ACE	Related Variety in nonprofit*for profit in ACE			
	(33)	(34)	(35)	(36)	(37)	(38)
Variety2011np	22.452* (12.425)					
Related_Variety2011np		21.454 (34.189)		18.625 (34.591)		36.731 (32.484)
Related_Variety2011im					-34.480 (28.586)	
Related_Variety2011np*im			-374.611* (189.832)			
UnRelvariety2011np		22.804 (16.785)	24.546 (16.763)		29.081* (15.776)	
UnRelvariety2011im						-4.392 (11.451)
UnRelvariety2011np*im				-37.411 (35.454)		
PopDensity 2011	8.434 (882.052)	11.028 (891.602)	463.558 (916.459)	516.439 (992.365)	419.698 (893.128)	421.722 (946.659)
HumanCapital2011	198.683 (213.875)	198.412 (215.431)	161.875 (211.779)	125.431 (231.415)	177.026 (213.623)	191.801 (218.239)
Comp2011	-8.375 (122.851)	-8.659 (123.978)	7.750 (122.677)	-60.277 (136.869)	-32.599 (120.047)	-77.981 (134.864)
OMIndex	40.404 (36.757)	40.279 (37.209)	24.796 (37.153)	43.275 (39.341)	31.800 (36.882)	36.735 (38.707)
Incubator	-81.676*** (25.991)	-81.441*** (27.212)	-59.540** (28.367)	-82.624*** (27.327)	-73.366*** (26.075)	-86.502*** (27.270)
Constant	-100.982	-101.219	-159.476	-399.294	-53.859	43.520
Observations	85	85	85	85	85	85
R2	0.191	0.191	0.243	0.207	0.202	0.173
Adjusted R2	0.129	0.117	0.152	0.112	0.129	0.098
Residual Std. Error	39.822 (df = 78)	40.079 (df = 77)	39.276 (df = 75)	40.206 (df = 75)	39.807 (df = 77)	40.518 (df = 77)
F Statistic	3.069*** (df = 6; 78)	2.597** (df = 7; 77)	2.679*** (df = 9; 75)	2.175** (df = 9; 75)	2.783** (df = 7; 77)	2.304** (df = 7; 77)
Moran I	-0.0313	-0.0314	-0.0202	-0.0166	-0.0507	-0.0233
Lagrange Multiplier	0.21014	0.21103	0.087873	0.05902	0.54869	0.11587
Akaike Info	876.2645	878.2635	876.5871	880.5626	877.1059	880.1147
Log-Likelihood	-430.1323 (df=8)	-430.1317 (df=9)	-427.2935 (df=11)	-429.2813 (df=11)	-429.553 (df=9)	-431.0573 (df=9)

Note: *p<0.1; **p<0.05; ***p<0.01

Table 17 : Results of OLS estimation for dependent variable employment rate growth sections and ACE (model III)

	Dependent variable:		
	Employment Growth Variety in nonprofit in sections	*Employment Growth Related Variety in nonprofit in sections*	*Employment Growth Variety in nonprofit in ACE*
	(39)	(40)	(41)
Varietynp2001	-0.033* (0.019)		0.0004 (0.003)
Related_Varietynp2001		0.082 (0.227)	
Related_Varietyim2001			
*Related_Varietynp*im2001*			
UnRelvarietynp2001		-0.039* (0.022)	
Popdensity2001	-0.106 (0.200)	-0.107 (0.200)	-0.203 (0.330)
HumanCapital2001	-0.014 (0.025)	-0.015 (0.025)	-0.299*** (0.065)
Competition2001	-0.013 (0.011)	-0.013 (0.011)	-0.042 (0.043)
OMIndex 2001	-0.048*** (0.018)	-0.047*** (0.018)	0.0002 (0.013)
Constant	0.050	0.050	0.134
Observations	5,346	5,346	85
R2	0.003	0.003	0.274
Adjusted R2	0.002	0.002	0.228
Residual Std. Error	0.182 (df = 5340)	0.182 (df = 5339)	0.016 (df = 79)
F Statistic	3.518*** (df = 5; 5340)	2.974*** (df = 6; 5339)	5.975*** (df = 5; 79)
Akaike Info	-3052.855	-3051.113	-455.4426
Log-Likelihood	1533.427 (df=7)	1533.556 (df=8)	234.7213 (df=7)
Note:		**p<0.1; **p<0.05; ***p<0.01*	

Table 18: Results of OLS estimation for dependent variable nonprofits creation in sections (model III)

	Dependent variable:	
	Nonprofit creation Variety in nonprofit in sections	Nonprofit creation Related Variety in nonprofit in sections
	(42)	(43)
Varietynp2001	-2.224*** (0.239)	
Related_Varietynp2001		2.749 (2.884)
Related_Varietyim2001		
Related_Varietynp*im2001		
UnRelvarietynp2001		-2.490*** (0.284)
UnRelvarietyim2001		
UnRelvarietynp*im2001		
Popdensity2001	-5.737** (2.544)	-5.774** (2.544)
HumanCapital2001	1.598*** (0.318)	1.585*** (0.318)
Competition2001	-0.209 (0.143)	-0.207 (0.143)
OMIndex 2001	-1.613*** (0.226)	-1.595*** (0.226)
Agglomerations2001	17.192*** (0.620)	17.209*** (0.620)
Constant	0.936	0.934
Observations	5,346	5,346
R2	0.152	0.152
Adjusted R2	0.151	0.151
Residual Std. Error	2.307 (df = 5339)	2.307 (df = 5338)
F Statistic	159.486*** (df = 6; 5339)	137.181*** (df = 7; 5338)
Akaike Info	24119.92	24118.92
Log-Likelihood	-12051.96 (df=8)	-12050.46 (df=9)
Note:	*p<0.1; **p<0.05; ***p<0.01	

2.3.5   Discussion and comparison with previous researches

Before going to conclusions, we take the opportunity to summarize the results and the suggestions coming from the exploratory empirical analysis, which provides many hints, some of them may be found contradicting. Despite well-known issues regarding endogeneity affecting growth models (Easterly and Levine, 2001) as aforementioned, we used the previous OLS models given the data availability and constraints. It is our belief that, despite the aforementioned issues highlighted in literature addressing other approaches (Quatraro, 2010; Hartog et al., 2012; Cortinovis, Van Oort, 2015), we are not claiming causal relations but relations between variety and growth at local level.

We presented several comparisons and connections to previous researches along the sections presenting the findings in the previous sections, with particular reference to the literature review (par. 2.1), the introduction of the hypotheses of the investigations (par. 2.3),

when presenting the variables and the different approaches to the quantitative analysis (par. 2.3.1 and 2.3.3). However, due to the geographical units of analysis, the subjects of the investigation and the models used, comparative analysis cannot lead to full objective and scientifically sound conclusions of comparisons. The geographical units of analyses represented by both sections of census and ACE are smallest used in literature to our knowledge. Previous works by Boschma and Iammarino (2012) used Local Labour Systems, while Innocenti and Lazzeretti (2017) used provinces.

With regards to the subjects of the investigation, it should be taken into account the fact that nonprofits are used and decomposed as a self-standing category of geographical analysis for the first time. The works previously cited in paragraph 2.3 decomposed manufacturing and services, while not taking into account the legal name and objectives of the firms. Differentiations of models from previous literature are detailed in paragraph 2.3.1. and paragraph 2.3.3.

Previous cited works of Boschma and Iammarino (2012) on regions in Italy considered the effects of regional diversity without sector distinction, identifying the relevance of variety as an important driver of local employment growth, with non-significant magnitude differences between related and unrelated variety. In case sectors were separated between manufacturing and services, local employment results to be positively affected by related variety, while unrelated variety seemingly stimulated manufacturing only.

To this effect, we decided to proceed the next step of the research on social incubators (Chapter 3) using a case study analysis approach, where a more specific and focused analysis, without statistical meaning, but with regards to practices and experiences, can be introduced.

We started by applying first difference OLS to the dependent variable of growth of jobs and nonprofits in local areas; we went to regress the same dependent variables on final variables at 2011. In the end, we regress employment rate growth in the intercensus period and the creation of nonprofits using variables at 2001, thus at the start of our analysis, looking at possible path dependencies.

At the start of the chapter, we presented our three hypotheses:

1   The relations between the different typologies of variety on the creation of new jobs and employment growth.

Our analysis showed a negative relation between variety and both growth in jobs (employed growth) and the employment rate growth. This is confirmed in all three models.

We identified, with regards to the city of Milan and the period 2001-2011, a more prominent role of unrelated variety, thus the cognitive distance of firms pertaining to different sectors. Relations between employment, both employment rate and new jobs in the areas, are influenced by the relatively negative correlation to the missing of knowledge transfers amongst different firms. Unrelated variety in sections may have a protective effect against external shocks but prevents from a more concrete growth.

2　The sensitivity of those effects to the change of geographical unit (from sections to ACE).

The response to the hypothesis one might change between sections and ACE. However, the results for ACE showed no statistical significance but suggested a positive relation between variety and growth of employment dependent variables. The role of unrelated variety, in particular with regards to growth of employed in ACE, appears to be positively related. These results suggest the diversity of "market" between for profits and nonprofits, with the latter having the necessity of a broader geographical basin or attraction zone to deliver its services. We may affirm that Milan, with regards to the third sector, is a specialized city at sections of census level, while appears to benefit from diversification if larger agglomerations such as ACE are taken into account.

3-　The effects of the different typologies of variety on the nonprofit creation.

Unlike the relations between employment variables and variety, the relations between variations of diversification and creation of nonprofits at local level appears to be slightly positive. Again, the prominent support role is constituted by unrelated variety both in sections and ACE. It is also apparent that the variables concerning the diversification of the areas at the starting point of the analysis (2001) as well as the final point (2011) are negative. This may suggest that a drift towards diversification drives a general local increase in nonprofits and third sector role, while a local area showing a relative diversified panorama of nonprofits does not benefit its nurturing. Nonprofit seems to benefit, in their start-up phase, by a general specialization of the local environment.

2.4　Conclusions and evaluation of empirical analysis

The objective of this contribution is to support the analysis of Geography of Social Innovation, and tries to verify if external economies from the agglomeration of nonprofit

institutions are related to the local increase of employment or other nonprofit organizations. In other words, we wanted to understand, using a geographical approach, such as the one developed by the studies on variety, if there is simultaneity in the development of a more economic and socially sustainable city and in its neighbourhoods. Those are the foundations of the concept of smart city. We therefore identified the role of variety and its decomposition as a tool for analysing the externalities created by nonprofits, thus explaining the differences between specialization externalities in cities, urbanization and Jacobs's externalities, which are created by knowledge spillovers and are identified by related variety. The analysis also attempts to understand if approaches similar to those used in the field of geography are useful tools for analysing social economy and its territorial roots. As this is an explorative research analysis, we cannot provide causality explanations but only hints and suggestions for interpretations.

Milan is a city in continuous development, particularly with regards to its social environment and driving role in Italy and regional area in Europe. The concentration of nonprofits institutions is the most relevant in Italy and amongst European cities, with an increase in institutions and jobs of about 30%, counteracting a sudden decrease in population. The sectors in which nonprofits organizations have developed changed their role and panorama in the city, being particularly concentrated in those sectors for education in 2001 (more than 50% in 2001 between primary and secondary schools), while in 2011 the 50% could be reached by sport organizations (16,6%), political, hobby, cult and active citizenship organizations (17,35%), social and welfare assistance organizations (10,6%) and other educational organizations (11,4%).

The city is also showing a relevant resilient attitude for social innovation as well as competitive advantage in for profit areas deriving from its position in the financial market and from knowledge advantages provided by some of the most advanced knowledge creators in Europe, such as its University network (Bocconi, Cattolica, Statale, Bicocca, IULM and Politecnico). We presented its historical background with regards to Italian and European framework, as well as the legal framework which emerged in the past legislation for the creation of the social enterprises. Unfortunately, it was not possible to analyse data on social enterprises as well as on social incubator *stricto sensu*, as the availability of the census data, providing a more broad and detailed dataset for the analysis, was only between 2001 and 2011, thus a 10-year span of time.

Nonprofit organizations often grow in difficult contexts, in presence of market failures and social institutions failures. Thus, economic efficiency and employment growth can be more difficult to reach in these contexts.

So, the question that arises is if there is complementarity between for profits and nonprofits: in order to tackle this question, an index of well-being covering not only economic issues would be necessary to go deeper into the analysis. Surely:

- social enterprises, nonprofits or for profits with social objectives may have more easier access to financing and resources; the role of cooperative financing and innovative funding initiatives may be investigated;
- nonprofits are created ad hoc by linked for profits to pursue social missions, as foundations;
- nonprofits create ad hoc for profits for financing their social mission, such as bars and restaurants opened in museum or sport associations.

In this analysis, we used a spatial approach to understand the pattern of nonprofits in cities and the interrelations of nonprofits and for-profits with regards to the creation of externalities, be them knowledge spillovers or evidences of specialization patterns in a particular city. We analysed their relations with two different variables that are employment growth and creation of nonprofits in each neighbourhood, using two different geographical units, thus to understand what is the minimum geographical aggregation where eventual spillovers can be considered.

Results from the first difference OLS model are showing that, while the relations between related variety for profits drawn in the previous literature at more agglomerated levels were confirmed, as for the Netherlands, Spain and Italy (Innocenti and Lazzeretti, 2017; Frenken et al., 2007; Boschma et al., 2012; Iammarino et al., 2015), the results for the effects of nonprofits variety, both related and unrelated, are not completely clear. The effects of incubator/agglomerations of nonprofits appear to be negative with relations to the creation of employment but positive on the stimulation of new firms.

With regards to Employment Growth dependent variable, the OLS results generally show no statistical significance, except for the first difference OLS approach, where unrelated variety is negatively correlated to employment growth in sections but positive in ACE, and variety is generally positively correlated to increase in nonprofits. Turning the attentions to ACE, results are showing more statistical significance. It is showed that the interaction

between related variety of nonprofits and for profits is negative, while the single relation between related variety of for profits is positively correlated to Employment Growth.

This result is in line with previous literature, showing the presence of jacobian externalities with regards to for profits in ACE of Milan.

With regards to control variables, only competition variable and OMIndex variable are significant at sections of census level. Competition variable, which entails a particular care in interpretation, identifies a sensibility of sector concentration in attracting new jobs, thus showing a positive value. OMIndex, on the opposite, is negative, showing a possible preference of residential workers not to be resident in areas where prices are particularly high.

Population density has statistical, but negative significance only in ACE as concerns employment growth. Employment growth occurs in those areas where the population density is lower. This is confirmed by the fact that the majority of offices and firms are located in CBD central areas or very peripheral areas, where population density is lower also because of prices of residences.

OMIndex variable is significant in sections of census, explaining the existence of a negative relation between the creation of nonprofit institutions and the prices of residences. As it will be detailed also through the qualitative analysis in Chapter 3 and the literature on Social Innovation (Moulaert and Van Dyck, 2013), nonprofits are localizing themselves in those areas not showing higher values of income, as they produce those services requested by the local community. The strong significance of this index of residential prices may stand for a high sensibility to residential prices and economic inequality, thus supporting the effective answer to new social needs of the third sector.

Therefore, in Milan in the period 2001-2011 we reached the result that at the sections of census level no knowledge spillovers were present. Thus, a broad range of unrelated sectors in a region (Boschma at al., 2008) may be beneficial for regional as well as for urban growth, as unrelated variety shrank risks, neutralizing the effects of a sector specific shock, stabilizing the city economy (Essletzbichler et al., 2005). We mutuate this sentence to our case.

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Chapter 3 - Social Incubators in Cities: a comparative qualitative analysis – Milan and Brussels

Introduction

The previous chapters were devoted to building and unifying a theoretical common framework of literature between social innovation, economic geography of cities and agglomeration economics. The identification of the existence of relations between relevant indicators of economic growth in neighbourhoods and the diversification of the third sector was performed through empirical analysis. The latter has been done through the utilization of econometric tools usually employed for regional and geography evolutionary economics, seldom adopted in relation with the third sector. This was performed in the second chapter.

The previous empirical analysis provided results to be considered exploratory with regards to the contribution of social economy to the economic growth of the neighbourhoods. Data on nonprofits in the period 2001 – 2011 showed a trend of increasing relevance in the diversification of nonprofits.

This diversification appears to be related in different ways to employment growth and increase of new third sector organizations. Furthermore, the empirical analysis showed the existence of positive correlation between the diversification of sectors of services and products and the creation of new nonprofit firms in the same areas, increasing with the rising of the geographical scope. Diversification without knowledge spillovers between firms pertaining to different sectors, appears to be more connected to the creation of new firms, thus new job opportunity for answering those social needs in local areas. Empirical evidences and provisional data from local institutions identified a stable trend for increase in numbers and relevance of third sector economy in cities, not only consolidating their positions but competing with for profits in sectors usually dominated by micro firms and larger companies (it is the case of consultancies dedicated to R&D and funding opportunities).

Social innovation, as often written in the previous chapters, is deeply connected to the territory and local communities. One of the most used terminology for identifying local systems of social innovation is ecosystem, firstly used by the British ecologist Tansley in biology in 1935. Ecosystem is a composite word derived from the Greek *οἶκος*, which in this case means the environment where someone or something live and system, which is applied

to different and interdependent components of a whole. These components unite in one single ideal body a plurality of actors in a dynamic way which is defined by an ecologic organization (Tansley, 1935). The ecosystems of social innovations are networks of third sector economy actors, as they engage institutions, nonprofits and for profits for social development. These ecosystems spread social benefit on the local communities and urban neighbourhoods.

The final step of this research on the local role of social incubators in cities is dedicated to address the last research question on how social incubators contribute to social innovation in cities. The answer to this question is built upon the identification of the processes, the organizations and the services provided by the social incubators. The relationships built and developed between social incubators and the firms supported are identified in order to understand the role of these new typologies of organizations in urban neighbourhoods. The analysis is performed by applying case study methodology involving four different social incubators in two cities: Brussels and Milan.

The choice of these two cities is rooted both in the experience of the researcher and the relevance of the two geographical agglomerations as ecosystems of social innovation. Brussels is a very intense laboratory of social innovation practices along the different levels of policy making (commune – Region – State – EU). Belgium has in its DNA a tradition of a corporatist mold with regard to employment and its sectoral categories, a characteristic reflected in the strength of the trade unions. Belgium is the only state in Europe in which the number of members of trade unions has not been diminished in the decade 2000-2010 (Faniel & Vandaele, 2012).

In 2010, 3,205,332 people were registered as trade union members, equal to over 50% of the active population aged between 15 and 64. One of the main reasons for this high number of members is due to the fact that the unions themselves are responsible for the payment of unemployment or "waiting" benefits, which is the subsidy for young people who have completed the course of studies but who have not yet found a job. In 2013 the total unemployment rate in Belgium reached 8.4% with differences between the Regions of Flanders (5.1%), Wallonia (11.4%) and Brussels (19.3%). These differences inevitably reflect the different economic conditions that exist between the Francophone and Flemish regions. 44.7% of the unemployed are long-term, i.e. unemployed for over a year. This is a figure close to the average of the 27 EU countries (44.6%). This figure reached 55.8% in the city of Brussels in 2012.

Young people, in line with European trends, represent the category most at risk of remaining without jobs or with temporary jobs. Between 1990 and 2012, youth unemployment increased from 14.2% to 19.8%, while young people with precarious jobs saw an increase from 18.3% to 31.4%. In 2016, the NEETs between 25 and 29 years with a low level of education (secondary) were six times the number of those with a good level of education (three-year degree), but in line with the averages of European countries and lower than Germany. Those in possession of a diploma, belonging to NEETs, were double the number of graduates. Regarding urban contexts, where Brussels is the most emblematic case, the percentage of NEET is 23.5%, ten percentage points higher than non-urban areas (Eurostat, 2018). The author spent a visiting period in Brussels to specifically expand his knowledge on the social context of the city.

The choice of Milan derives from the fact that it represents an excellence in social innovation practices in Italy and Europe, as described also in the second chapter. Furthermore, Milan is the place of residence of the researcher author of this dissertation.

The chapter proceeds as follows: the main research question is presented and decomposed in order to present the cases in detail; the second paragraph addresses the introduction of the methodology with its theoretical framework and the presentation of the protocol of interviews to the incubators and the questionnaire submitted to firms; the four incubators are presented together with the results of the interviews with a summary and a discussion of the outcome of the interviews; the emerging relevant networks are introduced and discussed together with the result of the questionnaire submitted online to the 35 incubated firms; the policy implications and the different perspectives are therefore descanted and the conclusions and further research are submitted to the attention of the reader.

Research questions

This chapter is dedicated to answer the specific question on how social incubators contribute to social innovation in cities. We defined social incubators as organizational *black boxes* supporting the development of innovative firms for answering social needs, pre-eminently located in cities and stimulated by local communities. Social incubators are indeed organizations aimed at supporting projects, firms and people with entrepreneurial ideas for social change (Aernoudt, 2004), aiming at producing their effects within precise territorial boundaries and trajectories. However, social incubators have not been institutionalized as

social enterprises have. The typologies of social incubators can differ both in terms of objectives, territorial perspectives and firms incubated, as well as in terms of services provided.

One of the objectives of this chapter is to present the differences identified in four social incubators in both cities and located in different neighbourhoods. Their contribution to social innovation, therefore to the answering of emerging social needs, is therefore enquired. How do they interrelate with the local communities? How do they integrate with the neighbourhoods and other parts of the cities? Do they develop networks or dedicated programs for firms, enterprises and entrepreneurs?

It is a social incubator driven perspective for understanding the local process of social innovation and how it integrates as an ecosystem in the neighbourhood.

The main question is therefore composed of specific questions envisaging:

- The evolution and history of the social incubator and its relationship with the neighbourhood (or more than one in the city).

- The services provided in order to answer to local needs and the analyses of local social needs.

- The process of agglomeration, if present, and the perceived externalities.

- The perceived role of the incubator in the process of social innovation.

- The relation of the role of social incubator in building or playing with the ecosystem of social innovation of the city.

The personal thinking of the author changed and evolved over time according to the questions and the answers received during interviews with the managers of social incubators and experts of both social innovation and social enterprises. Maryann Feldman in 2014 stated that "*the most rewarding aspect of research is that every answered question leads to several more questions that require different avenues of inquiry.*"[12] The push and pull effects definitions deriving from externalities described in the previous chapter cannot be applied to the in-depth study of innovative organizations that are social incubators. Externalities deriving from the decomposition of the variety can be defined as correlations with growth components such as local employment and creation of new firms. This chapter is dedicated to

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[12] Feldman, M. P. (2014). The character of innovative places: entrepreneurial strategy, economic development, and prosperity. *Small Business Economics*, *43*(1), 9-20.

answering the research questions according to a different strategy as exact figures of local externalities deriving from the processes of social innovation exploited and created in social incubators suffer from a lack of homogeneous definitions.

While proxies exist for identifying social impact and are used in social impact analysis and assessment (Cowen et al, 1987; Nowak et al, 1990; Esteves et al., 2012), their application is not suited to these organizations because:

- they have different objectives, pre-eminently endogenously determined by the local environment;
- they lack a common approach in tackling their objectives;
- they do not share common theoretical views on the frameworks;
- they do not share or possess common definitions of their organizations and processes.

The actors involved in the processes of these *black boxes for creating other black boxes* are struggling to find themselves a unique definition of the organization of which they are a part of. Many questions regarding the objectives and the process of social incubation were not provided straight answers which could be in line with classical case studies interviews in organizational studies.

That is why, at this stage of the research, the best framework for analysis is the qualitative one. It provides us with the most effective tools for decomposing and understanding the role of social incubators in neighbourhoods and, enlarging the scope of the analysis in the urban ecosystems of social innovation.

3.1   Methodology

This chapter envisages a comparative summary of the on-desk research, the interviews and the questionnaires on cases studies conducted in Brussel and Milan between February and August 2018. Four interviews in particular were made to the managers in charge of the incubators in their premises, in two cases visiting the premises in multiple occasions and reporting the processes and experiences of the entrepreneurs. The questionnaires, submitted online using Qualtrics application website, were submitted to those firms advertised by the incubator websites that have concluded or are in a mature stage of the incubation process.

3.1.1   Selection of cases

Knowledge on social innovation has been strongly built with the utilization of case studies, as contextual factors proved to be relevant also in differentiating cases requesting particular adaptation of conventional sampling methods (Callorda Fossati et Al. 2017). Therefore, the identification of the cases is relevant in the determination of their qualitative assessment. The intents of the interviews are to understand the reason of creation of the incubator, its history and, mainly, the networks established with the local environment, mainly neighbourhood and local communities and local authorities.

The aims of the questionnaire are to comprehend the relationships established between the entrepreneurs or firms and the local community and neighbourhoods, as well as the establishment of fruitful connections between the incubator and the local authorities.

Case studies deal with the question of how a particular context generates the occurrence of the phenomenon we are interested in studying (Hamel, 1997); multiple case studies are indeed a standard research methodology in the field of research on social innovation (Bouchard et al., 2015). We use case studies to relate an occurrence to its context and consider it under that perspective.

Multiple-case study is designed for the intensive analysis of a few (or relatively small) number of units considered among a broader set of potential units (Seawright and Gerring, 2008) showing a particular complexity. To this effect, the multiple-case study approach is chosen over the single case approach in order to examine how an occurrence develops itself in different contexts (Stake, 2006). Multiple-case study approach is designed to be particularly suited to identify contextual factors such as locational patterns, managerial styles, institutional influence and other drivers contributing to the emergence and dynamics of social

innovation (Callorda Fossati et al., 2017). As specified by Callorda Fossati et al. (2017) with regards to the usual difficulty in shedding some light on the contestedness governing the scientific debate around the concept of social innovation, research literature on social economy usually fails in revealing its sampling procedures, which are usually referred to qualitative strategies or mixed methodologies. With regards to qualitative strategies, they are informed by theoretical choices involving case selection based on researchers' expectations with regard to the potential knowledge input of each case.

Therefore, in order to identify the four case studies and the relevant experts, we proceeded according to the described references in literature and praxis. However, due to the "contested" definition of the term incubator connected to social innovation, we had to identify those institutions which were the most representative in the two cities.

With regards to Brussels, we exchanged information with academics and scholars on the topic of social innovation, participating to seminars and workshops organized by actors involved in strategic and relevant policies and applications. We issued requests for interviews with three main actors: Coopcity, Crédal and Innovatie Fabriek. We asked for meeting and interviewing the relevant manager/expert/person in charge of the incubation processes. We decided to include Coopcity and Innovatie Fabriek according to a principle of relevance to our objective and in accordance with previous and relevant researches, presented in this work. Coopcity incubation and development manager was interviewed for the first time in their venues in March 2018. A second scheduled appointment and occasion for discussion took place in May 2018, when it was possible to meet and experience part of the incubation process during a meeting with the firms and entrepreneurs. InnovatieFabriek was contacted and interviewed in April 2018 at their venues. Both the incubators provide extensive material and disclose non-confidential information which could not be identified and processes as ground for knowledge.

With regards to Milan, we proceeded following the same approach. However, it should be noted that both Make a Cube and FabriQ participated to previous studies by Politecnico di Milano (Mariotti et Al., 2017). The person interviewed were those in charge of the incubation programmes. The article of Giordano et al. (2015) provided a comprehensive overview of social incubators in Italy. To this effect, Make a Cube and FabriQ emerged as the most relevant realities and provided a very good fit for our research, as they were coming from different experiences and backgrounds. In particular, they were located in very different areas of the

city. Furthermore, the managers provided to be available for the interview on different occasions. Following a first meeting in September 2017 with Make a Cube incubation and process manager, we had a further meeting in June 2018. In both occasions, it was possible to visit their venues. FabriQ was contacted in December 2017 and interviewed in August 2018, with an exhaustive visit of their venue.

The firms selected to respond to the questionnaire were contacted starting from their inclusion in the websites of the incubators.

We may proceed to condense the previous statements concerning multiple case study approach by affirming that researchers rely on their intuition that selected cases are typical, extreme, paradigmatic, ensure maximum variation, etc. (Flyvbjerg, 2006; Stake, 2006). Mixed sampling procedures involve statistical assessments of the distribution of key variables among potential cases and allow for example estimations of what makes certain cases extreme (Seawright and Gerring 2008). The case of social innovation research did not see the adaptation of mixed procedures as the population of reference is unknown as there are no statistical or administrative categories corresponding to social innovation and thus no available datasets for assisting empirical research (Callorda Fossati et al., 2017).

The first chapter of the dissertation highlighted the fogginess, despite a strong effort of researchers particularly in Europe, concerning the paucity and related difficulties in building a common theoretical framework around many topics of the social economy if compared to most mainstream economic fields. This is mirrored in the lack of an ad hoc dataset which clearly differentiates social innovation research from innovation studies in economics, which are for the most part based on data recording patents filed by firms (Nagaoka et al., 2010). As we anticipated in the second chapter, no patents or recordings are emitted with regards to innovations of social development.

Only few exceptions can be made to this fact but they are not relevant to our analysis. The pitfalls of qualitative strategies when dealing with social innovation can be summarized in two issues.

The first issue relates to the choice of approach to social innovation, as we may deal with the strong or weak one, building the ground for the following set of questions (Callorda Fossati et al., 2017):

- should the selection of cases be informed by the difference of the two approaches?

- is there a space for cases coming from the "weak" approach when the rationale of a research focuses on nonprofit organizations as the main driver of social innovation?
- what can be considered as a case of social innovation, and how does it relate to a broader set of potential units?

Unfortunately, only partial and ambiguous answers to these questions are given by the literature on multiple case study of social innovation.

The second issue is related to the extent to which qualitative strategies are based on considerations that are pragmatically normed. In particular, the difficulty is related to finding a solution for ensuring that selected cases represent maximal variation considering both the "weak" and the "strong" approaches to social innovation.

Qualitative strategies, indeed, require previous in-depth familiarity with the considered cases (Stake, 2006), thus entailing some risks correlated with easiness of access or to rely on over-studied cases. The main risk, therefore, is to develop a deviant path dependency towards features that are associated with relying exclusively on visible and hence probably successful cases.

Pragmatic criteria alone are not sufficient to inform qualitative sampling in social innovation research (Callorda Fossati et al., 2017), posing the researcher in difficult situations as we must make sense of contested concepts such as social innovation and social incubators across different locations, communities and cultures (as well as languages). Therefore, we developed a semi structured interview protocol to be presented to the managers in charge of the selected case studies, identified through the willingness to collaborate and relevance on the territory, and a questionnaire for inquiring firms and entrepreneurs.

The Program Evaluation and Review Technique diagram below in Figure 33 is built in order to drive the combination of interviews and questionnaire submitted.

Figure 33: PERT of the case study analysis of social incubators. Source: elaboration of the author.
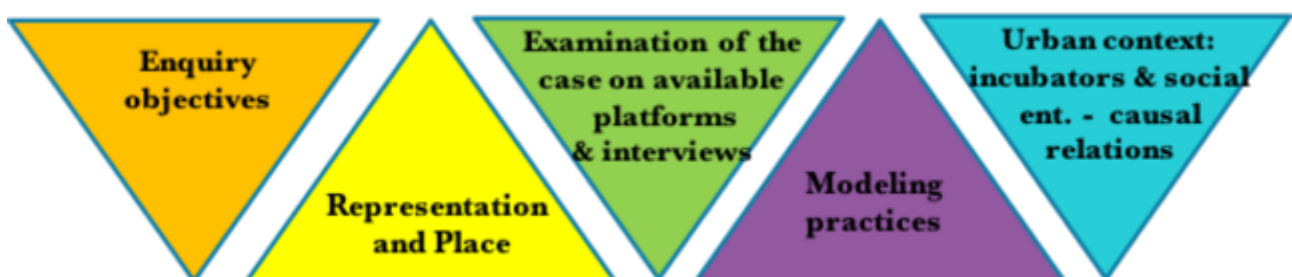
3.1.2 Interview protocol

Methodological considerations having implications for the eventually generated data, the analysis and the representations and their interpretation must be undertaken. A case study is still a simple case, not the phenomenon itself (Haas Dysin and Genishi, 2005), thus our case studies are used for understanding specific contexts or phenomena existing in a complex ecosystem envisaging human experiences.

Case studies are a major methodological player in the fields of educational research (Pereira and Valance, 2006) as well as management and economics (Flyvbjerg, 2006). Case studies have much to contribute with regards to the representation of complex practices, typically relying on unique or limited numbers of observations. However, case studies provide a context dependent knowledge contributing to the experience of the researcher, building experiences from where it is possible to learn (Miles, 2015). Case studies provide analysis of holistic representations of context-dependent knowledge in practice (Flyvbjerg, 2001). The non-generalizability is not a weakness in case study as we are dealing with context dependent investigation of practices. Understanding the social through statistical technique based on generalization is problematic because of the contingency of social life and the necessary limitations of the kind and quantity of confirmatory evidence that can be disclosed (Thomas, 2010). We built a protocol, which is included in Annex I, for the semi-structured interviews done with the representatives of the social incubators, in order to have an assessed methodology for the building of each one of our case studies.

The protocol followed the rules established by Flyvbjerg (2006) and Miles (2015) as well as previous practices in research literature.
The protocol is composed of five main sections of enquiry[13]:
1. Enquiry watch outs and objectives;
2. Representation and place;

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[13] Sources: Miles, 2015, "Complexity, representation and practice: case study as method and methodology", Issues in Educational Research, 25(3), 2015. Flyvbjerg, 2011, "Case Study", in Norma k. Denzin and Yvonna S. Lincoln, eds. The Sage Handbook of Qualitative Research, 4th Edition (Thousand Oaks CA: Sage, 2011), Chapter 17, pp. 301 - 316.

3. Examination of the case on available platforms;

4. Modelling practices;

5. Explaining causal relations

Each section is decomposed in defined objectives and specifications. The first two sections deal with a more generic identification of the environment and objectives of the study, while the third and fourth are dedicated to the interview. The fifth one follows an explanatory logic.

Enquiry watch outs and objectives

Our case study analysis starts by identifying the subjects of enquiry, thus what are those objectives for which we are developing this typology of analysis. The subjects of enquiry, in our cases social incubators, are identified through discussion with experts in the field, willingness to collaborate of the people to be interviewed and an analysis of the relevance in the urban environment.

In particular, the subjects are identified through the analysis of social impacts on proximity systems, be them effects on local labor opportunities and reflexes on income variations in the local neighbourhoods.
Furthermore, the location and the tools adopted for the development of the ecosystems of social innovation are taken into account before the programs adopted by the incubators, as well as the tools adopted and the services provided to the incubated firms. Additionally, the networks created or boosted concerning social involvement are considered. Finally, we enquired the presence of co-working, fab labs or common places and structures where activities are taking place.

In order to focus our research on the locational effects of the social incubators, we underlined the geographical perspective and focus of these organizations:

- The presence of agglomeration patterns;
- The possible externalities identified, be them connected to MAR or Jacobian theories;
- Impacts on residential and land values;
- Impacts on variations of household labor income;
- Variations of employment at local level.
- A second focus was dedicated to innovation drivers:
- Elements of social innovation, reconnecting to theories and practices;

- Elements of creativity such as drivers or development of specific typologies of creative jobs;
- Effects on labor income from innovative activities;
- Variations of employment at local level.

Representation and place

We previously stated that a case study provides context dependent knowledge and accounts of practice drawn together from the voices, actions, interactions and creations of the carriers of practice in a site (Miles, 2015). The nature itself of the building and writing of a case study involves the construction of a representation, reducing immutable and mobile real facts into "really made up" (Anderson and Harrison, 2010).

The place of the representation must take into account the bundle of trajectories constituting the place, the "messy materiality" (Miles, 2015) existing outside the case study. The recognition of the complexity of the place is necessary in order to envisage the distinction from representationalist thinking and the construction of representations built from data and text used ad hoc for the purpose. Representationalist concept identifies the effect of the projection of social relations and cultural constructions on to material reality (Watson, 2003). Case studies are construed by crafting decisions on what is to put in and what to be left out of the representations, thus generating implications for the generation and survey of data and information.

The starting point for this section of the protocol is constituted by the choice of the unit of analysis, which is the social incubator. This choice is made as we decided that social incubators, as previously defined, are the objects of our research effort. While deciding what the unit of analysis is, we proceeded in setting the boundaries to the unit of research.

The definition of our interest in the social incubators connected to the ecosystem of the cities, be them urban, metropolitan or peripheral was set. We enquired the definition of a time-bound perspective identifying the relevant happenings in the history of the unit – a "snapshot-practice" approach. We asked the defined focus on social motivations and preferences of the units. Finally, we identified the typologies of contracts for covering and responding to innovative and emergent necessities and contingencies of the communities.

The complexity of the real reality to be included in the representation was made of bundles of trajectories from a multiplicity of simultaneous operations in place:

- The relational context where the services are provided and innovations produced, such as the local neighbourhood community and the co-working environment;
- The places dedicated to the development and implementation of the innovation;
- The timeframe and the GANTT[14] of the activities.

The different typologies of stakeholders involved by the social incubators, as well as their role in the ecosystems: Institutions; firms and entrepreneurs; corporations and for profits.

The collective actions, such as activities carried on together and with the support of the local communities as well as the statutory governance of typologies of firms (e.g. social enterprises) where identified by focusing on the effects and the impacts specific on the services and the innovations performed as well as the organizational reflections at incubator or firm level.

Examination of the case on available platforms

The first step of the analysis was conducted mining information from the available platforms identified in websites, both official of the organizations and connected expressions (financing institutions, communications tools and public institutions, etc.). Communication materials such as flyers, reports, articles, papers and books, were analysed together with documents of the organizations and connected firms and institutions.

The on-desk analysis was conducted looking at eleven items used as check list for the completion of the examination of the main issues, strictly connected to the previous objectives of the representation:

- The history of the social incubator;
- The missions and the values, if they changed and why they are envisaged;
- The relational framework, both internal and external;
- The funding resources;
- The collective action;
- The activities and services;
- The innovative perspective;

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[14] GANTT diagram is a tool supporting project management named after H.L. Gantt.

- The networks created in the local areas;

- The stakeholders involved;

- The eventual impacts of the organizations and their expressions;

- The organizations involved and the role of the institutions.

Modelling practices

Practice theory attempts to understand the detailed features of everyday actions and interactions though the theorization and issuing of the significance of the theory. This theorization in the understanding of practice is wary of theoretical approach to explain and delivering general explanations of social life as it is (Anderson and Harrison, 2010; Green and Kemmis, 2009; Kemmis and Mutton, 2012; Kemmis and Smith, 2008; Schatzky, 1996, 2002; Schatzky et al., 2001; Thrift, 1996, 2008). The generation of context dependent knowledge of practice in case study embraces action and interactions pivotal in the building of routines and comprehension of the everyday life (Miles, 2015). It is necessary to stress the fact that those accounts are bounded to both space and time elements.

Practice offers and account of activities involving actions and events organized dialogically and co-produced by the actors involved (Green and Kemmis, 2009).
Practice theory offers an account of practicing of the activities and actions, thus "how they are done and co-produced" with their integrated routines.
In the end, practice is performed involving evolutions of physical interactive materials, bringing integral understanding of the complex and the involvement of the different arrays of activity in which the firm, finally, is the nexus (Postill, 2010).

Therefore, given the definitions provided, we proceeded in analyzing the key elements of the identified practices, dividing them into three accounts: activities, practicing and coordination.

The accounts of activities are the summary of the actual facts and happenings, grounded in what people do, orchestrated and co-produced. With regards to the interviews carried on with the managers of the incubators, we identified the first four topics of the interaction.

The first topic envisages the detailed origins and the history of the social incubators with featured: specific community needs; historical needs of the local systems; social innovation and social enterprises; and models or definitions applicable to the specific case.

The second topic concerns local networks and their features connected to the

incubators. For example, we asked if local needs were answered by the actions of the organizations, what could be the possible exploitation of development of local networks and the modality of development (up – down or bottom up).

The third topic deals with collective actions such as how the organizations impact on the local community and the eventual costs and the governance used by the organizations.

The fourth topics are devoted to the identification of the resources for the funding of the organizations:

- If specific values for funding are present and how they are implemented;
- The stakes involved and the investments modalities;
- The sources of the funding, be them urban, peri-urban or regional.

The accounts of practicing are dedicated to identifying and detail those activities of doing and saying, forming practices through repetition, habits and routines as well as integration of those relevant. For the sake of our protocol they are constituted by the activities and the services provided:

- To understand if they connected to the response to local needs;
- If they are using local professional resources;
- How the development of the programs is conceived;
- the eventual influences of the relational framework on the services provided.

Coordination activities represents the last category of accounts. The process of coordination can be summarized as a choreography of material objects and an array of activities in which the firm is the nexus. This account is composed of the last three topics of the interviews.

The detailed characteristics of the mission and values of the organizations:

- the reasons behind the choice of specific missions and values;
- the implementation phases;
- the eventual controls of the implementations phases;
- the respect of the values and mission during and after the incubation process.

The social innovation perspective is dedicated to understanding how local needs are relevant in the stimulation of innovative services, if relevant causal relations affect the motivation for

innovation and the typology of innovators host, be them rushing, wayfinding, rigid visionary or negotiating (Thomas, 2010).

The coordination mechanisms between firms, incubators and local areas represent the last topic driving the interviews with the incubators: the steps for the firms in the incubation process and for the incubators; the person in charge of the different phases of the incubation process and the influences on the locations and the identification of eventual causality links.

Knowledge

The fifth and last "chapter" of the protocol for interview of the social incubators, driving this part of the research, is devoted to the production of knowledge. Case study provides the opportunity to explore different ways and different practices, as well as a context for deepening the understanding of specific rule-governed facts (Flyvbjerg, 2001) defined *ex ante* by external Institutions. Through the case study we have the opportunity to explore accounts of practices differently based on different experiences, knowledge and activities of those participating to them. We therefore proceed to the inference to the best explanation (Thomas, 2010), looking to the case as a means to focus on a practice and create exemplary knowledge enabling the insight in behaviours and organizational processes.

The phronetic approach to inferential knowledge (Flyvbjerg, 2001, 2006; Thomas, 2010) is the practical and concrete experience based knowledge, deriving from the Aristotelian school and described as being not concerned with universal in order to take into account particulars, as it is concerned with conducts and its sphere of particular circumstances (Flyvbjerg, 2010). We also add judgement, thus critical appraisal, to this mix of inference (Thomas, 2010), to complete the understanding of the accounts of experiences in the context of the case study.

Therefore, the explaining of causal relations is reached though inference of the context dependent experiences and acquired knowledge, building new knowledge themselves. Two moments are identified: the identification of impacts and the conclusions.

With regards to impacts, four typologies are researched:

- the impacts on the internal organization of the incubators;
- those impacts on the firms incubated and the entrepreneurs;
- those impacts on the relational causal links of the innovations produced;
- on the local development of the neighbourhoods, with more in-depth analysis on:

- the activities affected and perceived at local level;

- the data on the changes on neighbourhoods, is and when available;

- the institutions, if and when adaptive, antagonist and supportive behaviours are identified;

- the location services relations.

With regards to the conclusions, we identified seven main drivers, which will constitute the basis of the final identification of the framework of analysis:

- the social needs identified and answered by incubators and linked services;

- the social motivations to socially innovate in urban areas;

- the agglomeration patterns;

- the collaborations publicly driven and stimulated;

- the public private partnerships, if and when identified;

- the spontaneous collaborations in the neighbourhoods;

- the institutional settings, be them university settlements and/or public investments.

In the end, our aim was to explore the accounts of practices differently given the diversity of locations, knowledge created and behaviour.

The four incubators were identified in Coopcity and InnovatieFabriek in Brussels, FabriQ and Make a Cube in Milan. Further information on the selection process and their relevance will be provided in the detailed description of the cases.

In order to reach our objectives, we asked the managers about the typology of social innovation, what is the definition they apply (if one is applied) and how they are stricter in following it. We asked the methodology they used and how they reached the organization of social needs of the local communities.

We asked if they refer to legal definitions, as for the case of Coopcity they adhere to the EMES approach of social innovation, the one presented before, accepted and published in official documents by institutions such as the city of Brussels. The case of InnovatieFabriek is more peculiar as they are more business like oriented in providing their services, with a more structured approach and business model definition. We asked for the typology of innovation, if it refers to products or services, and how is related to the local necessities. It is interesting to stress the fact that most of the innovations in FabriQ regards products, while Make a Cube regards services. The majority of firms incubated and accelerated by InnovatieFabriek deliver

services and product support, while Coopcity is more dedicated to product development and sustainability in the local area.

The social orientation of the incubators and how they do influence firms on the choice of their own (of social orientation) is also interesting, as in the case of Coopcity and InnovatieFabriek they do not ask the firms to be social enterprises, which is almost the same approach as for the incubators in Milan.

The connections to the institutions are differing: Coopcity is an emanation of different public institutions, more similar to FabriQ in Milan, while InnovatieFabriek is networked by private investors and foundations. Apart from the first stage of their life, institutions have been supportive of incubators. In the case of Coopcity public Institutions are at the base of it, while in the case of Milan, the municipality followed a trend that was just in place before the Municipality built the smart city office, which is responsible for social innovation and open innovation projects.

3.1.3   Questionnaire submitted to firms and entrepreneurs

Following the interviews, we decided to strengthen eventual results and knowledge by submitting an online questionnaire to the firms incubated or following the incubation phase. The online questionnaire presented in the next pages was submitted to 35 firms. It does not have any statistical objectives as it is designed exclusively to confront part of the information received through the interviews with the firms which participated to the process. It is of help for understanding the typologies of social innovation provided by the incubation process and the answers to social community needs.

The questions were organized according to a structure as similar as possible to the protocol for interviews, therefore not a new protocol for guidance was needed but suitable adaptations followed. 51 questions were posed both in Italian and French, through Qualtrics technology, with the questionnaire available also on smartphone devices for an easier to answer experience, with open questions reduced to the minimum, according to practice.

Figure 34: Smartphone Qualtrics interface of the questionnaire. Source: elaboration of the author on Qualtrics.
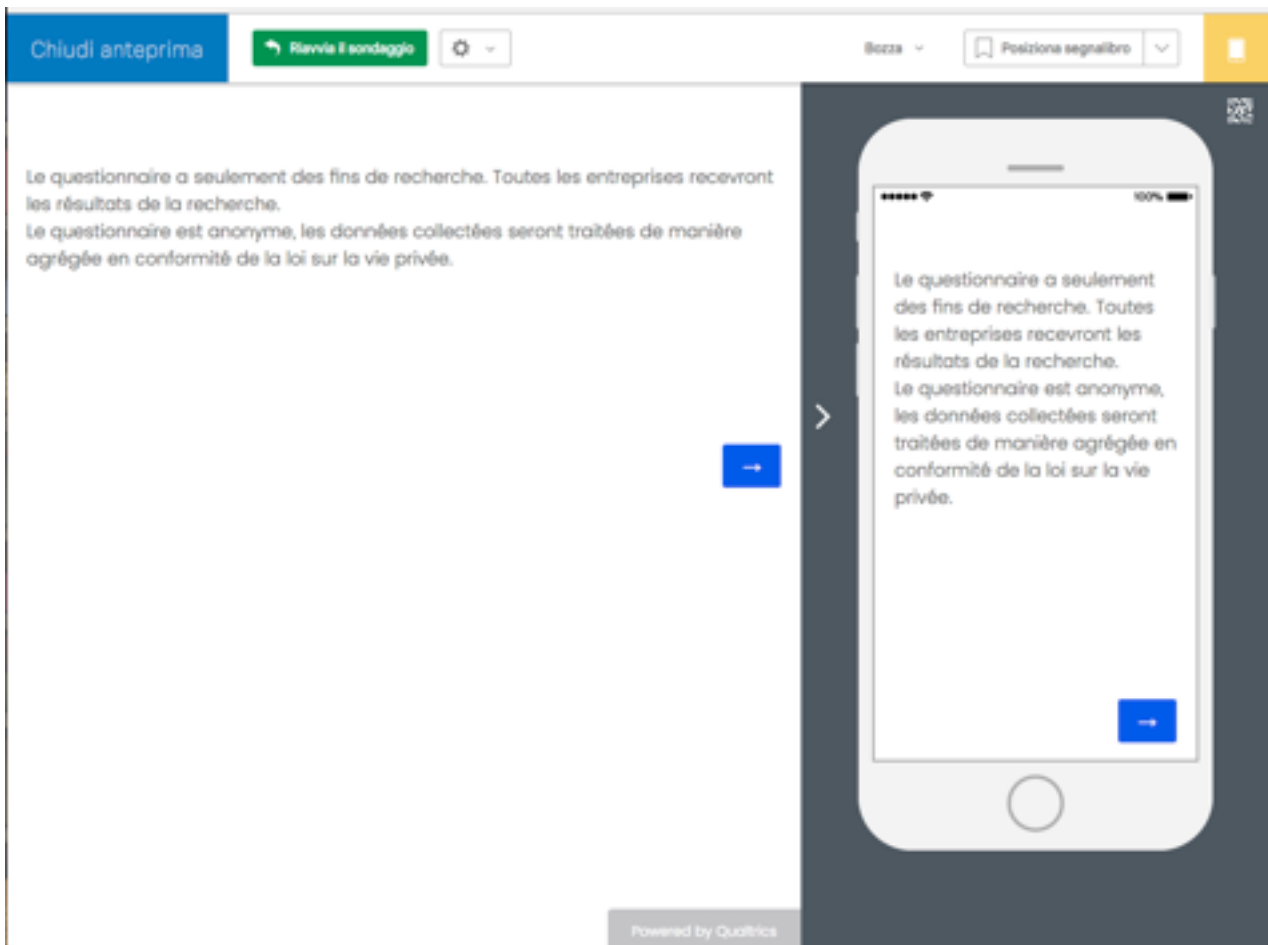
A database of email addresses of firms and entrepreneurs was built with the available contacts on the websites of the incubators. 35 of them were active and working.

The structure of the questionnaire was built according to the following drivers of enquiry:

- Identification:
    - The identification of the respondent with its age and the role in the company;
    - The information on the firm, much of it not compulsory;
- The identification of the services and their analysis of social needs;
- The typologies of social innovation and the relational frameworks at local level;
- The social orientation of the firm
- The localization of the firm and the neighbourhood effects from the incubation processes and place.

The objective of the questionnaire was to better understand the process of social incubation from the perspective of the firms and entrepreneurs, if they felt it rewarding or connected to their expectations and if it allowed establishing relations with the local neighbourhoods and communities. The establishment of local networks with the incubator at the centre or more dispersed networks over the boundaries of the urban framework.

The questionnaire is in Annex II and contains the full set of questions as well as the organization of the different sections of the structure, with questions and answers possibility.

3.2   Incubators

The following paragraphs will proceed as follows: we start with the Brussels incubators, as they envisage more diversified and advanced methodologies of processing social innovation issues, with the Milan experience following. At the end of the analysis of each incubator, a table resumed the most relevant aspects of each of them according to the following qualitative criteria/dimensions selected in accordance with the methodology and protocol presented in the previous paragraphs, identifying their levels (geographical, legal and according to the services and objectives) and policy focus: the drivers of the creation and action of the incubator; their identity (nature, objectives, geography); their localization (urban and policy scopus); their provided services (social orientation, key values, programs and sources of financing). Finally, their local effects are presented.

The elaboration of case study analysis does not lead to statistically relevant conclusions *per natura*, but should lead to developing a new framework of analysis. We developed the framework presented for making order on the outcome and provide a graph of analysis for further research. This paragraph introduces an analytical framework for the analysis of social incubators at neighbourhood and city level, taking into account the most relevant characteristics emerged from the analysis of the four case studies. The starting point of the framework are the drivers identified in line with the theoretical background explicated in the first chapter. We identified 4 dimensions: (i) the drivers for creation of social incubators, (ii) the identity of social incubators, (iii) the localization of social incubators and (iv) the services provided by social incubators. Finally, we designed the effects at local level emerging from the interaction of social incubators in the local ecosystem, leveraging on the identity, business model (nature) and incubation program (services provided). A conclusive table will be

presented in the conclusions of this chapter.

3.2.1   Coopcity

Coopcity was the first incubator interviewed. It is located in the neighbourhood of Saint Gilles, in a very particular area which is experiencing a strong wave of immigration as well as transformation. To this effect, the risk of gentrification is very high. The *commune* (municipality), which is part of the *Regione de Brussels Capitale*, is historically divided in two different parts: the Haut and the Bas. The Haut de Saint Gilles is located closer to the Ixelles commune, it has experienced a never-ending influx of French speaking people and upper medium class since 1850's. The Bas de Saint Gilles is historically a poorer area, which in the last period showed a quick incoming of young people from the creative and business class with higher wages and differentiated needs. It is experiencing strong diversity in immigration. However, the later shows a real differentiation in terms of wealth and segregation. Coopcity is located in the latter neighbourhood. The following paragraphs are the summary and account for the interviews with the manager of Coopcity competent for the incubation processes.

Identification and formation of the incubator

Coopcity stands a Cooperation in the City. Its objective is to exploit the potential of the social economy in the city of Brussels. It is an association of 7 private and public partners using both private and public resources, active since 2015. It is a partnership activated for this purpose. The majority of partners are directly involved in the third sector and in the research for innovative tools for the development of the local systems of the city of Brussels. The partnership benefits of a large network including different institutions working on the territory such as relevant foundations financing and letting social peculiar needs of the different communities emerge (e.g., the Foundation Roi Baudolin is one of them).

Typology of Social Innovation

The objective is to impact on the policy and advancement of social innovation impacting on the local territory. The objective is to impact the diversity of sector of the whole city, building an incubation set of tools to be used also on other cities, covering a series of sectors applicable to differentiated needs of the local communities.

Coopcity fully refers to the EMES concept of social innovation, as a process of providing effective solutions to emerging local social needs, starting from an actor of the third sector but deploying their effects on enlarged ecosystems.

Social Orientation

The local needs were analysed in the city of Brussels, based on report of the priorities set by the Institution of the Brussels City government. Those priority were set to build an *équipe* for developing innovative entrepreneurship with a social objective based on the local communities.

They have three missions:

- Develop and support, through its various support programs, innovators in setting up their projects and existing social enterprises in developing their activities;

- Inspire and raise awareness on the social economy in order to inform, educate and inspire future entrepreneurs on social entrepreneurship in Brussels, thus instilling another vision of the economy;

- Collaborate and cooperate through its various programs and activities, providing an environment which is conducive to cooperation and collaboration between the various actors, working within social entrepreneurship in Brussels.

Geographical Aspects

The area of interest and action of Coopcity is the entire city of Brussels, or Regione de Brussels Capitale. However, the majority of the activities are organized in the place in Saint Giles, where the venue is organized as a place melting different experiencing and opportunities. The connection with the neighbourhood is relevant, given by the strong diversification of cultures provided by immigration and the multitasking activities produced in the headquarters. The place attracts the curiosity of the residents, who participate increasingly in activities and scheduled appointments of the incubator.

However, amongst the main reasons for which Coopcity is located in the Bas St. Gilles are the proximity of the Brussels Midi Station, which is one of the main transport nodes of Brussels (and Europe, connecting Brussels to Amsterdam and London through the Thalys and Eurostar trains) as well as the venue is owned by one of the partners.

Stakeholders' profile

There are different ways of approaching the incubator, as well as there are a very broad set of stakeholders involved. They can be both involved as idea makers, thus innovator pursuing an idea for solving an issue, or people who show a particular interest solving a social problem, but lacks the business approach and management tools.

There is not a single portrait for the social innovator, as the age is usually between 25 and 40 and with a good degree of scholarization. Many of those innovators and future

entrepreneurs are people with a special curiosity in ameliorating their local community through the provision of a service, thus they usually start with an idea concerning a specific issue which is affecting people they personally know.

Services Provided and the process of Social Incubation with respect to Social Innovation initiatives

Their "actions" rest on three pillars: incubation programs (SEED, BLOSSOM, POLLINIZE, INNOVATE), co-working and resources.

SEED, which is a support program tailored to the needs of soon-to-be entrepreneurs, is a program composed of 14 modules built and deployed in collaboration with experts of the cooperative and association sectors, partners in Coopcity. Those who are interested in becoming social entrepreneurs must participate and follow the modules in order to receive the incubation services, of which the education phase constitutes an integral part. The first module addresses the definition of a social need and the correspondent idea which can be the solution, provided by the inventor of the social innovation. The second step is the tuition of the basis of social entrepreneurship, with the presentation of the different typologies of social innovation and the innovative economic models. The third is the verification of their competences in complementing their projects.

The fourth module is built in order to learn and comprehend the project management tools for developing their own ideas. The fifth module provides the entrepreneurs with the identification of the stakeholders in the ecosystems of their interest, those necessary to envisage in order to develop and exploit their innovative ideas. In many cases, the final price of the products or services is conceived and calculated during the sixth step of the path. The following seventh step is devoted to the selling of the outputs, introducing some marketing techniques. Communication strategies are taught in the eighth module for preparing the entrepreneurs to the outside environment. The ninth and tenth modules are dedicated to the governance tools to be used when dealing with the management of their firms and its coordination and engagement with the surrounding ecosystem, as well as the financial planning tools for the first three years, including budget analysis. Following the management and budget sessions, an entire session is dedicated to the finding of suitable financial supports for the development and improvement of their entrepreneurial ideas, both from the public and private sectors. Before providing some tools for evaluating their social impacts (thirteenth module), the entrepreneurs are asked to decide the legal nature of their firm, thus

an introduction to different, pros and cons, of the legal forms used for carrying on their activities. To this effect, no strong pushes are made towards the choice of the social enterprise, however it may suite most of the cases. The last step pivots on the opportunity of building and being part of a local ecosystem, thus construing a cooperative society with the local community as the basement.

The SEED incubation phase is a seven-month long path, usually starting in the fall and concluded at the beginning of the summer, with a limit of 14 projects accepted, it applies the EMES principles of social entrepreneurship and social economy.

Amongst some of the most relevant activities there is the "animation", which is an agenda built for the entrepreneurs to show their projects and comparing them with different practices. This opportunity is provided through a series of conferences, seminars, visit on place and after work time organized by Coopcity and networking partners.

BLOSSOM is a program dedicated to those cooperative or social enterprises in activity for more than two years. The objectives are the development and implementation of more accurate strategies during a period of two years, with a particular focus on reconciliation between social objectives and financial viability.

The entrepreneurs are invited to participate in a program from Solvay University (a networking partner of Coopcity) with the aim of boosting the management and creation of sustainable growth. The co-solving expertise is involved in 15 ateliers of cooperation and brainstorming. All enterprises are individually followed during this process by one expert of Coopcity.

POLLINIZE is an incubation program built for following and accompanying the projects with multi stakeholder social innovations, thus addressing transversal needs and typologies of users, to create jobs through a dedicated theme. With regards to the year 2018, the Pollinize program was built around the solutions for improving the home issues in Brussels, from the building phases to the rental contracts and the delicate issues of energy consumption, co-habitation, expulsions and affordable access to home.

The program is built for those organizations active on the theme chosen, which is always linked to a necessity perceived by the urban communities. It has a duration of eighteen-months and provides one accelerating phase and an individual coaching to ensure project viability, its launch and a suitable governance.

INNOVATE program is dedicated to those entrepreneurs with a particular interest in social experimentation of innovative solutions for improving the social environment of Brussels. It is fully devoted to ground-breaking and disruptive social innovations. The program is twelve months long at maximum with the objective of favouring the emergence and development as well as diffusion of future social enterprises. It gives the opportunity of participation in 4 seminars of collective engagement and it is focused on social innovation topics. It provides also the availability of the co-working spaces and collective activities organized by Coopcity. In particular, the program is focused on the creation of activity prototypes to be exploited in local neighbourhoods in Brussels, identifying methodologies, processes, products or services with a very high degree of social innovation. The use of a co-working space in the centre of Brussels is not only provided to the participant of the incubation programs but also to those interested in the social economy and other non-standard ways of doing business with social aims. An updated agenda of scheduled activities is provided on the website and newsletters. The resources for start-up and social entrepreneurship are those tools provided during the incubation program but at disposal of all those entrepreneurs with social aims. They are all the tools for discovering the ecosystem of the city of Brussels, the possible financial and supporting tools and the collaboration opportunity to foster and develop the activities.

Figure 36: INNOVATE program scheme. Source: www.coopcity.be.

167
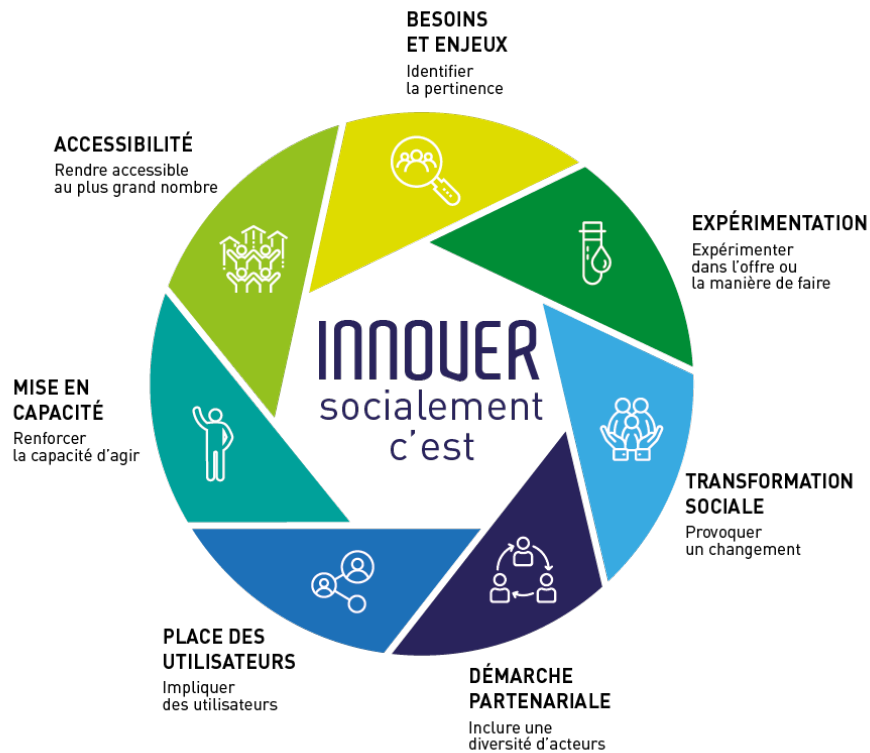
Funding and resources

Coopcity is publicly funded through a social development fund of the EU, through the office for smart City of the Region de Brussels Capitale until 2021. Its mission is to sustain, through dedicated programs, the development of social entrepreneurship in the region of the city of Brussels. They pursued a very specific and important identification of local needs.

4 Million Euros of funding are used for financing 5 employees and the co-working infrastructures as well as the accompanying processes of the incubated firms.

Table 19: Coopcity analytical framework table. Sources: elaboration of the author.

Dimension	Level	Focus	Local effects
Drivers	City	Municipal policies/EU Objectives	Analysis of local needs Decrease of local unemployment
Identity	Nature	Private, publicly funded through tenders	Creation of services
	Objectives	Social innovation at city level	
	Geographical focus	City	Community engagement
Localization	Urban	Close to infrastructures	
	Community engagement	Programs	re-engagement projects for unemployed
Services provided	Social orientation	Cooperation but not exclusively	Involvement of local citizens and institutions for joint programs
	Key values	Social innovation	
	Programs	Incubation, acceleration	
	Financing	Coworking,incubation tenders	Gentrification process slowed

3.2.2   InnovatieFabriek

InnovatieFabriek is a Flemish organization located in a very much different location, being close to the Brussel Centraal Station for transport and mobility access reasons. It represents a very dynamic and fashionable environment. They provide their services for free, directly financed by institutions, usually private, or in cooperation with other financial actors such as foundations or agency for employment or business development.

They developed a series of business models very much consultancy devoted mostly innovation for social purpose, creation of employment included. Their definition of social innovation is the EMES one, but they do not apply it in a very stringent way. They do not pursue a research of local social needs, but they look for identification of services through engagement occasions such as fairs and community fora.

Identification and formation of the incubator

Sociale InnovatieFabriek stands as Social Innovation Factory. Its objective is to promote social innovation and guidance to entrepreneurs and firms through an acceleration designed approach to societal innovative concepts. It is an association of 23 private and public active association and entities in the field of social entrepreneurship, cohesion and support, but also local government agencies and business. The core objective, however, is to stimulate and focus on the private partnership. All partners are directly involved in the third sector and

the research of innovative tools for the development of the local systems not exclusively for the city of Brussels.

Typology of Social Innovation

Social Innovation Factory promotes, guides and supports social entrepreneurship and social innovation to the benefit of societal challenges. In its operation, the factory starts from three basic values: attention for shared added value, a focus on social transformation and impacts driven. There are many experiments in Flanders of social innovators with citizens, companies and associations dealing with these interdependent and multi-layered challenges in a creative way. The incubator, which does not include any co-working infrastructures, is basing its practice on a critical vision of the existing approach, thus it decomposes it. It approaches the perspective and most important aspects of social innovation as a praxis, a process with results, in order to understand the possible momentums that need social investment and to uncover possible leads for impact assessment and other connected forms of data collection (Hurbin, 2018). It is therefore possible to cooperate for improvements and developing innovative concepts, with innovation seekers able to create real social change. InnovatieFabriek stimulates this social change.

InnovatieFabriek refers to the EMES concept of social innovation, as a process of providing effective solutions to emerging local social needs, starting from an actor of the third sector but deploying their effects on enlarged ecosystems.

Social Orientation

The local needs are not usually analysed. A set of priorities are given to different stakeholders engaging the incubator and met during brainstorming sessions or meetings at workshops.

Their mission is to establish a social innovation culture in the Flemish area, informing as much people as possible and making them aware of the concepts and development, as well as the successes, of a social innovation perspective. This is done mainly by activating occasions of networking and participation to activities fostering the cooperative and socially sustainable approaches.

Geographical Aspects

The area of interest and action of Sociale InnovatieFabriek is the entire Flemish Region and the city of Brussels. The usually do not focus on single areas of engagement but in some cases local institutions asks them to do so. However, the connection with the local

environments of the firms and entrepreneurs is always relevant. Innovators usually starts by the identification of a need perceived by their inner community.

The office was chosen according to a decision of mobility and access to the Flemish region, which connects to Brussel Centraal.

Stakeholders' profile

It was not possible to identify a singular portrait of the social innovator who turns to InnovatieFabriek. The majority of the people are usually medium highly educated people with social interests and aptitude. Innovators are usually driven by practical examples working as a trigger, for example family issues for solving health uncomfortable situations or aging related issues of mobility.

Services Provided and the process of Social Incubation with respect to Social Innovation initiatives

Services are not usually organized as per set path, but approaches are built. They are usually more business oriented as the background of the workers is more coming from consultancy and private sectors. Most firms do not pertain to a single sector but they are cross sectoral, thus not possibly defined by the actual categorization at EU level.

As previously stated, they have an engagement strategy which is more "on request" by the innovator, who can simply write to InnovatieFabriek an email and request a meeting, or a dedicated institution asking for a dedicated incubation program or tender building for a focused program of social innovation. InnovatieFabriek acts as strategic partner for many activities and accompanying programs sponsored by other institutions with Flemish locally centred interests, be those schools or other local government bodies.

They make an abundant use of social media through which they look forward to reactions and questions concerning innovative practices, in a logic of total "learning by increased knowledge" from several streams of information.

The Social Innovation Factory provides weekly practical examples of social innovations from Flanders and Brussels. They publish continuously with a full dissemination aim of their workshops and orientation sessions.

In conclusion, they stimulate the creation of hubs through a tutorship methodology of seeding, with the objective of promoting social innovation and spreading the concepts across the region.

Funding and resources

InnovatieFabriek is not publicly funded. It receives the funding through the partners of the network association and the consultancy they provide to remunerate its workers. Their services are freely provided to individual innovators.

Table 20: InnovatieFabriek analytical framework table. Sources: elaboration of the author.

Dimension	Level	Focus	Local effects
Drivers	Local	Community needs	Analysis of local needs Decrease of local unemployment
	City	Municipal policies	
Identity	Nature	Private	creation of services Community engagement
	Objectives	Social innovation	
	Geographical focus	City and Regions	
Localization	Urban	Close to infrastructures, different areas	re-engagement projects for unemployed Involvement of local citizens and institutions for joint programs Gentrification process slowed
	Community engagement	Programs	
Services provided	Social orientation	Cooperation but not exclusively	
	Key values	Social innovation & investment	
	Programs	Incubation, acceleration, commerciallization	
	Financing	Knowledge transfer programs, incubation tenders	

3.2.3 Make a Cube

Make a Cube is one of the most relevant social incubators in Milan. The other being FabriQ. It is a private incubator in the form of an anonymous, investor owned company (s.r.l.) founded in 2012 with the purpose of stimulating social change together with the public local institutions of the city of Milan. They co-design tenders and together with the municipalities, also of other cities such as Turin, they ideate the social innovation policies and participate to round tables. They do not pursue an active research of local social needs but they brainstorm together with the municipality. They are located in a well-served area close to the Statale University, and the metro services. The incubator is fully private and does not benefit from public financing.

Identification and formation of the incubator

Make a Cube identifies four typologies of objectives for its activities:

- stimulate entrepreneurship with social aim;
- stimulate policies of low profit and low dividend;

- equity principles as driver for entrepreneurship activity;
- particular care in evaluating social impacts.

Make a Cube was founded in 2012 as a branch of a private consulting company dedicated to social entrepreneurship and co working activities. The objective was to create an incubator where start-ups with social purposes at their base were taken to the market, where investors could be easily met.

Therefore, Make a Cube starts as a co-working and sharing experience firm for developing other innovative firms with the availability of a mix of competencies and knowledge deriving from the founding partners, all active in the third sector.

Typology of Social Innovation

Make a Cube refers to a general definition of social innovation, referring to those innovations and actions that impacts the social environment. It does not provide value only to the entrepreneurs. To this effect, it is relevant to stress that the local communities are here again at the base of the idea, as they refer to social innovations as those strictly connected to providing benefits to the territory and local communities.

Social Orientation

Local needs are not usually analysed. However, Make a Cube can be invited to participate in meetings with the Municipality of Milan where the priorities of the social innovation and the different needs of the local neighbourhoods are discussed and set. They do not pursue particular sectors as reference for their action, thus working on a cross-sector and transversal basis.

Geographical Aspects

The area of interest and action of Make a Cube is the entire city of Milan. However, the majority of the activities are organized in the neighbourhood in Milan where it is based, where the venue is organized as a place of co-working. In the years, they opened a café with bike reparation, as complementary activities thus stimulating sustainable mobility behaviours. The connections with the neighbourhood are relevant, also provided the links and externalities with the university and the local institutions. The place attracts young students and the workers of the area, which is vibrant and very much close to the city centre.

Stakeholders' profile

As for the firms incubated in the previous incubators, there is not a single portrait for the social innovator, as the age is usually between 25 and 50 and with a good degree of

scholarization. Many of those innovators and future entrepreneurs are people with a special curiosity in ameliorating their local community through the provision of a service, thus they usually start with an idea concerning a specific problem, which is affecting people they personally know.

Services Provided and the process of Social Incubation with respect to Social Innovation initiatives

Make a Cube provides four different programs for the incubation, acceleration and commercialization of the ideas. These activities are not to be confused with those designed on demand for partners, institutions and customers that, however, exploit the same core principles. **Make a cube Warm Up** is a two days program of full immersion of workshop education in order to provide incubated firms with:

- self-consciousness of potentials and limits as well as expectations and fears;
- a proper vocabulary both suited to the profession and for economists;
- an identification of the correct value of their own ideas in order to organize and manage a setup and a business model;
- the skill for exploring and expand their relational network at local and outer level;
- the perception for understanding if they are in the good moment for starting their entrepreneurial careers.

Make a Cube 121 is an accompanying program tailor made for socially competitive innovations, designed for firms with some history of activities and innovation. It is dedicated to boost their social potential and develop their business model in a more comprehensive way thus to be more attractive also on the market. In particular, the focus is towards the better definition of:

- local environmental and social needs on which to have impacts;
- entrepreneurship ideas and business models;
- potential customers and users of services and products;
- market dimensions and characteristics;
- analysis of competitors and markets;
- benefits and value added for the community and the environment.

Make a Cube HD is the high intensity incubation program, designed for start-up groups

over six months of full time activities in order to maximize outputs of efficiency and visibility. It is not designed only to be addressed to local start-ups but also to national and international ones, providing relevant inflows and effects on the whole ecosystem of the city of Milan and beyond it is a customizable program designed for institutions to extract the best from their investment. It can be set up according to different drivers be them women, NEET, unemployed, the geographical unit of interest and sectors or legal names to be adopted.

Make a Cube Open Innovation program is designed to provide for profits and public bodies with tools for nurturing their territories with social enterprises operating in their value chains and operations. To this effect, a link between for profit and nonprofit is established to be a long-term relationship of mutual and cooperational benefit also for local communities and surrounding territories.

Funding and resources

Make a Cube is fully private and finances its services through the delivery of results and contracts with private firms, public institutions.

Table 21: Make a Cube analytical framework table. Sources: elaboration of the author.

Dimension	Level	Focus	Local effects
Drivers	Local	Community needs	Analysis of local needs
	City	Municipal policies	Decrease of local unemployment
Identity	Nature	Private	restoration of unused buildings
	Objectives	Social innovation	creation of services
	Geographical focus	Parts of city	Community engagement
Localization	Urban	Close to infrastructures	More focus on peripheral areas
	Community engagement	Directly by incubators or programs	re-engagement projects for unemployed
Services provided	Social orientation	Not specificly requested	Involvement of local citizens and institutions for joint programs
	Key values	Social innovation & knowledge transfer/investment	De-segregation
	Programs	Incubation, acceleration, commerciallization	Gentrification process slowed
	Financing	Coworking, knowledge transfer programs, incubation tenders	

3.2.4   FabriQ

FabriQ is more similar to Coopcity with regards to its financing, being supported by funds from the municipality. It is operated by private actors who won the tender (Fondazione

Brodolini and Impact Hub Milano) and develops tenders for projects on the topics identified by the municipality. They incubated more than 60 firms, without a defined restriction of legal names or direction of theoretic social innovation, creating overall 30 Million of Euros of revenues in the aftermath of the incubation process. The rate of success is high, with relevant outliers.

The relationships with the neighbourhoods are relevant, taking into account the peculiarity of the history of disgrace of the neighbourhood of Quarto Oggiaro, particularly infamous in the 80's and 90's for violence and mafia infiltration. The incubator is developing different programs for the creation of value in the neighbourhood and interacting with the schools of Quarto Oggiaro and the engagement of disabled and aging people in the area.

Identification and formation of the incubator

FabriQ is an ATI - Associazione Temporanea di Impresa (temporary association of enterprises) of two private partners (Fondazione Giacomo Brodolini and Impact Hub Milano). Both founding partners have large experience and knowledge of third sector innovation and governance. They derive from the melting of research and business based on co-working and social innovation activities. FabriQ is the social incubator of the Municipality of Milan, with its activities being driven by the department of policies for employment, production, commerce and human resources together with the directorates of welfare and urban policies. The first FabriQ tender was approved by the Municipality in 2014, in order to set up a node where social innovation was to be developed for the sake of local development of the city and in particular the neighbourhood of Quarto Oggiaro and the north-west part of Milan.

Typology of Social Innovation

In a similar way to Make a Cube, FabriQ refers to a general definition of social innovation, being those innovations and actions of impacts in the social environment and not providing economic value only to the entrepreneurs. The local aptitude of the incubator is peculiar; however, it does not work only with start-up coming and working in Milan, but also from other regions. FabriQ does not request some specific legal names to be adopted, the majority of its enterprises incubated being for profits created by inventors.

Social Orientation

Local needs are not usually analysed. However, FabriQ works under the direction of the Municipality of Milan where the priorities of the social innovation and the different needs of the local neighbourhoods are discussed and set. They do not pursue particular sectors as

reference for their action, thus working on a cross-sector basis and transversal industries.

Geographical Aspects

The area of interest and action of FabriQ is the north-east part of Milan, which represents its basin. All incubation activities are organized in their venue in Quarto Oggiaro, which is a neighbourhood which suffered by organized crime infiltration and historical fractures in its social textures. Beside the recovery in the last decade, the neighbourhood is still affected by a relevant share of unemployed people. The incubator, despite its first difficulties in activating services with the communities, is creating a shared bond with the local environment and services with the population aware of its presence and activities. It collaborates with local communities of citizens in setting up discussions in the evening and projection, as well as programs for young kids during the summer.

Stakeholders' profile

Again, as for the other incubators, there is not a single portrait for the social innovator and the background is very mixed. Many of the innovators are people with a history of unemployment or young people with higher education without employment or sufficient wages to allow for a living in Milan or other regions.

Services Provided and the process of Social Incubation with respect to Social Innovation initiatives

The activities and project developed are built according to three main drivers: self-entrepreneurship, territory and schools. The self-entrepreneurship driver is mainly composed of three projects. The first project is **Migrants Empowerment for Change (Me4Change)** which is a Horizon 2020 project funded by the European Commission. The project aims at providing a large support to the entrepreneurship of migrants with a particular target for young migrants towards nonprofits by social aimed for profits.

The second project is titled **Young Enterprise program**, which is an innovative program for including young citizens in the job market. It has a local and European breadth directed to promote innovative practices to support young entrepreneurship, particularly focused on NEETs in Milan.

Milan Young Citizen is the project for including and promoting the participation of young people in the future of the city of Milan. It is driven by the social innovation perspective as an effective and strategic tool for urban sustainable development.

With regards to the territory driver, three additional projects are activated.

The first is called "*Mettiamoci in Gioco"* and deals with territorial activation of the soccer fields close to the FabriQ venue. The aim is to renew this open space and to activate it with activities concerning art, sport, and environmental education targeting young citizens of the neighbourhood for all the summer.

The second project is called "*Mobilità Solidale"* and it deals with the call for solutions "Social Innovation and Smart Cities. It provided funding for developing an application (UGO) for accompanying the people in needs through drivers and caretakers, thus fostering community bonds.

The third project is called "Call 4 social innovators", which provides a period of free permanence in the venue of FabriQ with all the necessary networks and infrastructures as well as the consulting services of experts of all necessary sectors for the development of ideas of start-ups.

With regards to schools, it is relevant to mention that FabriQ is a digital factory with the presence of a 3d printer course and manufacturing, particularly dedicated to young people from 6 to 25 years of age. Furthermore, two other projects for the schools are in place: the first is a collaboration with a high school of the city of Milan for proposing educational path towards promotion of self-entrepreneurship; the last is the "scientific coffee" for the scientific dissemination in school/work experiences.

Funding and resources

As mentioned before, FabriQ is funded by the Municipality of Milan through tenders for the organization and development of the incubator in Quarto Oggiaro neighbourhood. The amount of the tenders can vary, the last being Euro 270,000 for three years (Comune di Milano, 2018[15]). The venue of the incubator is the property of the Municipality.

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[15] Politiche sociali, bandi aperti
http://www.comune.milano.it/wps/portal/ist/it/servizi/sociale/Politiche_Sociali_Bandi_e_Avvisi/Bandi+aperti

Table 22: FabriQ analytical framework table. Sources: elaboration of the author.

Dimension	Level	Focus	Local effects
Drivers	City	Municipal policies	Decrease of local unemployment
Identity	Nature	Publicly funded through tenders	restoration of unused buildings
	Objectives	Social innovation/Innovation	creation of services
	Geographical focus	City and beyond	Community engagement
Localization	Urban	Different areas	More focus on peripheral areas
	Community engagement	Directly by incubators or programs	re-engagement projects for unemployed
Services provided	Social orientation	Not requested	Involvement of local citizens and institutions for joint programs
	Key values	Social innovation & investment	De-segregation
	Programs	Incubation, acceleration, commerciallization	Gentrification process slowed
	Financing	Knowledge transfer programs, incubation tenders	

3.2.5 Questionnaire summary table

Information on respondent	The average respondent has 39,4 years of age and is directly involved in the activity of the company, usually as CEO (17% of the cases) but mostly cofounder or director in charge of projects' promotion.
Information on firm	All Belgian companies are from Brussels, while in the case of Milan incubated firms, variety is stronger as companies are located in Milan only in 50% of cases, while others are from other cities (even Palermo). The majority of the firms were founded in the 2014-2017 period, but there are cases of firms founded in previous decades (90's and 80's). In the case of Brussels, the majority of the firms are *asbl*, associations and cooperative. With regards to the firms incubated in Milan, they are usually limited liability companies with social objectives. The amount of capital is less than 8.000 € (however an outlier at 600.000€ is present). Average revenue is 18.500 €.

Identification	With regards to the services provided and linked to local necessities, the firms are different, as the average is 2.63 in the Likert. The same happens with regards to the presence of ex ante analysis of the social needs before starting the firm, as well as if they respond to necessities not answered by other companies of public entities. In the case of the role of the incubator in directing the choice of the services, the prevalence is toward disagreement, balanced between the different cases. The same happens with the role of the incubator in deciding the legal form with a stronger interaction on this issue in Brussels.
Typology of Social Innovation	Firms agrees on the fact that they possess and apply a definition of social innovation, and they are slightly more focused on services and processes.
Social Orientation	Most of the firms are planning extensions of their services with a strong commitment, but they are not using a defined model of stakeholders' engagement.
Local engagement orientation	The majority of the firms show connection between social objectives and innovation typologies, however a small number of them are in disagreement. The majority of the firms reached still lacks bonds with the local neighbourhoods. However, relevant cases of strong ties have been identified. This is reflected in the fact that firms, with outliers, did not feel the neighbourhood provided opportunities for growth, while a different and counteracting perception is related to the urban environment, which is somewhat identified as being relevant to the creation of opportunities. Local institutions, in general, are not perceived as supportive, however the role of the incubator is perceived as disconnected from the role of the institutions. The incubator, in general, has created job opportunities in the city but not too much in the neighbourhood, but in the eyes of the firms did not have the opportunity to further interact. The access to services (transport, schools and other infrastructures) is usually perceived as being poor. The role of the urban environment is more perceived as positive and supportive to the

	creation of social innovation. With regards to the networks created by the social incubators, the experience of Brussels differs by the one in Milan, where in the Belgian experience we have references of the creation of networks and ecosystems in the long period, even after the incubation and commercialization phase. With regards to diversification in the incubators, there is a general agreement on the presence of intersectoral firms' agglomeration following a common path, but not too much interactions were in place. In the cases where interactions took place, the effects were particularly positive.

3.3   Identification of new framework of analysis and the intersection with theories of social economy

We must locate this ecosystem in the economy of the city. The State represents the public local institutions, the for profit represents the market and the local communities represents local stakeholders. Mauss, Perroux and Razeto, are represented by the market facilitating the matching of supply and demand; the redistribution represents the correction of the allocation of resources is connected to the previous one, also facilitated by the market and what is counterbalancing its effects. The reciprocity represents complementarity and interdependency of actors as opposed to market exchange being an integral part of human relationships. Such view of the economy according to the European tradition, helps us in the identification of the third sector which is enlarged by the presence of social incubators in this graph. Social enterprises, as well as social incubators, are likely to be located in those connecting areas as they experience the tensions identified as blurring frontiers for the social economy landscape (Defourny and Nyssens, 2013).   The need for social innovation is necessary for "unlocking" economic and social systems which suffer from path dependency (Poledrini, 2018). This is much more relevant in the light of this research as the two main literature fields we tried to align together to explain the phenomena of social incubators are particularly dependent on the local path deriving from policies, geography, etc. Social innovation emerged as element of "counter-counter" spreading in the western developed world in order to contest the establishment represented by older generations and middle class – bourgeoisie. The productive dimensions were also involved in this research for innovative typologies of representation and organization of economic development.

Social incubators are introduced as a new subject/actor of the play in the urban social and economic framework. They are "nurturing" the social economy landscape and adding elements to the growing interconnections between economics, shared capitalism and organizational studies. One of the main aspects of the picture is represented by reciprocity, which will also be presented in the following pages. Reciprocity plays a relevant role in explaining the contribution of social incubators in their objective of solving market failures in welfare. The earlier economic mechanisms were denoted by reciprocity and redistribution, "...with movements between correlative points of symmetrical groupings" (Polanyi, 1957). The mechanisms highlighted by the qualitative analysis of the four incubators speak of reluctance in accepting mainstream economic assumptions, therefore looking for

differentiated and community related identification of needs. It must be stressed the distance from the dynamic of gift in economy (Mauss, 1990), as social incubators do not envisage gratuity and voluntary jobs in their organizations.

The four incubators are inserted in the following figure as the blue dots added to the previous scheme. A first attempt at inserting them in the figure has been made.

Figure 37: social incubators in social economy. Source: elaboration of the author based on Defourny and Nyssens (2013), Pestoff (1998, 2006).
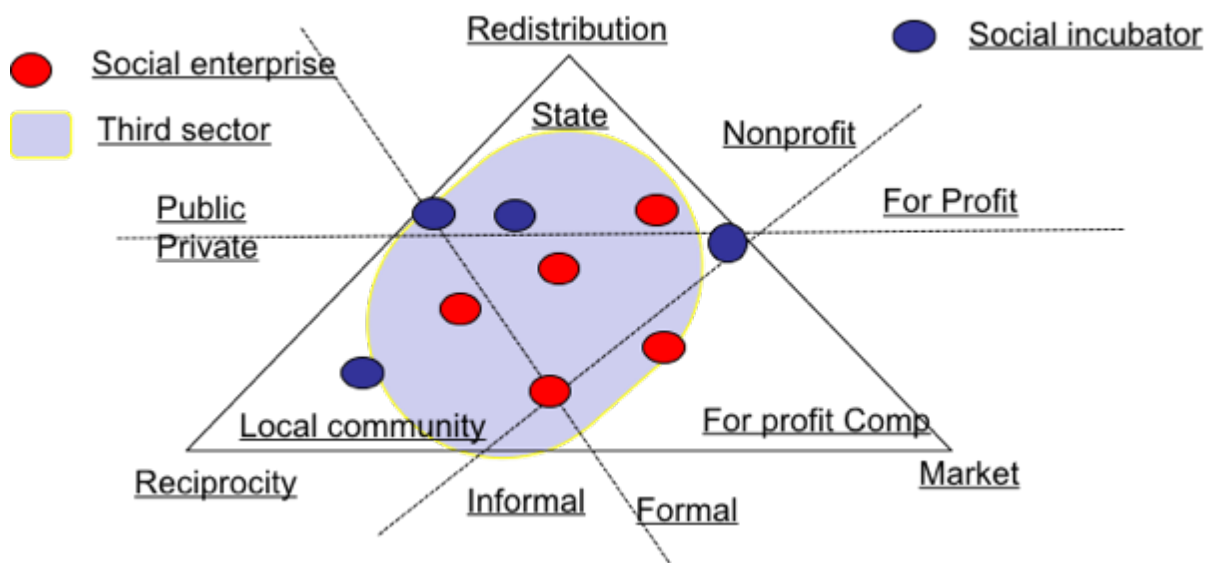
The main literature for identifying the territorial aspects of social economy are those from the EMES and Defourny and Nyssens (2013), as they formalized a model of social enterprise which is included and discussed in the first chapter.

We proceeded with the addition of social incubator processes of social innovation and their relations with the social environment to the model. We took into account the geographical relations between those incubators, their firms and the neighbourhoods. The graph presented above is mutuated by Pestoff (1998, 2006) and used by Nyssens and Defourny (2013). Social incubators, as social enterprises, are combinations of various actors, logics and resources. They construct an ecosystem while adding to those just in place in the local territory of the city.

In this context, he community answer does not configure a gift because it is not caught in the cycle of reciprocity. We reached this conclusion encompassing the resources and the rationales developed by several streams of literature from Polanyi onward to Boulding,

183

following the deconstruction of Mauss, and the anti-utilitarian perspective. The altruistic component of the social incubators is not in their actions but in their concept as extension of the community in order to tackle the market failure.

To this effect, the positioning of the four social incubators enlarges the Third Sector field of action: Coopcity and FabriQ can be assumed as the most similar institutions as they position themselves between a public and private institutions (with regards to the mixt of funding and participation), with the latter much closer to the local community in terms of geographical needs. Make a Cube is positioned at the bottom left, as it is private and closer to the local community, furthermore impinging on a more reciprocal dynamic of exchange with the urban pattern. InnovatieFabriek represents a special case of borderline between nonprofit and for profit, closer to the market needs of a broader regional perspective.

The four incubators compared

Starting from the tables presented in the previous sections (tables 19 – 22) for each incubator, we continue to proceed with the comparisons and final identification of a common framework for analysis. The drivers for creation of incubators can be local, therefore referring to a single neighbourhood or multiple zones geographically identified, or city level. The creation of the social incubator can derive from the emerging of community needs, usually when the incubator is created in an area with poor infrastructures (it is the case of FabriQ) and social difficulties, or they can be driven by municipal policies. The two drivers identify two different approaches: the bottom-up approach, in case the social incubator is created by the impetus of the local communities' emergent needs; the top-down approach, in case the social incubator is created by virtue of local institutions. In the case of FabriQ the starting focus was on the neighbourhood of Quarto Oggiaro, then it shifted towards the involvement of outer parts of the city of Milan, stimulated by the policies of the municipality. The two approaches are not antithetical, except for the initial phases of the elicitation of needs.

Table 23: Drivers for creation of social incubators. Source: elaboration of the author.

Dimension	Level	Focus
Drivers	Local	Community needs
	City	Municipal policies

The identity of incubators is defined by their nature, usually private and funded by public money. Social incubators can be temporary associations of firms or consortia created to apply to a tender or call for proposals by a public entity or institution. The public "hand" is usually identified as the kick starter of the program. The objectives of social innovation are predominantly local. The building of programs for incubation or acceleration is created in accordance with implicitly identified community social needs (in the case of FabriQ, Make a Cube and InnovatieFabriek) or previously identified needs in local areas affected by peculiar issues of unemployment, segregation, environmental protection and isolation of ageing and vulnerable people (Coopcity). Again, the geographical perspective can be localized in one or more neighbourhoods but with the aim of expansion towards outer areas.

Table 24: Identity of social incubators. Source: elaboration of the author.

Dimension	Level	Focus
Identity	Nature	Private, publicly funded through tenders
	Objectives	Social innovation at local level
	Geographical focus	Local: neighbourhood, part of city

The process of solution-seeking in social innovation can have two origins: the identification of a perceived social issue and the building of a network to tackle it; the institution of a network before the identification of specific issues (Maiolini, 2015). The localization dimension in which this process takes place differs from the drivers dimension previously illustrated. The localization dimension refers to the envisaged attraction zone of the incubator, therefore it can be city-wide, usually with closer distance to transport infrastructures and services of general interest, or it can respond to specific community engagement need. If we assume the second typology of solution process previously mentioned, the network driving of the incubator is created in anticipation to the emergence of one specific set of needs: it answers miscellaneous necessities to be addressed via a community engagement governance driven network. The resulting network can create the

185

incubator upon "agglomerating the perceived necessities" in order to identify them and programming solutions.

Table 25: Localization of social incubators. Source: elaboration of the author.

Dimension	Level	Focus
Localization	City	Close to infrastructures, different areas
	Community engagement	Directly by incubators or programs

The last section of the relevant dimensions identified in the new framework for analysing social incubators is dedicated to the services provided. The identification of services stands to provide the role of the incubators in protecting and supporting the incubated firms in their path. Several programs of incubation, acceleration and commercialization were illustrated in the case studies. However, four levels of objectives were detected: social orientation, key values, programs and financing. The incubators provide services to the incubated firms following these four levels, mentoring and coaching (Caroli, 2015) them in deciding their forms, identifying the governance, the key values, the programmes to attend and the financing opportunities.

The level of social orientation stands for the social vocation of the firms with regards to its legal name, focussing not exclusively on cooperatives or associations or social enterprises. The social orientation towards the decision of the forms of the firms is driven by the relevant regulations and legislations in the two countries. While in the case of Coopcity a prevalence was towards the nonprofits forms, the other three social incubators did not provide specific indications of driving the firms towards nonprofit/for profits forms. Evaluations on the best forms are made during the first or secondary sessions of the incubation-start-up programs. The key values are strictly connected to the definition of social innovation referred by the incubator. However, knowledge transfer is seen as a key value in all the four incubators. This level addresses the relevancy of knowledge creation and service broader utilization in the community, thus a social benefit going beyond the private dividend distribution.

The programs are different in the construction but similar in the aims towards the independence of the incubated firms. The start-up incubation, the acceleration for selected firms with the higher potential and the commercialization for those subjects with a more

market possibilities.

The financing level is more diversified. It takes into account the different levels of tenders, call for proposals and financing opportunities which the incubators use and helps to familiarize with the incubated firms. As we illustrated when presenting the case studies, all incubators are typologies of private associations under different legal forms. All of them benefited from public funding in order to install and provide some of their services.

Table 26: Services provided by social incubators. Source: elaboration of the author.

Dimension	Level	Focus
Services provided	Social orientation	Cooperation but not exclusively
	Key values	Social innovation & knowledge transfer/investment
	Programs	Incubation, acceleration, commercialization
	Financing	Co-working, knowledge transfer programs, incubation tenders

The last part of the framework is dedicated to the identified local effects. The local social needs identified by the community networks and the municipalities are different. The two experiences in Milan and Belgium also differ amongst them, dependent on the neighbourhoods and their socio-economic conditions.

The main drivers for the needs work on re engagement of excluded people, the restructuring of old and unused buildings left by the manufacturing and service industry, as well as the general involvement of local institutions together with a renewed activity of the collectivity. Those needs are tackled through the incubated firms or, it is the case of FabriQ, also through the development of dedicated programs with the objective of local community involvement and infrastructure re-utilization.

The location of the incubator and its peculiar needs are transferred to stimulate effects by the firms (or ad hoc programs of interaction incubator-firms-local community) to the pursue and selection of an identity of the firms, the utilization and application of business models (Giordano et al., 2015), and the incubation programs.

Figure 38: Local effects deriving from social incubators in cities. Source: elaboration of the author.
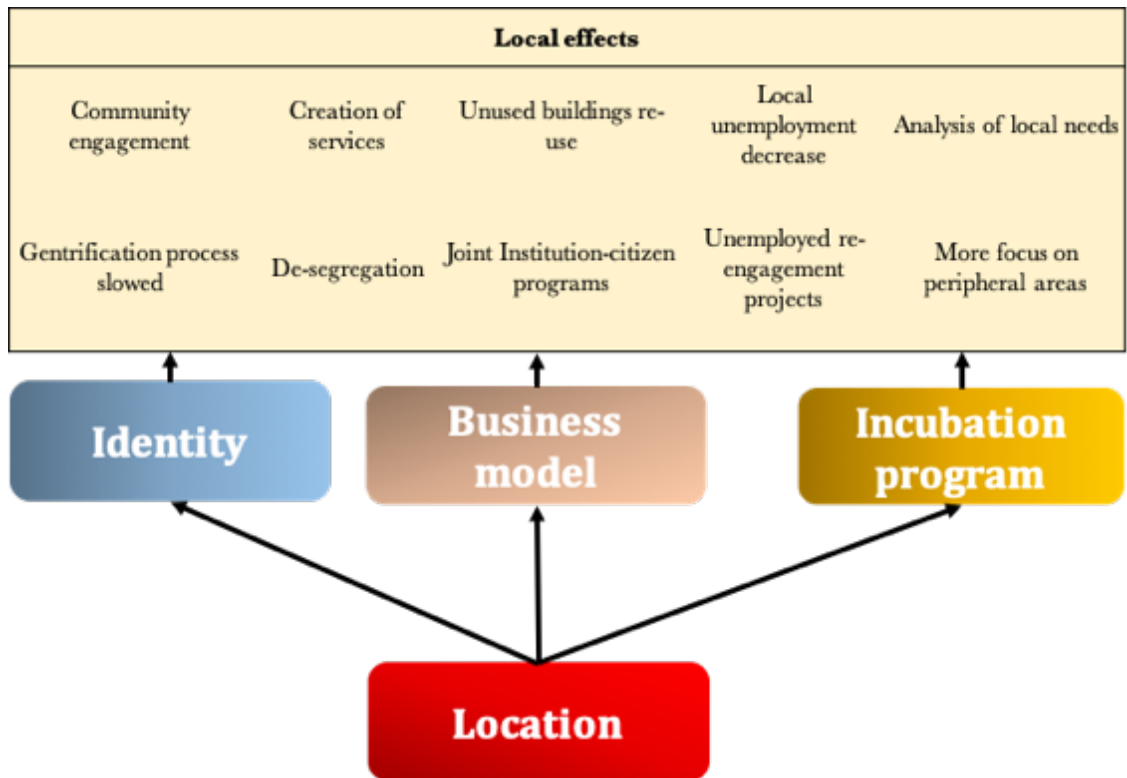
3.4   Conclusions and policy implications

In concluding the third chapter, we presented how the four case studies of social incubators have been analysed, starting from the objectives of the enquiry, the identification of the role of social incubators, how they operate in two different cities and the services they provide to the firms incubated. We confirmed through a qualitative approach that social incubators, as a new typology of organized agglomeration in cities, are relevant actors in creating social innovation in cities for their agglomeration externalities and diversification of approaches as well as sectors. The effects of social incubators, through the provided services and the coordinated programs of incubation, are multifold and involve re engagement of excluded people, the restructuring of old and unused buildings left by the manufacturing and service industry, as well as the general involvement of local institutions.

Cities are confirmed to be the primary locations for innovation and the local social needs are more relevant due to the powerful urban transition movements, inequality and gentrification effects. The localization patterns of the four incubators are different, as the variety of their services and business models is high.

We processed all the available information on the case studies both on desk and through the interviews, understanding what the models for the services and practices are, thus the institutionalization of the services they provide. The role of social incubators is shaped to answer to the needs of local communities, thus should have a higher magnitude on the areas in their proximities (Pellizzoni, 2014). This is not always true. The same nature of the incubators and their mandate in some cases identify the local impacts as secondary. In some cases (FabriQ) they must develop increasing programs of engagement in addition to the incubation programs. The case of InnovatieFabriek is emblematic as they do not limit themselves to the city geographical area but they operate also in the Flanders. However, they always adopt a local engagement approach to identify unique points of local reference to establish and develop their social networks of innovation. Coopcity and Make a Cube, even if they do not share a similar background, they posed themselves at the centre of the local ecosystem since the beginning of their initiative.

Finally, we tried to identify causal relations between social innovation impacts and the role of the social incubators.

The research questions introduced in the first pages regarded the evolution and

189

history of social incubators, the services provided, the agglomeration process, the role perceived of the incubators and the inclusion and role played in the ecosystem. The creation of the social ecosystem and the participation of the incubator as an organization with active role is therefore put at the centre of the analysis.

The evolution and history of the social incubator and its relationship with the neighbourhood follows two general patterns, differing if the social incubator is publicly or privately funded. In the case of Coopcity and Make a Cube, the two publicly funded social incubators, there is a solid background of cooperative and social economy knowledge, put in place according to pre-defined and pre-organized set of objectives, usually decided by the public institutions. With regards to privately funded social incubators, they usually start from a co-working experience coupled with a consulting background and are usually more business oriented but with defined tools and applied to solutions oriented issues.

The services provided in order to answer to local needs and the analyses of local social needs are not always pre-screened and defined. In many cases, it is simply a matter of flow management, where the process does not allow the planning of accurate ex-ante evaluations. Inputs to activities can be deriving from the will of a network of institutions, usually local government, with the intention of keeping an area of the city out of the dangers of exclusion and aggressive gentrification towards the poorest, or it can be case by case, as for Make a Cube and InnovatieFabriek.

The process of agglomeration is not usually present. Firms does not agglomerate in the incubators but they cooperate and position themselves in the venues if relevant externalities deriving from knowledge cooperation. However, social incubators appear to work much better when close to creative hubs, with access to transport hubs. The case of FabriQ is emblematic, as the majority of the firms are not located in the incubator during and after the incubation phase, thus it is necessary to build ad hoc tenders for local neighbourhood development. The perceived role of the social incubators in the process of social innovation is always relevant. The incubator is at the centre of the process of networking for creating social values. The incubator is pivotal in product and service development and business plan, providing entrepreneurs with the necessary tools for managing their firms in a cooperative and ethical way.

The relation of the role of social incubator in building or playing with the ecosystem of social innovation in the city must be deepened. The role of the incubator is not yet perceived

as relevant by the local communities if not after years of presence on the territory and neighbourhood.

What emerges from the interviews and questionnaire is the role of public institutions, which is not seen as a driving supporter of social innovation activities, despite being the initiator in most cases. Of course, it is a mix of communication and policy implementations deficiencies.

Therefore, we built on the Tepsie project conclusions for identifying innovative actions by the public actor. Public institutions can have a relevant role both with regards to demand and supply of local social services (Caroli, 2015). In addition to the strategic intervention in driving social innovation, the enabling of demand support of financing mechanism as well as public procurement and digital innovation, we add:

- the inclusion of social incubators in relevant policy documents, using benchmark experiences such as the Brussels Smart City strategies and Milan Smart City Office in Italy. The recent reforms in Italy on the third sector is not mentioning at all these organizations. Neither are the other Countries'. Social incubators are extending the role and presence of the third sector in areas where the public is retracting and the private actors are not present;

- The involvement of local communities in the co-decision-making process, strengthening the role of the local neighbourhoods in the evaluation of the needs;

- The strengthening of the local institution involvement in social innovation activities, thus providing forms of engagement at micro level.

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Conclusions

We started this dissertation with an overview of the relationships between globalization and urbanization, proposing a scenario where cities are the nodes for innovation and knowledge transfer. We proposed an evolutionary perspective of innovation and its city centred development with the emergent roles of the creative class and workplaces. Furthermore, with the advent of the 2008 crisis, new social needs and welfare failures continued to emerge in cities, with necessary identification of drivers of social innovation and social enterprises. To this effect, a new black box was introduced as social incubators, agglomerating third sector enterprises which, stimulated by the effective needs voiced by metropolitan communities and boosted by urbanization processes, are providing welfare services. Social enterprises are in place where social welfare, provided by the private and public sectors, fails to serve the needs expressed by the society. The locations where the clash of different classes of people happens are cities, metropolitan areas and urban centres, where the decaying strength of middle class society has been more prominent.

The second chapter supported an analysis of Geography of Social Innovation, identifying the presence of external economies from the agglomeration of nonprofit institutions, the role of variety and its decomposition as a tool for analysing the externalities created by nonprofits. We focused on the differences between specialization externalities in cities, urbanization and Jacobs externalities, which are created by knowledge spillovers and are identified by related variety. The analysis also attempts to understand if approaches similar to those used in the field of geography are useful tools for analysing social economy and its territorial roots. As this is an explorative research analysis, we cannot provide causality explanations but only hints and suggestions for interpretations.

The third chapter presented the four case studies of social incubators. We understood through a qualitative approach that social incubators, as a new typology of organized agglomeration in cities, are relevant actors in creating social innovation in cities for their agglomeration externalities and diversification of approaches as well as sectors. Differentials in magnitude, perception and activities are present in the different organizations in Milan and Brussels. This produced a framework of analysis for a better understanding of these new typology of organizations, in many cases left behind and not conceptualized by policy makers and institutions.

Two different approaches were used in this research work: a quantitative one and a

193

qualitative one. The hidden objective was also to understand is, according to the result carried on during the research, a benchmark could be established or lessons could be learned for one city or for the other.

The identification of a benchmark should start with quantification of a best practice connected to Key Performance Indicators or evidence based results. This was not possible in our case, as the community needs for the two cities are too different. Differentiations exist also between neighbourhoods, as it was stated in many occasions by the incubator managers interviewed. The experience of Brussels in developing social innovation incubators can be identified as a "benchmark experience" and not a "benchmark case".

Lesson could be learned. In particular with regards to the future policy decision making for the city of Milan, the inclusion of social incubators in relevant policy documents, using "benchmark experiences" such as the Brussels Smart City strategies and Milan Smart City Office in Italy. The recent reforms in Italy on the third sector is not mentioning at all these organizations. Neither are the other Countries'. Social incubators are extending the role and presence of the third sector in areas where the public is retracting and the private actors are not present, therefore the involvement of local communities in the co-decision-making process, strengthening the role of the local neighbourhoods in the evaluation of the needs must be stimulated as a form of engagement at micro level.

In order to resume the conclusions to this research, it is advisable to reconnect them to the overall research questions.

The first question was "Why is the third sector important in the evolution of cities and why cities are the geographical place of development of third sector?" The question addresses the relevance of third sector in cities and the reciprocal influences, focusing on the drivers of the creation of social incubators. The main drivers of social incubators, due to their agglomeration of social enterprises, are the provisions of welfare related services. Social enterprises are suitable for pivotal impacts on cities and local development. Their impacts can thus be measured in different ways and using both qualitative and quantitative model analysis for identifying the social capital and value-added production.

We provided a comprehensive overview of the territorial process of social innovation and social change, which is expressed through social enterprises and the emergence of social incubators in cities. These complex networks create ecosystems of social innovation, with the interaction of other institutions such as universities, public entities and private actors of the

urban communities, providing suitable answers to the emerging local needs. All over the world, there are many social enterprises that have been providing jobs and working in the market economy for years, facing different challenges and reaching sustainable business models, in many cases struggling to face independence from public financial resources. Their evolution, starting from the 80's and legally framed from the 90's, impinged some similarities with for profit businesses, starting from commercialization to profit sharing (Dees, 2017). Social incubators, therefore, are active in providing the necessary skills and, whenever possible, funding for new social ventures.

In presenting social enterprises, social innovation and social incubators we stressed their territorial dimension in producing effective human capital at local level, presenting the city as the main spatial dimension where these processes are taking place, notwithstanding a relevant literature which is taking into consideration the evolutionary aspects.

The mitigation central governments 'functional role is linked to an increase in the local policy, which is connected to the strengthening of private actors (Peyroux et al., 2012). Urban system features an essential form of social interaction and organization in the creation and distribution of wealth, one of the main organizational mechanism through which efficiency in production and trade is attained and distribution effected. Therefore, a trans-disciplinary approach involving the whole body of economics and political science, architecture, urban and regional studies, anthropology and humanities when dealing with social needs in urban areas is paramount, as highlighted in different parts of the contribution.

Local ecosystems are therefore fundamental in skill building for trade opening and stemming of knowledge externalities leading to innovative capabilities building.

According to this, an improvement in production conditions creates a favourable enterprise environment or, mutuating the terminology from above, geographical ecosystem. The evolutions of manufacturing, production and services are dependent on the information technology and its supply chain, embedding a relevant proportion of face-to-face contacts. Implications of physical and geographical proximity are not denied, even today featuring more efficient means of contacts for exchange information involving uncertainty or expecting the creation of new situations demanding further exchanges and cooperation as well as competition. The lack of information flows resulting from the firms' location far away from information centres such as large metropolitan areas is envisaged as a disadvantage, also known as spatial bias. Personal contacts and proximities are relevant aspects of business

opportunity, capable of changing attitudes as an environment containing exporting firms will probably create positive behaviours towards exporting and creating international firms in successful cases. In complex structures such as cities, the news of successful or unsuccessful ventures spread quicker than outside those information centres, thus it is capable of 'trending' the successful or unsuccessful business almost immediately.

This leads to the second question "Which are the correlations between nonprofit institutions and growth in cities?" The Jacobian essential, illustrated when presenting the nomenclature of cities and the agglomeration economics, is that "*cities are primary organs of cultural development; that is of the vast and intricate collections of ideas and institutions called civilization*" (Jacobs, 1969). This envisages the multifold aspects entailed in the concept of city. The development of contemporary urbanization is a multifaceted phenomenon where cities are systems of internal transactions embedded in a wider network binding all cities together into a grid of complementary and competitive relationships (Scott, 2014). Relationships and networks are the results of a process of merger, expansions and contractions. Agglomeration economies are at the core of extensive research in economic geography, often referred to as economic externalities of co-location (see Martin and Sunley, 2003; Phelps, 2004 for critical overviews), different from the widely adopted and classical conceptual trio (Ohlin, 1933; Hoover, 1937; Glaeser et al., 1992) coupled with the Alonso, Mills and Mutt model – economies of scale, localization economies (MAR-externalities) and urbanization economies (Jacob's externalities). However, they do not, and cannot, cover all aspects of the concept. The actors composing the cities are subject to framework shifting, expanding, contracting or relaxing, but they are fully participating in many phenomena, while in most cases they are at the same time subjects and drivers of changes. Societal and business changes as well as adaptations and technology introductions are the most impacting drivers of changes in cities' frameworks and shapes (Parr, 2002a, 2002b). Ecosystems are complex networks of actors driving changes and sustaining an interconnected system. In order to assess empirically the correlations between the nonprofits and diversification at local level, we identified Milan as a referential ecosystem for this exploratory analysis.

The process of agglomeration is not usually present. Firms does not agglomerate in the incubators but they cooperate and position themselves in the venues if relevant externalities deriving from knowledge cooperation arise. However, social incubators appear to work much better in close to creative hubs location, with access to transport hubs. The case of FabriQ is

emblematic, as the majority of the firms are not located in the incubator during and after the incubation phase, thus it is necessary to build ad hoc tenders for local neighbourhood development.

So, the question that arises is if there is complementarity between for profits and nonprofits. Surely:

- social enterprises, nonprofits or for profits with social objectives may have more easier access to financing and resources; the role of cooperative financing and innovative funding initiatives may be investigated;
- nonprofits are created ad hoc by linked for profits to pursue social missions, as foundations;
- nonprofits create ad hoc for profits for financing their social mission, such as bars and restaurants opened in museum or sport associations.

Therefore, in Milan in the period 2001-2011 we reached the result that at the sections of census level no relevant knowledge spillovers were present. Thus, a broad range of unrelated sectors in a region (Boschma at al., 2008) may be beneficial for regional as well as for urban growth, as unrelated variety positively impacts on risks, neutralizing the effects of a sector specific shock, stabilizing the city economy (Essletzbichler at al. 2005).

We presented several comparisons and connections to previous researches along the sections presenting the findings in the previous sections, with particular reference to the literature review (par. 2.1), the introduction of the hypotheses of the investigations (par. 2.3), when presenting the variables and the different approaches to the quantitative analysis (par. 2.3.1 and 2.3.3). However, due to the geographical units of analysis, the subjects of the investigation and the models used, comparative analysis cannot lead to full objective and scientifically sound conclusions of comparisons. The geographical units of analyses represented by both sections of census and ACE are smallest used in literature to our knowledge. Previous works by Boschma and Iammarino (2012) used Local Labour Systems, while Innocenti and Lazzeretti (2017) used provinces.

With regards to the subjects of the investigation, it should be taken into account the fact that nonprofits are used and decomposed as a self-standing category of geographical analysis for the first time. The works previously cited in paragraph 2.3 decomposed manufacturing and services, while not taking into account the legal name and objectives of the firms. Differentiations of models from previous literature are detailed in paragraph 2.3.1. and

paragraph 2.3.3. Previous cited works of Boschma and Iammarino (2012) on regions in Italy considered the effects of regional diversity without sector distinction, identifying the relevance of variety as an important driver of local employment growth, with non-significant magnitude differences between related and unrelated variety. In case sectors were separated between manufacturing and services, local employment results to be positively affected by related variety, while unrelated variety seemingly stimulated manufacturing only.

Milan is a city in continuous development, particularly with regards to its social environment and driving role in Italy and Alpine-Central regional area in Europe. The concentration of nonprofit institutions is the most relevant in Italy and amongst European cities, with an increase in institutions and jobs of about 30%, counteracting a sudden decrease in population. The sectors in which nonprofit organizations developed, changed their role and panorama in the city, being particularly concentrated in those sectors for education in 2001 (more than 50% in 2001 between primary and secondary schools), while in 2011 the 50% could be reached by sport organizations (16,6%), political, hobby, cult and active citizenship organizations (17,35%), social and welfare assistance organizations (10,6%) and other educational organizations (11,4%). The city is also showing a relevant resilient attitude for social innovation as well as a competitive advantage in for profit areas deriving from its position in the financial market and from knowledge advantages provided by some of the most advanced knowledge creators in Europe, such as its University network (Bocconi, Cattolica, Statale, Bicocca, IULM and Politecnico). We presented its historical background with regards to Italian and European framework, as well as the legal framework which emerged in the past legislation for the creation of the social enterprises. Unfortunately, it was not possible to analyse data on social enterprises as well as on social incubator *stricto sensu*, as the availability of the census data, providing a more broad and detailed dataset for the analysis, was only between 2001 and 2011, thus a 10-year span of time. Nonprofit organizations often grow in difficult contexts, in presence of market failures and social institutions failures. Thus, economic efficiency and employment growth can be more difficult to reach in these contexts.

This leads to the third question and related answer of the research, "How do social incubators contribute to social innovation in cities?" We wanted to understand what their role in the city and the neighbourhoods is, how they position themselves in the process of providing answers to the local needs in the specific place they are located. With regards to the case studies, we processed all the available information both on desk and through the

interviews, understanding what the models for the services and practices are, thus the institutionalization of the services they provide. Finally, we tried to provide causal relations between social innovation impacts and the role of the social incubators.

The evolution and history of the social incubator and its relationship with the neighbourhood follows two general patterns, differing if the social incubator is publicly or privately funded. In the cases of Coopcity and Make a Cube, the two publicly funded social incubators, there are solid backgrounds of cooperative and social economy knowledge, put in place according to a defined and pre-organized set of objectives, usually decided by the local institutions. With regards to privately funded social incubators, they usually start from a co-working experience coupled with a consulting background, usually more business oriented but with a defined set of tools and applied to solution oriented issues.

The services provided in order to answer to local needs and the analyses of local social needs are not always pre-screened and defined. They can be deriving from the will of a network of institutions, usually local government, with the intention of keeping an area of the city out of the dangers of exclusion and aggressive gentrification towards the poorest, or it can be case by case, as for Make a Cube and InnovatieFabriek.

The perceived role of the social incubators in the process of social innovation is always relevant. The incubator is at the centre of the process of networking for creating social values. The incubator is pivotal in the products and services development and business plan, providing entrepreneurs with the necessary tools for managing their firms in a cooperative and ethical way.

The relation of the role of social incubator in building or playing with the ecosystem of social innovation of the city must be deepened. The role of the incubator is not yet perceived as relevant by the local communities if not after years of presence on the territory and neighbourhood.

Acknowledgments

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Annexes

Annex I: protocol for case study analysis. Source: elaboration of the author on Miles (2015), Flyvbjerg (2001, 2006) and Thomas (2010).

1. Enquiry watch outs - objectives		2. Representation and Place		3. Examination of the case on available platforms
Subjects of Enquiry		**Unit of Analysis - the social incubator**		**Main Issues**
Social impacts on proximity systems (labor and income)		**Boundaries of the unit**		I. History
Development of the ecosystem of social innovation (where and how)		Geographical definition - urban, metropolitan, peripheral		II. Mission & Values
Programmes, tools adopted and services provided (what?)		Time definition - snapshot of the practice		III. Relational framework
Developed social networks (ties and links)		Social motivations and preferences		IV. Funding
Presence of common places and common structures (co-working and fab lab)		Typology of contracts for covering new contingencies		V. Collective action
Geography focus		**Complexity - bundles of trajectories from multiplicity of acting**		VI. Activities and services
Agglomerations		Relational context where services are provided and innovations produced		VII. Innovative perspective
Externalities and typologies (MAR and Jacobs)		Places dedicated		VIII. Networks in local areas
Impacts on housing prices		Times of activities		IX Stakeholders
Impacts on labor income		Stakeholders and actors:		X. Impacts
Local employment		a. Institutions		XI. Organizations
Innovation focus		b. Enterprises and Entrepreneurs		
Social Innovations		c. Corporations		
Creativity as a driver		**Collective actions**		
Effects on labor income		Features and impacts on services and innovations		
Local employment		Organizational impacts		

(vertical label between columns: **Context Dependency**)

4. Modelling Practices

	Key Elements	2. Focus your analysis through interviews with Incubator Management
Practices	**Accounts of Activities**	**Topics for interview**

	"Actual facts and happenings, grounded in what people do, orchestrated and co-produced"	**I. Origins and history in details:**
		    a. Specific community needs
		    b. Historical needs of the local system
		    c. Social Innovation and Social enterprises
		    d. Models and definitions applicable to the specific case
		II. Local networks:
		    a. Were local needs answered?
		    b. Exploitation or creation of local networks
		    c. How did they develop?
		III. Collective action:
		    a. organization impacts and costs
		    b. Governance
		IV. Funding:
		    a. Respect of values
		    b. Interests and investments
		    c. Sources (local or outside urban/region)

	Accounts of Practicing	

	"Activities of doing and saying, forming practices trough repetition, forming habits and routines, integration."	**V. Activities and services provided:**
		    a. Are they connected to local needs?
		    b. Are they using local professional resources?
		    c. How the programs were developed?
		    d. How does the relational framework influence the services?

	Coordination Activities	

	"Coordination and choreographies of material objects - arrays of activities in which the firm is the nexus"	**VI. Mission and values in details:**
		    a. Why?
		    b. How are they implemented?
		    c. How to control, if controlled?

| | | d. Respect during and after incubation
VII. Social Innovation perspective:
    a. Stimulation of local needs for innovative services
    b. Motivation causalities
    c. typology of innovators (rushing, wayfinding, rigid visionary, negotiating)
VIII. Coordination mechanisms

    a. Steps for firms

    b. Steps for incubator
    c. Who is in charge of what
    d. Relations with institutions
    e. Influences on locations
    f. Causality links |

5. Explaining causal relations

	Practical and experienced based knowledge	**Conclusions**
	Which impacts?	Social Needs
	a. On the organization of the incubator	Social motivations in urban areas
	b. On the firms and entrepreneurs	Agglomerations
	c. On the relational causal links of innovations produced	Public driven collaboration
Knowledge	d. On local development	Public Private Partnerships
	1- Activities affected and perceived	Spontaneous collaboration
	2- Data on changes on neighbourhoods and/or local systems	Institutional settings University settlement and/or public investment)
	3- Institutions: adapted, fought or support?	
	4- On the location of activities	
	5- On the location of services relation	

Annex II: Structure of the questionnaire (in English) with questions and answers possibility. Source: elaboration of the author

Section	Question	Answer			
Information on respondent	Please insert an alphanumerical username. It will not be used to identify neither you, neither your firm as the questionnaire is anonymous. The questionnaire does not have any commercial or marketing purpose, only research purpose. All firms will receive the final research, irrespective of their participation to the questionnaire.	Open			
	Age	Open			
	Role in the company	Open			
Information on firm	Location (City and State)	Open			
	Service or Manufacturing	Open			
	ATECO code (if possible)	Open			
	Size of the company (personnel)	Open			
	Company foundation year	Open			
	Last year resources available (amount)	Open			
	Last year revenues (amount)	Open			
	legal form (nonprofit, Aisbl, cooperative, social cooperative, …)	Open			
	Name of the incubator of reference	Open			
Identification	Your services/products respond to community needs	Likert			
	Before starting the company, you evaluated the effective needs of your services	Likert			
	You respond to local necessities that other firms/organizations/public entities do not answer	Likert			
	The incubator had the main role in the choice of your objectives/mission	Likert			
	The incubator had the main role in the choice of your legal form	Likert			
	How much did the objectives change in the incubation process?	Likert			
Typology of Social Innovation	Do you apply a definition of Social Innovation?	Yes/No			
	Can you write references to theory?	Open			
	What are your main innovations?	Organizational	Products	Services	Processes
	Do you plan or have you planned extensions to the services/products you provide?	Likert			
	Do you use a relational network at local level?	Likert			
	The connections between the Social Mission and the typology of Innovation are	Likert			

Social Orientation	Is social innovation developed in the projects of your firm?	Likert		
	How much is social innovation important in your mission and objectives?	Likert		
Localization	How are your relationships with the neighbourhood?	Likert		
	How much do you interact with the other firms of the neighbourhood?	Likert		
	How do you feel the local environment of the city helped your firm?	Likert		
		Likert		
	What are the typologies of connections with local institutions?	Likert		
	Have they been supportive or repressive?	Likert		
	How much the incubator helped the neighbourhood?	Likert		
	How often do you interact with neighbouring services?	Yes/No		
	According to your knowledge, are local services connected to the incubators?	Likert		
	Do you think the city and neighbour needs were answered by the incubated firms?	Likert		
	Do you think the city and neighbour needs are benefiting from the services provided by the incubated firms?	Likert		
	Do you think a local network between firms has been established (both inside and outside the incubator)?	Yes/No		
	Are you still located in the incubator?	Yes/No		
	Are you still located in the incubator's neighbourhood?	Yes/No		
	Do you still benefit from the network of the incubator?	Yes/No		
	Which phase of the incubation did your firm follow?	Start up	Acceleration	Commercialization
	In which phase was Social Innovation created, according to your thought?	Open		
	Are the firms in the incubator of the same sector as yours?			
	How do you feel the local environment of the neighbourhood helped your firm?	Likert		
	How much did you interact with them?	Likert		
	In case of positive answer, do you think you benefited from diversity?	Likert		

How?	Open		
Are there any resistances identified in the process of social innovation in incubators	From the public legislation	From the territory	

Index of Figures

227

Index of Tables

228