

INNOVATION, SME AND TERRITORY.
DISTRIBUTION OF INNOVATIVE SMALL AND MEDIUM-SIZED
ENTERPRISES IN CAMPANIA.

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Abstract

Small and medium-sized enterprises play a primary role in the Italian and European economic system, as witnessed by their numbers and employment levels. This type of enterprise can become a driving force for innovation in a mutual exchange with the territory of which it is a part, helping to shape its economy. SMEs have a higher propensity to innovate due to their agility and ability to adapt quickly to changing market conditions. Their smaller size allows them to take risks that larger companies are often reluctant to take, and their closer relationship with the territory allows for a mutual exchange of knowledge and ideas that contributes to their innovative capacity. Additionally, their ability to absorb knowledge effectively also plays a role in their higher inclination to innovate.

The European Union supports innovative SMEs through funding programmes, incubators and accelerators because the innovation of these types of enterprises is a vital component of the EU economy and, therefore, substantial resources are made available to support their growth.

This contribution, after a review of the literature on innovation, SMEs and the territory, presents an analysis of the main innovation indicators for European states and Italian regions and, finally, a focus on innovative SMEs in the Campania region and their relationship with the territory. With the aim to investigate whether the belonging of enterprises to peripheral areas has an impact on their innovation capacity. The research is particularly innovative compared to existing literature on the subject as it focuses on the analysis of specific innovation indicators aiming to explore the relationship between innovative SMEs and the territory, offering a distinct perspective.

Keywords: digitalisation, distribution and location, innovation, innovation indicators, innovative SMEs, peripheral and central areas, public and private investments, research and development, small and medium-sized enterprises, territory.

1. Innovation, SME and territory

The centrality of innovation in supporting competitiveness is recognised by the Treaty on the Functioning of the European Union (Art. 173), which includes among

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its main objectives that of ensuring the necessary conditions for increasing the competitiveness of the industrial sector. This objective, supported by substantial financial resources, is articulated in various European programmes, such as Innovation Union and especially Horizon Europe (successor to Horizon 2020), which is the Union's framework programme supporting R&D investments aimed at stimulating the ecological and digital transition, challenges that are also part of the Next Generation EU. These programmes are in addition to Cohesion Policy funds, investment support provided by the European Investment Bank (Factsheet on the European Union, 2021) and other sector-specific initiatives (e.g., the Chips Act Staff Working Document, 2022).

For small and medium-sized enterprises, the issue of innovation is, if possible, even more critical (OECD, 2010) since they often appear unprepared for the transformation processes of production systems (OECD, 2000), for the exogenous shocks generated by periodic economic crises (OECD 2009) and, more recently, for the consequences of the Covid-19 pandemic (Syriopoulos et al., 2020).

In fact, globalised production processes have generated composite relationships of competition and industrial interdependence, dilating value chains but, at the same time, they have induced firms to invest in innovation, a critical factor to achieve competitive advantages (Mosey et al., 2002; Sharma, 2017) and also to ensure their mere survival (Contreras et al., 2020).

Small and medium-sized enterprises, in particular, when embarking on the path of innovation, face multiple barriers that hinder their development: high costs, lack of innovation culture, asymmetric and ineffective information flow, bureaucracy and government policies that are not always adequate, low qualification of available human resources (Demirbas et al., 2011), low dynamism of management, conditioned by frequent family management unable to attract knowledge and skills from external productive ecosystems (Ibrahim et al., 2008; Clark, 2010), difficulty in accessing credit, scarcity of demand or complexity in intercepting it effectively, competition from large companies (Duarte et al., 2017).

Gust-Bardon (2012) and Miltze et al. (2015) highlight the importance of the size element of SMEs, recognising in larger ones a greater propensity to innovate, resulting from better knowledge absorption capacities. Other scholars identify the primary driver of innovation in the company's leadership, as well as in a cultural and historical attitude to change. The positive dynamics triggered by innovation processes generate additional mechanisms that enable them to materialise, such as the acquisition of knowledge, the development of efficient management and the building of links with production networks (McAdam et al., 2013).

The system and structure of SMEs themselves are influenced by both exogenous and endogenous factors: where they, by their very nature, are faced with exogenous factors that hinder innovation, they may be able to overcome them by virtue of the willingness and ability of the enterprise to promote its own innovation process (Rodriguez-Pose, 2001). It has also been pointed out (Bilbao-Osorio, Rodriguez-Pose, 2004) how socio-economic and political factors influence the capacity of an area to exploit its production potential and investment in innovation and growth; these factors include, in addition to the aforementioned size, the cooperation between companies (Cooke and Morgan, 1998), the pre-existing economic condition of the area (Rodriguez-Pose, 1998), and the potential of the area (Audretsch, 1995; Acs and Audretsch, 1990).

In the past 20 years, the scenario of innovative SMEs has evolved significantly. The widespread adoption of digital technologies has enabled SMEs to reach new markets and customers, and has created new opportunities for innovation. Additionally, the increasing availability of E.U. funding and support programs, such as incubators and accelerators, has made it easier for SMEs to develop and bring innovative products and services to market. The rise of the sharing economy and the gig economy has also provided new opportunities for SMEs to participate in the economy in new and innovative ways. Potential entrepreneurs consider the returns of alternative employment opportunities when choosing to start new business ventures. Applying this framework to the gig economy, the arrival of on-demand, platform-based gig opportunities dramatically reduced the riskiness of the fallback option for would-be entrepreneurs, thereby fostering the launch of new entrepreneurial activity. This does not imply that all entering entrepreneurs will be gig economy workers, of course. Rather, the gig economy provides insurance and peace of mind in knowing that it is there, if needed, and as such, affects expectations in the entry decision (Barrios J.M. et al., 2022). However, the global economic landscape has also become more competitive, making it increasingly important for SMEs to stay ahead of the curve through continued innovation.

The capacity of innovative SMEs located in the periphery compared to those in central areas has been debated in the doctrine for years, with differing opinions. The scarcity of resources and the lack of high-skilled workers, which are two of the main obstacles to development, are more pronounced in peripheral areas (Pinho, 2008; Vester and Boshoff, 2006; Romijn and Albaladejo, 2002; Miltze et al., 2015) and, moreover, since the emergence of the so-called knowledge economy, the gap in terms of growth between central and peripheral areas has been increasing (McAdam et al., 2013), which have been even more vulnerable to the changes triggered by globalisation (Miltze et al., 2015). Frenkel (2000), for example, observed how in Israel peripheral areas almost exclusively attracted traditional manufacturing firms, while high-tech firms were concentrated in central areas. Peripheral areas are characterised by being on the edge of the communication system and far from the centres of power and the economy (Goodall, 1987) and, therefore, served by a less efficient infrastructure network whose productive fabric is dominated by SMEs (Clark, 2010; Skuras et al., 2008; Nash and Martin, 2003). SMEs in these areas face higher operation and maintenance costs because they are distant from their suppliers and their target market (Anderson, 2000; Fynes and Ennis, 1997). Conversely, firms in these types of areas are characterised by a sense of belonging and connection to the territory itself (McAdam et al., 2013), generating a relational capital that is useful for triggering processes of knowledge sharing and exchange: this leads to the creation of networks of firms in the territory capable of promoting innovation (Jayawarna et al., 2011; Westlund and Bolton, 2003).

As a general feature, the literature attributes a decisive role to geographical marginality in holding back business innovation: competitiveness and innovativeness are considered to be marked by the territorial factor (Dicken and Malmberg, 2001). This also helps to explain the differences in the development of regions caused by their respective production ecosystems (Gössling and Rutten, 2007), which make it more convenient to allocate resources in the most accessible regions (Crescenzi, 2005). There are many models of industrial aggregation favoured by territorial proximity: from the industrial district (Belussi et al., 2003), to the innovative milieu (Camagni, 1991), to the regional cluster (Porter, 1994). Boschma (2005) emphasised that it is not physical distance per se that is the critical factor, but rather the lack of

opportunities to exchange information and knowledge; but, as already noted, the socio-economic ecosystem and the specific cultural substrate of a given territory are more critical factors for the propensity to innovate than geographical marginality (Audretsch and Feldman, 1996; Cooke, 2002; Asheim and Coenen, 2005; Copus et al. 2008). In other, more recent research, however, the proximity factor per se has been downgraded, also in view of the potential arising from new communication technologies (Doran et al., 2012; He and Wong, 2012).

To cope with the indicated criticalities, SMEs in peripheral areas have developed the capacity to build relationships and partnerships with different types of actors, from universities to other companies both local and non-local (Asheim and Isaksen, 2002), having identified diversity as a key success factor in the networking process (He and Wong, 2012).

A positive correlation has been observed between firms' internal innovation capacity and the degree of cooperation on innovation with actors outside the territory (Grillitsch and Nilsson, 2015; Bjerke and Johansson, 2015²). Bathelt (2005) emphasises the importance of the level of institutional support through targeted policies at both national and local levels, including and especially through efficient spending (Oughton et al., 2002).

Among the case studies on the topic of peripheral and central areas, the one on a Finnish region is interesting (Virkkala, 2007). In the context of rural Northern Europe, characterised by a low density of enterprise and demand, there was, in the 1980s, a modest propensity for innovation, also due to the scarcity of high-level skills: in the Oulu region, on the contrary, in the 1990s, by leveraging networking processes for the acquisition of skills from outside, the positive externalities generated by the growth of the mobile phone sector (in Finland, as is well known, Nokia was becoming the sector leader) were fully exploited. Two local companies became Nokia's suppliers and transformed and innovated their production lines: in a short time, the evolutionary process generated a cluster of innovative electronic companies, Nokia's suppliers, supported by the industrial policies and educational institutions of the area that modified their educational offerings, adapting them to the new industrial context.

Similar conclusions were reached by Nataro et al. (2012) studying the most underdeveloped regions of Portugal and identifying cooperation between the area's companies as the key to profitable development in peripheral areas.

For Italian SMEs³, the difficulty in accessing credit, also due to the lack of a solid venture capital ecosystem, the excessive bureaucratic burden (more than 300 hours per year of formalities) and the high tax burden contribute to limiting internationalisation and innovation⁴.

A number of scholars have delved into the issue of innovation in southern Italian regions (Calignano and Hassnik, 2016), identifying the weakness of the socioeconomic, institutional and industrial fabric as the main obstacle to development and innovation. The conclusions of the research, in confirming the initial hypothesis, highlight an increasing polarisation of innovation processes in the more developed regions, by virtue of a high level of intra- and inter-regional cooperation between the regions of the Centre-North, while in the South there is a

² Both researches refer to the Swedish context.

significantly lower number of links between companies and, therefore, less knowledge exchange.

The opportunities generated by the knowledge economy and innovation models, supported by European programmes aimed at fostering cooperation between companies, are not yet fully exploited by southern territories, which thus remain on the margins of innovation processes.

2. Innovation in the European scenario

Recent statistical data show that small and medium-sized enterprises form the backbone of the European Union economy, accounting, excluding the financial sector, for 99.8% of total enterprises, 64.4% of employment and 57% of added value (Annual Report on European SMEs 2021/2022⁵).

In Italy, over the same period, SMEs account for 99.9 % of the total, employ 76.1 % of employment and produce 64.3 % of added value. Among these, however, innovative SMEs (according to the InfoCamere Companies Register⁶) represent an absolutely marginal share: 2,388 innovative SMEs, or 0.02%.

As a matter of fact (Figure 1), Italy ranks only among the so-called moderate innovation countries in the European and Regional Innovation Scoreboard 2021, an assessment promoted by the European Commission that analyses some key innovation indicators such as: the level of human resources, the level of digitalisation, public and private investments in R&D and the level of innovation of SMEs.

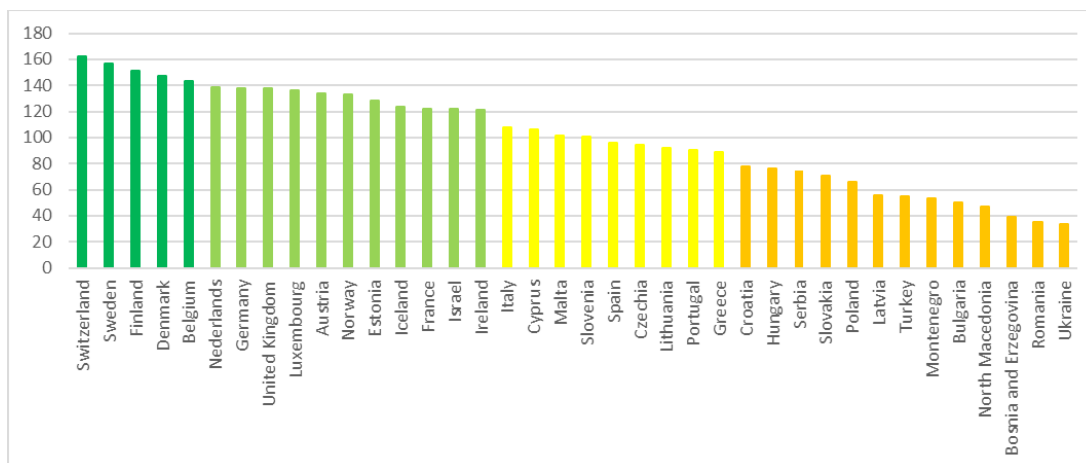
Figure 1. Innovation index, 2021

3 In Italy, InfoCamere's Registro Imprese (<https://startup.registroimprese. en/isin/static/pminnovative>) lists the following requirements for an SME to be defined as innovative: 1) the company's head office must be in Italy; 2) the shares must not be listed on a regulated market; 3) the company must have filed a certified balance sheet with the Companies Register; 4) the company must have an annual turnover not exceeding €50 million or an annual balance sheet total not exceeding €43 million; 5) the company must employ fewer than 250 people; 6) the company must have at least one of the following three requirements (a) R&D expenditures greater than or equal to 3% of the greater of cost and total value of production; (b) number of employees or collaborators in a percentage equal to or greater than 1/5 of the workforce of personnel holding a PhD or who are pursuing a PhD at an Italian or foreign university, or who have carried out certified research activities at research institutes; or a number of employees in a percentage greater than or equal to 1/3 of the workforce holding a master's degree c) the enterprise must be the owner or depositary or licensee of at least one industrial patent relating to an industrial or biotechnological invention, to a topography of a semiconductor product or to a new plant variety, or be the owner of the rights relating to an original computer program registered with the special public register for computer programs, provided that such industrial property rights are directly related to the corporate purpose and activity of the enterprise; 7) the enterprise must not be registered in the special section of the business register for innovative start-ups and certified incubators.

4 <https://ec.europa.eu/docsroom/documents/46080>.

5 https://www.eca.europa.eu/lists/ecadocuments/ap19_06/ap_sme_en.pdf.

6 Registro Imprese InfoCamere database, 12.8.2022.



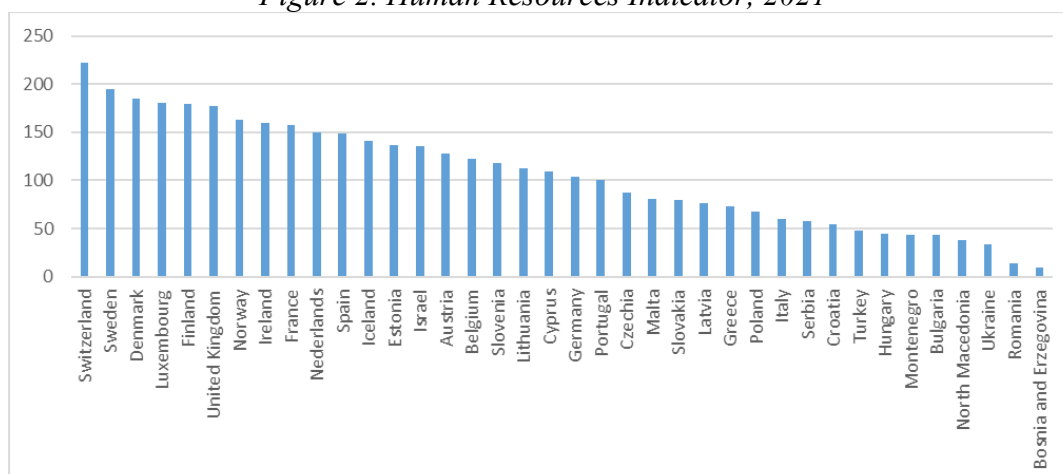
Source: *European and Regional Innovation Scoreboard 2021*

In the Innovation Scoreboard, Central and Northern European countries (including Sweden, Finland, Germany, the UK - in green) emerge as strong innovators, followed by the Mediterranean countries (Italy, Slovenia, the Czech Republic, Lithuania - in yellow) defined as moderate innovators and, finally, in the role of emerging innovators are the Eastern European countries, both existing EU members and candidates for EU membership (such as Serbia, Turkey and North Macedonia - in orange). Among the worst performing members are Bulgaria, Romania and Ukraine, among others.

Among the twelve macro-indicators on which the scoreboard is based, this research aimed to investigate the most significant ones: 1. the Human Resources indicator; 2. the research system attractiveness indicator; 3. the digitalisation indicator; 4. the financial support indicator; 5. the business investment indicator; 6. the business innovation indicator.

The first indicator examined is the one that analyses the level of Human Resources (Figure 2) and takes into account: 1. number of new doctoral degrees; 2. population with tertiary level education; 3. population involved in lifelong learning.

Figure 2. *Human Resources Indicator, 2021*

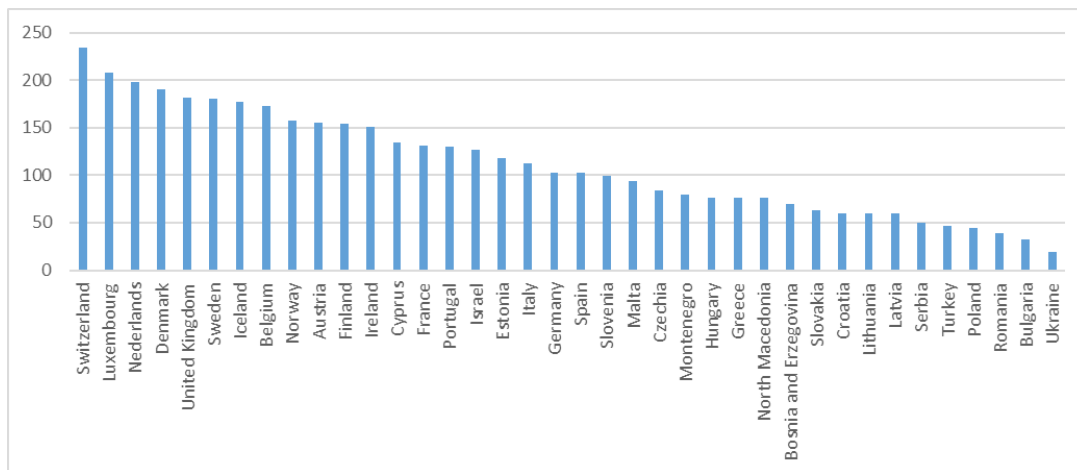


Source: European and Regional Innovation Scoreboards 2021

Once again, there is a deep divide between the central-northern countries and the Mediterranean and eastern countries (with the exception of Spain, Estonia and Israel). Italy lags far behind, doing better only than the Balkan countries, coming fifth to last among the EU members: its low score in terms of the rate of population with tertiary education, which is the penultimate out of thirty-six countries, ahead only of Romania, weighs heavily.

Also negative for Italy is the score for the indicator of the level of attractiveness of the research system (Figure 3), which takes into account publications in international journals, citations of publications and the level of foreign students in doctoral courses.

Figure 3. Research system attractiveness indicator, 2021



Source: European and Regional Innovation Scoreboards 2021

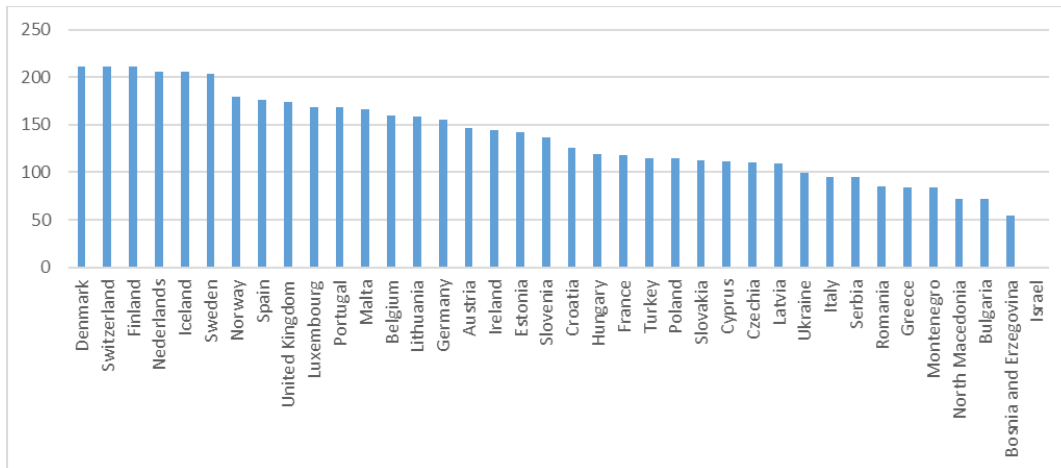
Italy is in eighteenth position, fourth among the Mediterranean countries, although ahead of Germany and Spain, thanks mainly to the good score of the indicator of scientific publications in the 10% most cited.

Figure 4 relates to the level of digitisation which, as mentioned, is a crucial indicator since the digital challenge, together with the ecological transition, has been identified by the European Commission as crucial for the sustainable development of member countries, both by the Next Generation EU⁷ and the Digital Decade policy programme⁸.

Figure 4. Digitisation indicator, 2021

⁷ https://europa.eu/next-generation-eu/index_it.

⁸ <https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade>.

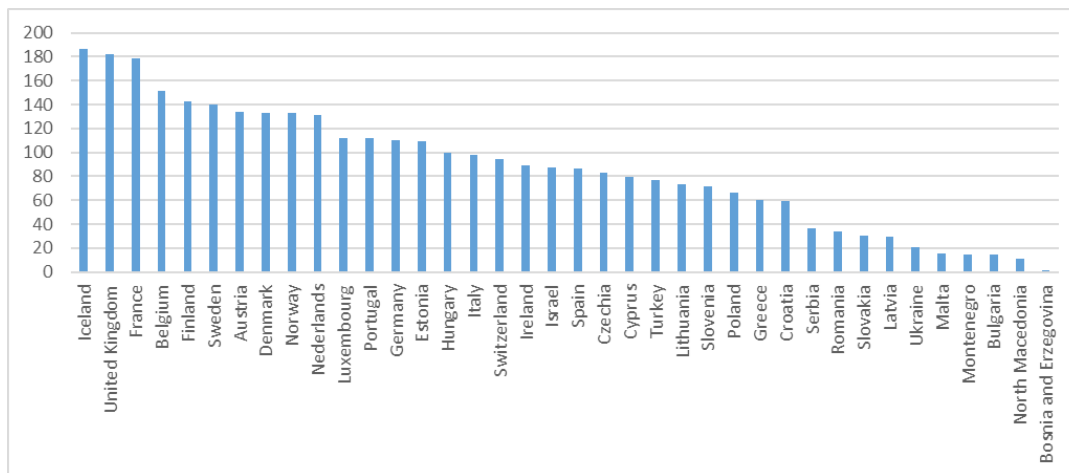


Source: European and Regional Innovation Scoreboards 2021

The graph is of particular interest because it is representative of a broader scenario that also takes into account non-EU countries, highlighting a gap in the level of digitalisation between northern and eastern countries. Italy ranks last, performing extremely badly in the indicators measuring the level of broadband penetration and the population's digital skills.

The indicator of financial support and investment is described in Figure 5, taking into account public investment in R&D and venture capital spending.

Figure 5. Financial support and investment indicator, 2021

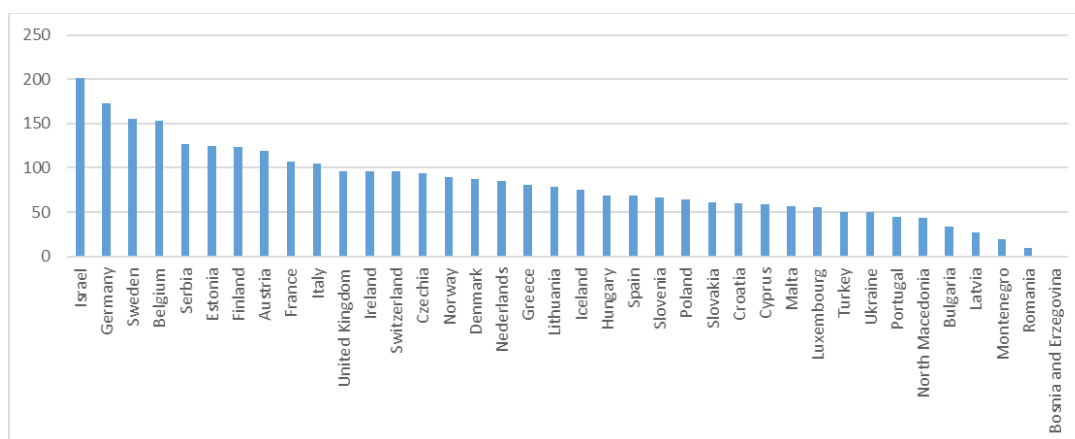


Source: European and Regional Innovation Scoreboards 2021

The results show a similar trend to that observed in the previous figures, with Italy in the top half of the ranking, ahead of Switzerland and behind Hungary, although with a low level of public investment.

Figure 6 measures the level of business investment, taking into account both R&D and non-R&D investment, and innovation expenditure as a proportion of the number of employees.

Figure 6. Business investment indicator, 2021

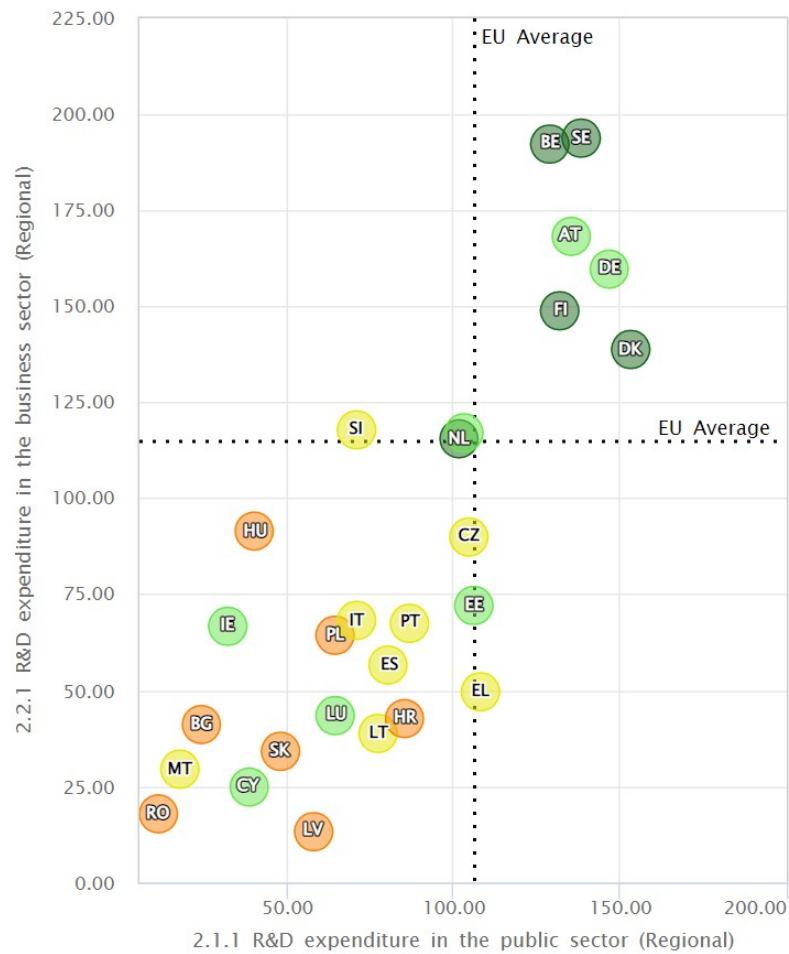


Source: European and Regional Innovation Scoreboards 2021

The picture, in this case, is different from that observed in the previous figures: in the top positions, in addition to Israel, Germany, Sweden and Belgium, Serbia also emerges (which was at the bottom in the other rankings), with the highest level of non-R&D investment and the fifth highest expenditure in innovation per employee. Italy's result was also positive (tenth), among the top in innovation investment per employee and expenditure in non-R&D investment (the result in R&D investment was less positive).

Figure 7 below was developed by correlating the indicators for public and private R&D investment. A higher level of public investment corresponds to a higher level of private investment, thus showing how private investment by companies cannot do without public support and vice versa. Moreover, a marked difference can be observed between the public and private investments of the innovation-leading Northern European countries (Sweden, Belgium, Finland and Denmark, in dark green as in Figure 1) and the others, while the gap between the strongly innovative countries (in light green), the moderately innovative countries (in yellow, including Italy) and the emerging innovative countries (in orange) is less marked. The correlation analysis highlights the need to increase public investment in order to support private investment, so as to increase innovation potential and reduce the gap with the European leaders.

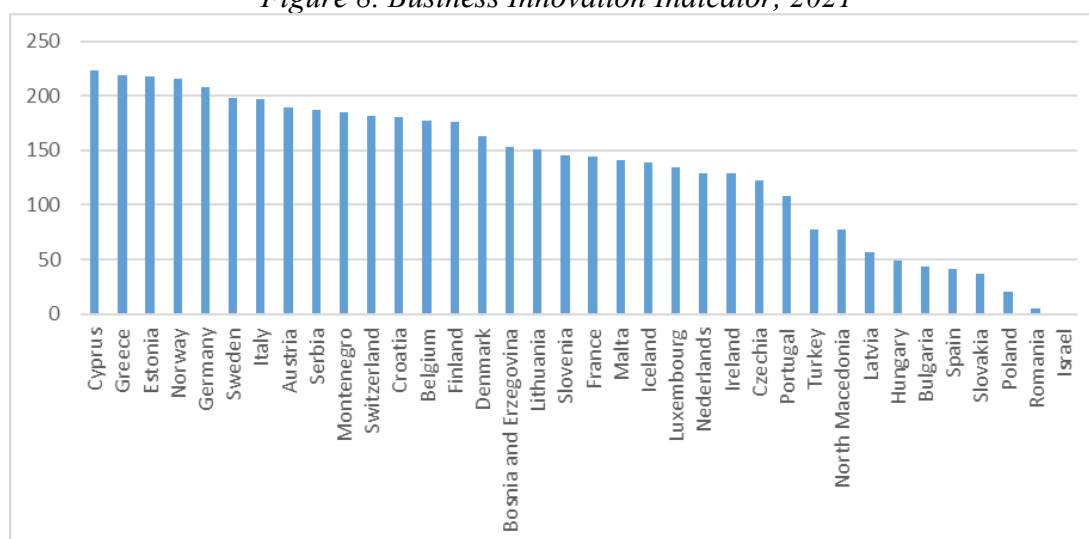
Figure 7. Correlation between public and private R&D investment



Source: European and Regional Innovation Scoreboards 2021

Finally, the analysis on national data closes with Figure 8, which shows the indicator of the level of innovation of enterprises, taking into account both the innovative products placed on the market and the innovative production processes used.

Figure 8. Business Innovation Indicator, 2021



Source: European and Regional Innovation Scoreboards 2021

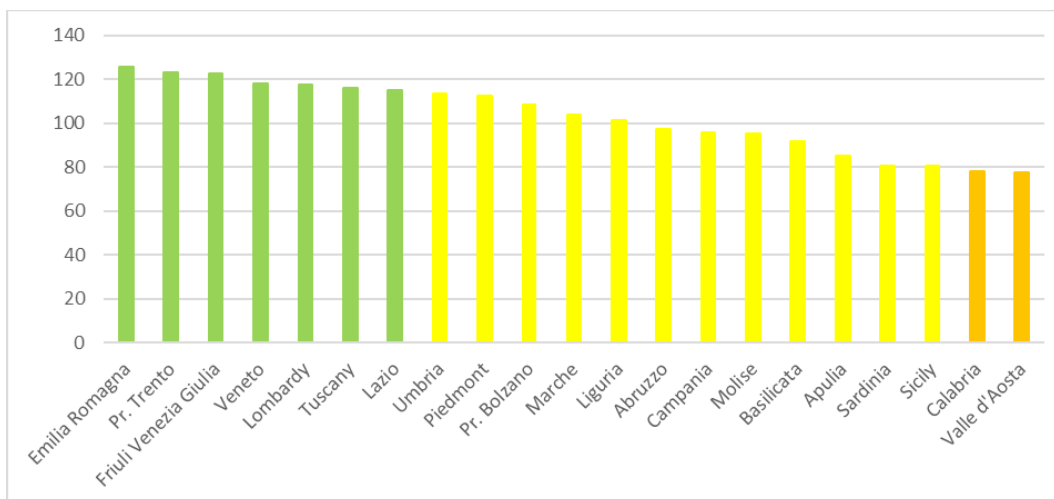
Again, the results are different from those in the first figures, with two Mediterranean countries in the top places (Cyprus, Greece), with Italy in seventh place and with many of the leading Northern European countries around the top half of the ranking. Pushing Cyprus, Greece and Italy up are above all the indicators relating to the innovative production processes adopted.

3. Innovation in the Italian regions

After analysing the European states, it is appropriate to focus the field of analysis on the level of innovation in the Italian regions (NUTS 2). The database of the European and Regional Innovation Scoreboard presents, for this territorial scale, a smaller number of indicators but still significant for the research objectives.

First of all, it is interesting to observe, as done for the national level, the overall Innovation Index of the Italian regions (constructed with the same indicators as in Figure 1).

Figure 9. Innovation Index Italian regions, 2021

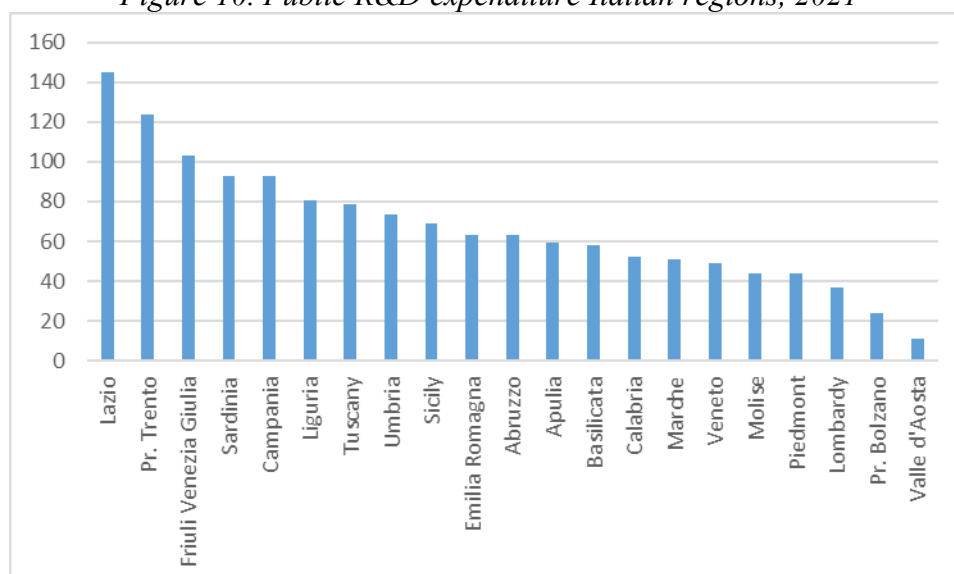


Source: European and Regional Innovation Scoreboards 2021

A clear gap emerges between North and South, especially between the North-East and island regions plus Calabria. Referring to the same definitions already used for European states, no Italian region can be defined as an innovation leader, but only as a strong innovator, while the majority (twelve regions) can be ascribed to the category of moderate innovators, whereas Calabria and Valle d'Aosta can be classified as emerging innovators. Campania is in fourteenth place, first among the regions in the Southern Italy, but still in the lower part of the ranking and a long way from Emilia Romagna in first place.

In this scenario, it is appropriate to examine in greater detail the main indicators referring to business innovation. Figure 10, which measures the level of public investment in R&D, yields results that are less homogeneous than those in the previous figure insofar as there is not a marked prevalence of northern regions compared to central-southern ones.

Figure 10. Public R&D expenditure Italian regions, 2021

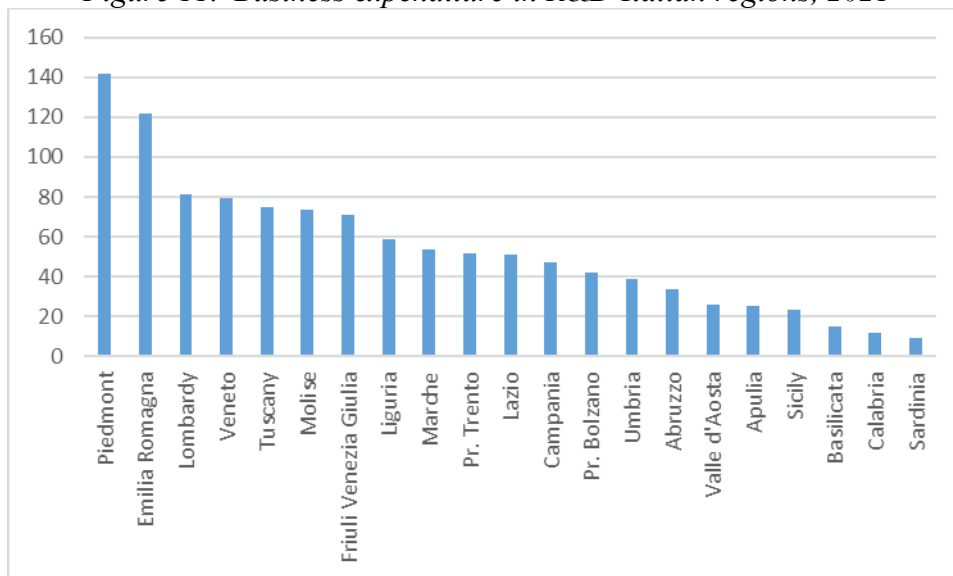


Source: *European and Regional Innovation Scoreboards 2021*

In first place is Latium, which can count on a significantly higher level of public investment than the other regions, while in the last four positions are some northern regions such as Piedmont, Lombardy and the Autonomous Province of Bolzano (in addition to Valle d'Aosta, which, moreover, performs poorly on all indicators). Campania, in fifth place, is the second southern region (including the islands), behind Sardinia.

On the other hand, the scenario of business investment in R&D appears to be different (Figure 11), with the northern regions having a much higher level of investment than the central-southern companies (especially compared to the last ranked, Basilicata, Calabria and Sardinia).

Figure 11. *Business expenditure in R&D Italian regions, 2021*



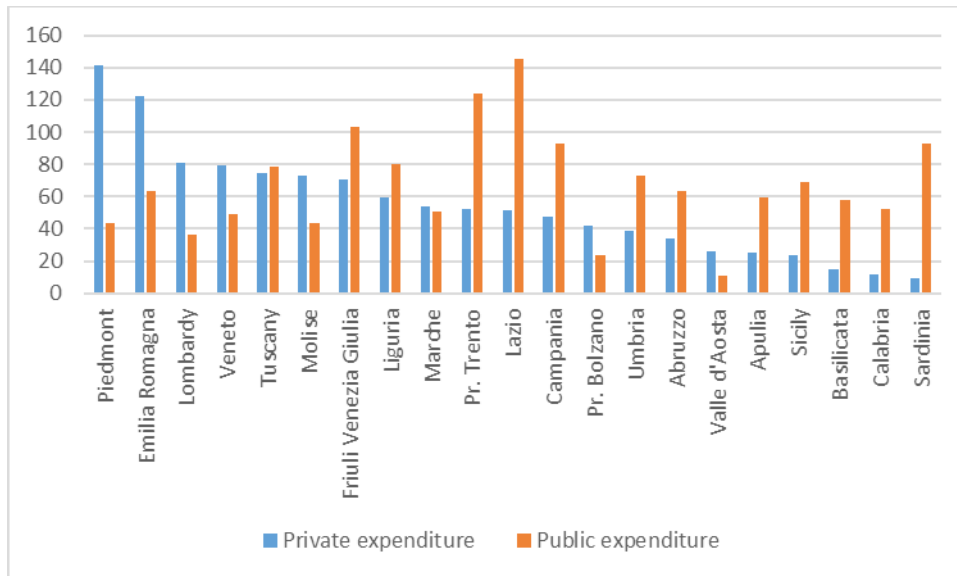
Source: *European and Regional Innovation Scoreboards 2021*

The top two regions, Piedmont⁹ and Emilia Romagna, together account for 23.3% of the total R&D investment expenditure of Italian companies. Campania, second among the southern regions after Molise, is in twelfth place ahead of the Province of Bolzano.

In Figure 12, the data of the two previous figures are presented synoptically, in order to allow an immediate comparison between public and private investments: it is evident how, for the majority of the Northern regions (with the exception of Friuli Venezia Giulia, Liguria and the Province of Trento), private investments far outweigh public ones, while the opposite is true for the Southern regions (except for Molise).

⁹ Piedmont, as it is known, is driven by investments by the automotive group Stellantis, which spends 8 percent of revenues on R&D. <https://www.affaritaliani.it/economia/stellantis-ricavi-doppi-a-300-mld-entro-2030>.

Figure 12. Comparison of public and private expenditure in R&D Italian regions, 2021

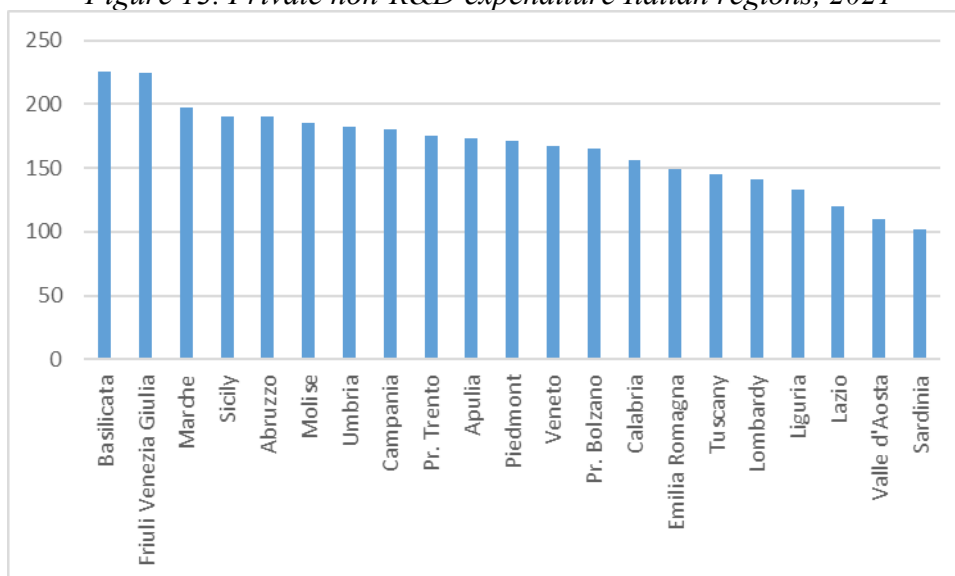


Source: European and Regional Innovation Scoreboards 2021

In this case (in contrast to what was observed in the previous correlation analysis), the positive relationship between public and private investment is lacking, instead a negative correlation is found: where public investment is higher, private investment is lower, while the regions with higher private investment are those that receive less public investment. It can therefore be assumed that there is an efficiency issue in public investment that makes it unproductive.

The scenario in Figure 13, which measures the level of private non-R&D business expenditure in Italian regions, is different.

Figure 13. Private non-R&D expenditure Italian regions, 2021

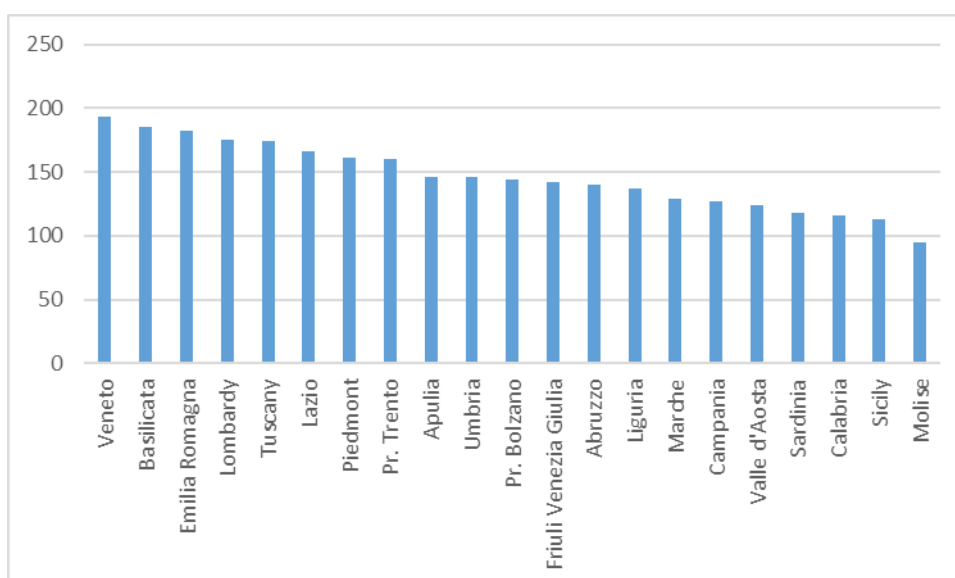


Source: European and Regional Innovation Scoreboards 2021

There is a predominance of central and southern regions here, with Basilicata leading the ranking and Campania, fourth among the southern regions, in eighth place. In the last positions we find not only Sardinia and Valle d'Aosta, but also Lombardy and Lazio.

Figure 14 allows us to go even further into the specifics of SME innovation.

Figure 14. SMEs with innovative products Italian regions, 2021

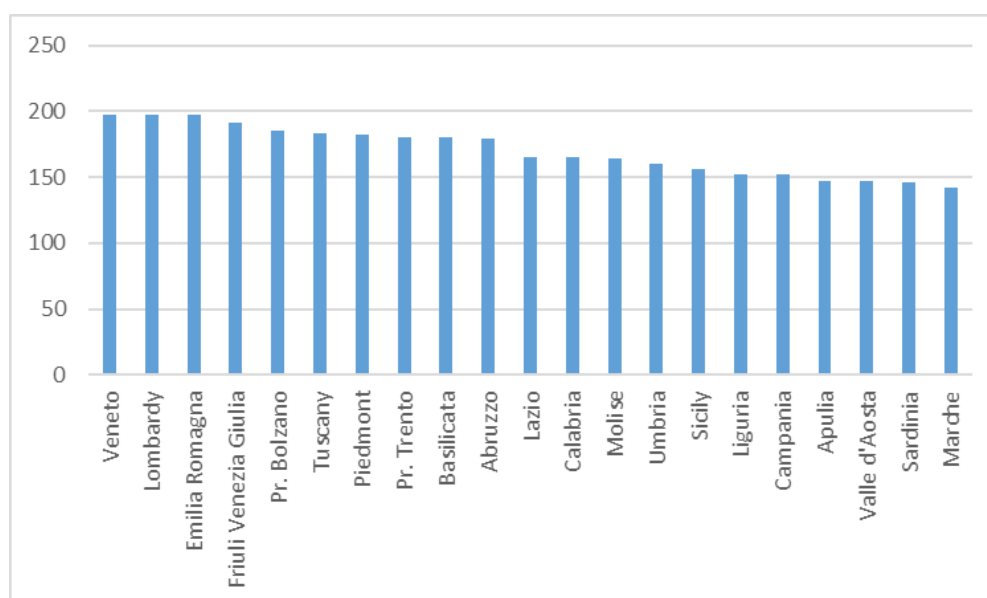


Source: European and Regional Innovation Scoreboards 2021

The indicator measuring the level of innovative products proposed by Italian companies shows, once again, a gap between the North and the South of the country, with the notable exception of Basilicata, second in the ranking, which despite its low level of investment in R&D (but with the highest level of non-R&D investment), both public and private, is competitive with northern and central companies. Among the other southern areas, Campania follows, in sixteenth place. The lack of private investment turns out to be a significant limitation to the innovative development of SMEs in the southern territories that cannot be offset by public investment.

Not dissimilar is the picture offered by Figure 15, which measures the level of innovation in the production processes of Italian SMEs, with the Northeast confirming itself as the main area of development and innovation in the country, followed by the Northwest and the Centre.

Figure 15. SMEs that have introduced innovative business processes Italian regions, 2021

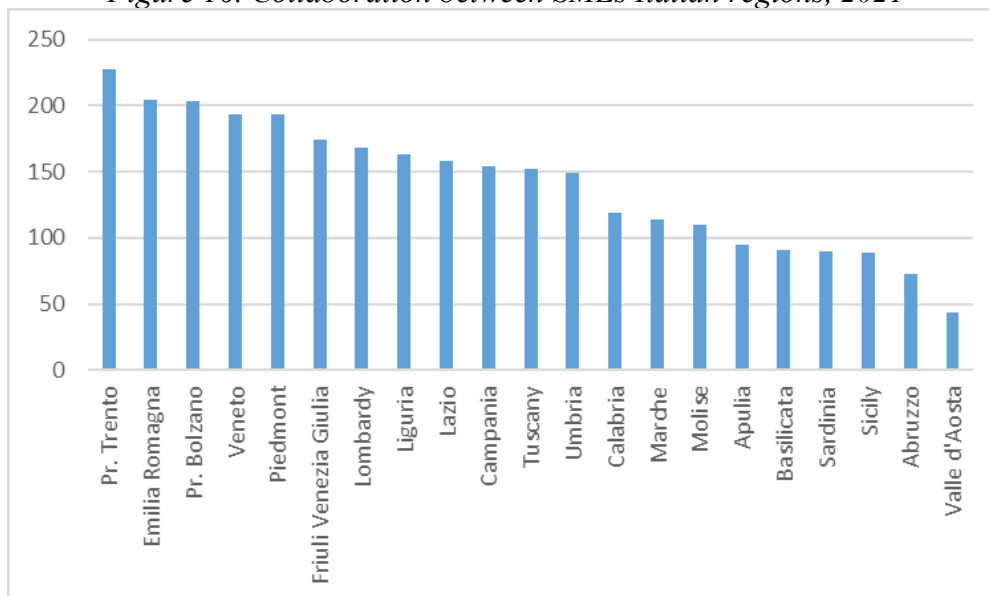


Source: European and Regional Innovation Scoreboards 2021

Slightly better results in the South, with Basilicata still in the lead followed by Calabria and Molise. In this ranking, only Apulia and Sardinia do worse than Campania among the southern regions.

Figure 16 shows an important indicator of innovation, namely the degree of collaboration between SMEs.

Figure 16. Collaboration between SMEs Italian regions, 2021



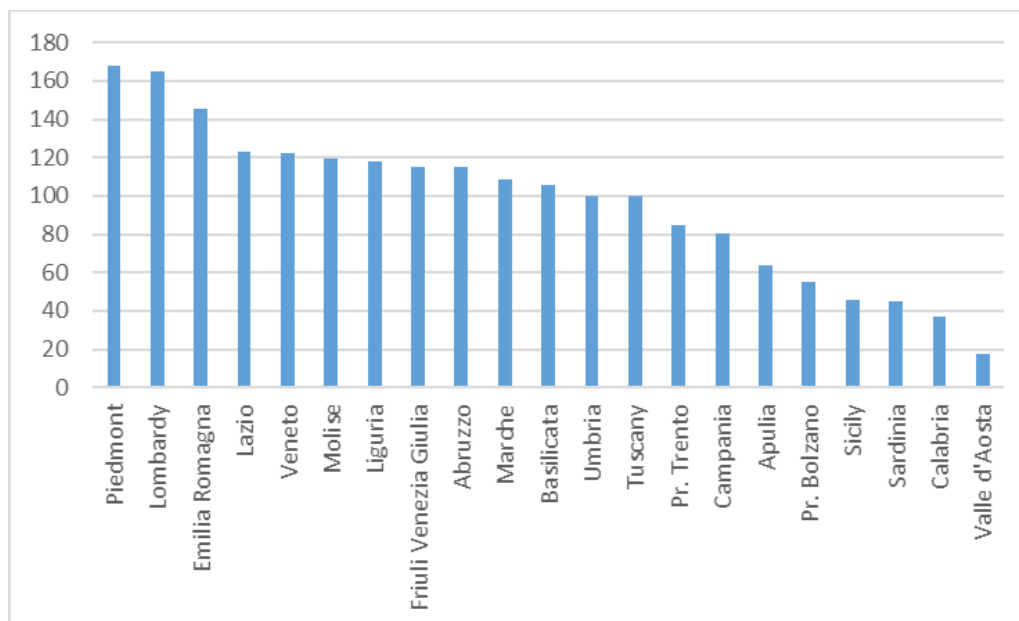
Source: European and Regional Innovation Scoreboards 2021

Once again, the North is confirmed as the country's driving force. Campania, however, boasting a valid system of industrial districts in some primary sectors (such as clothing and textiles¹⁰), shows a good level of interconnection between companies: although far from the northern regions, it is the first region in the South and precedes most of the regions in the Centre.

More pronounced are the differences that emerge from Figure 17, which shows data on employment in knowledge-intensive enterprises.

Figure 17. Employment in knowledge-intensive enterprises Italian regions, 2021

¹⁰ http://www.regione.campania.it/assets/documents/calzature_pelli_abbigliamento.pdf.



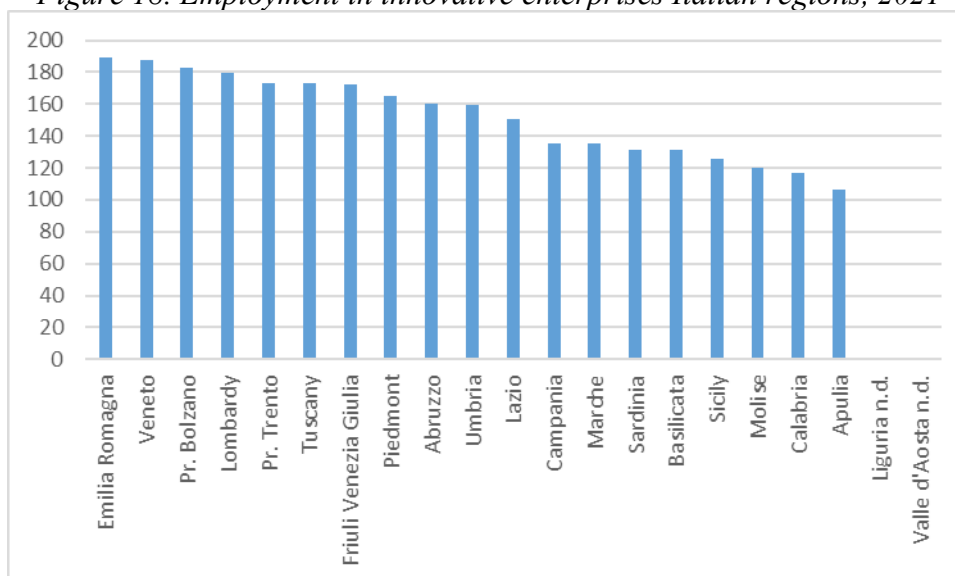
Source: European and Regional Innovation Scoreboards 2021

Here, Piedmont and Lombardy do significantly better than the other Italian regions, especially in the South, with particular reference to the islands and Calabria, while Basilicata ranks first among the southern regions.

It is interesting to highlight the case of Basilicata, which, despite being a decentralized and still poorly connected region, ranked first among Italian regions for the "level of private non-R&D business spending"; second in the ranking of "SMEs that proposed innovative products"; first among Southern regions for "SMEs that introduced innovative business processes" and again first among Southern regions for "employment in knowledge-intensive enterprises." From the analysis of the context and data, it can be inferred that the success of innovative SMEs in Basilicata may be the result of a unique combination of factors such as a favourable economic environment, good SME access to financing and support programs, a determined entrepreneurial culture, and a cost-effective workforce.

Finally (Figure 18), the data on employment in innovative enterprises confirm the previously analysed scenarios, with the North prevailing over the South, but with a smaller margin of difference in this case. First among the southern regions is Campania.

Figure 18. Employment in innovative enterprises Italian regions, 2021



Source: European and Regional Innovation Scoreboards 2021

4. Small and medium enterprises in the Campania region

After having analysed the innovation-related indicators for European countries and Italian regions, this contribution intends to examine the scenario of innovative SMEs in the Campania region with a focus on their quantity, characteristics, distribution and location.

As mentioned, there are 2,388 innovative SMEs in Italy, of which 169 (plus three companies in liquidation) are based in Campania (7%) and 92% of them are more than 5 years old.

Table 1 shows an uneven distribution of the absolute number of innovative SMEs in Campania, with a strong polarisation: about 75% are located in the two most populous provinces (Metropolitan City of Naples 51% and Salerno 24%), while the remaining 25% are substantially equally distributed between the provinces of Avellino, Benevento and Caserta. This scenario, however, changes significantly when the number of enterprises is related to the population of the provinces: thus, it is the province of Benevento that has the highest density of innovative SMEs, followed by Salerno and Avellino.

Table 1. Innovative SMEs in the Campania provinces, 5 August 2022

| | Avellino | Benevento | Caserta | Metropolitan city of Naples | Salerno |
|--------------------------------------|-----------------|------------------|----------------|------------------------------------|----------------|
| Number of innovative SME | 13 | 16 | 13 | 87 | 40 |
| % total | 7,7% | 9,5% | 7,7% | 51,5% | 23,7% |
| Population | 402.929 | 266.716 | 901.903 | 2.986.745 | 1.065.967 |
| nr. companies *100.000 inhab. | 3,23 | 6,00 | 1,44 | 2,91 | 3,75 |

Source: Elaboration from Business Register and Demo-Istat data

Aggregating the data (Table 2) and making a division between the coastal provinces (Metropolitan City of Naples, Salerno and Caserta) and the inland provinces (Avellino and Benevento), we arrive at similar results. In fact, 83% of SMEs are concentrated in the coastal areas while in the inland areas only 17%, but even in this case the analysis is reversed by appreciating the density of innovative enterprises: in the inland areas there are 4.3 innovative SMEs per 100,000 inhabitants, compared to 2.8 in the coastal areas. The inland areas thus show a fair degree of vitality, despite the disadvantageous condition deriving from the distance from the main road and rail connections. Therefore, the geographical location of Campania's SMEs in peripheral areas does not appear to limit their capacity for innovation precisely by virtue, as mentioned above, of the link with the territory and the networking capacities that enable profitable knowledge sharing and exchange processes.

Table 2. Innovative SMEs in coastal and inland provinces, 5 August 2022

| | Inland provinces | Costal provinces |
|--------------------------------------|-------------------------|-------------------------|
| Number of innovative SME | 29 | 40 |
| % total | 17,2% | 82,8% |
| Population | 669.645 | 4.954.615 |
| nr. companies *100.000 inhab. | 4,33 | 2,82 |

Source: Elaboration from Business Register and Demo-Istat data

In Table 3, in consideration of the economic, historical and demographic relevance, it was deemed appropriate to analyse in greater detail the data relating to the city of Naples (no longer considering the overall data of the Metropolitan City).

Table 3. Innovative SMEs City of Naples, 5 August 2022

| | Naples |
|--------------------------------------|---------------|
| Number of innovative SME | 66 |
| % total | 39,1% |
| Population | 922.094 |
| nr. companies *100.000 inhab. | 7,16 |

Source: Elaborated from Business Register and Demo-Istat data

The regional capital is home to 39% of all innovative SMEs in Campania (2.7% on a national scale) and the density figure confirms the centrality of Naples in the regional context, while still recording the highest number of innovative enterprises compared to the other cities in Campania (7.2 innovative SMEs per 100,000 inhabitants).

Finally, it is interesting to evaluate small and medium-sized innovative enterprises on the basis of three nodal parameters: specialization, size and value of production.

Regarding specialization, based on Ateco codes, the most frequent type of innovative enterprise (21.8 percent) is the production of non-publishing-related software (Ateco code 6201); this is followed at 8.8 percent by enterprises engaged in experimental R&D in the field of engineering and other natural sciences (code 721909); and 5.3 percent is represented by business consulting, management administration, business planning and IT-related services (code 702209); 4.7% is accounted for by experimental R&D activities in the field of biotechnology (code 7211); 4.1% is accounted for by consultancy activities in information technology (code 6202); finally, 4.6% is accounted for by enterprises engaged in the production of electrical energy and the manufacture of electric motors, generators and transformers (codes 3511 and 2711¹¹). Thus, IT related activities - from consulting and services to software production - account for more than 30% of innovative SMEs in Campania.

In terms of size, Campania's innovative SMEs are characterised by the prevalence of micro and small enterprises: in fact, more than 50% of Campania's SMEs are micro enterprises with fewer than 10 employees (33.1% have between 0 and 4 employees, while 17.1% have between 5 and 9); whereas small enterprises proper, between 10 and 49 employees, make up about 32% of the total (15.3% in the 10-19 employees class and 6.5% in the 20-49 employees class). Thus, 82% of innovative SMEs in Campania are micro and small enterprises. Medium-sized enterprises (50-249 employees) account for only 8.8% of the total¹².

The analysis of the production value of innovative SMEs in Campania is also interesting: the largest percentage is made up of companies with a production value of between EUR 100,000 and EUR 500,000 (24.9%), below this threshold 14.7% are in the EUR 1-100. 000, 13.6% have a value of production between EUR 500,000 and

¹¹ Here, 54% of the Ateco codes have been mapped in detail: the remaining 46% appear to be pulverised in other sectors attributable to further codes, not enough in number (no more than two for each sector) to make their aggregation meaningful.

¹² There is a residual share of 1.1% (two enterprises) with more than 250 employees, while the size of the remaining 7.6% is unknown.

EUR 1 million, 14.7% between EUR 1 and 2 million, 17.7% between EUR 2 and 5 million, 5% between EUR 5 and 10 million, 7.7% between EUR 10 and 50 million and, finally, only 1.1% (two companies) have a value of production over EUR 50 million. Aggregating the data, it can be seen that about 68% of SMEs have a medium to low value of production (from zero to EUR 2 million) and only a third (32%) exceed EUR 2 million: however, it is possible to state that almost half of the innovative SMEs in Campania have a value of production in excess of EUR 1 million.

5. Conclusions

It has been observed that in Italy, compared to the total number of SMEs, innovative ones are still few and represent an absolutely marginal share: in fact, in the European and Regional Innovation Scoreboard 2021, Italy ranks only among the "moderate innovation countries."

Therefore, it is necessary for Italy to accelerate the implementation of policies aimed at supporting the growth of innovative SMEs, including: investment in research and development, access to financing, training and development of technological skills, ad hoc tax breaks, creation of ecosystems for innovation, such as accelerators and incubators, collaboration between innovative SMEs, universities and large companies, promotion of digital innovation and dissemination of the culture of innovation.

As for the Campania region, the analysis of data shows a prevalence of micro and small enterprises, often linked to IT activities, with a predominantly medium to low value of production, but with a fair degree of vitality: as mentioned, 92% of them are more than 5 years old and, although it is true that one in two companies has fewer than 10 employees and 4 out of 5 have fewer than 49 employees, it is also true that almost one in two companies has a production value of more than one million euros, a sign that investments in innovation produce positive impacts on both the efficiency and turnover of companies.

Finally, also with regard to the debated topic of the geographical location of SMEs and the correlated relationship between the centre and the periphery, the analysis of the data showed how in Campania, while confirming the centrality of the city of Naples, there are more innovative SMEs in the inland areas than in the coastal areas in relation to the population, despite the objective disadvantages in terms of logistics and transport. Therefore, the geographical location of SMEs in peripheral areas of Campania, such as those in rural or less densely populated areas, does not limit their capacity for innovation. This is because the close link that these SMEs have with the territory and the surrounding communities can provide opportunities for knowledge sharing and exchange, which can be a driving force for innovation.

In conclusion, the networking capacities of these SMEs can enable them to effectively absorb and utilize knowledge from their surroundings, which can then be translated into new and innovative products, services, or processes. Essentially, the location of these SMEs in peripheral areas is seen as an advantage rather than a limitation, as it allows them to capitalize on their close connection with the territory and the people within it.

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