
Chronique : actualités de la politique industrielle

Enterprise and innovation policy in Italy: an overview of the recent facts

Annalisa Caloffi and Marco Bellandi



Electronic version

URL: <http://journals.openedition.org/rei/6580>

DOI: 10.4000/rei.6580

ISSN: 1773-0198

Publisher

De Boeck Supérieur

Printed version

Date of publication: 15 June 2017

Number of pages: 129-141

ISBN: 9782807391420

ISSN: 0154-3229

Electronic reference

Annalisa Caloffi and Marco Bellandi, « Enterprise and innovation policy in Italy: an overview of the recent facts », *Revue d'économie industrielle* [Online], 158 | 2e trimestre 2017, Online since 15 June 2019, connection on 10 October 2020. URL : <http://journals.openedition.org/rei/6580> ; DOI : <https://doi.org/10.4000/rei.6580>

© Revue d'économie industrielle

ENTERPRISE AND INNOVATION POLICY IN ITALY: AN OVERVIEW OF THE RECENT FACTS

Annalisa Caloffi (University of Padova, Italy)
and Marco Bellandi (University of Florence, Italy)

1. INTRODUCTION

The Italian enterprise and innovation policy over the past 20 years has undergone some major changes. The most important one is related to the institutional change that has witnessed the strengthening of the EU and the regional governments (Regions), and has required the central state to reinvent its role (Bellandi and Caloffi, 2012, 2016). Indeed, after the constitutional reform of 2001, Italy is a quasi-federal system in which a number of competencies, including a large part of the enterprise and innovation policies are shared between Regions and the State on the basis of principle of vertical subsidiarity. As a result, regional-scale initiatives coexist with some programmes of national relevance that are managed by the Italian government. As the Regions do not enjoy financial autonomy, and transfers from the State have gradually decreased in the last years, regional policies are mostly implemented with EU structural funds (Brancati, 2015). Despite this constraint, Regions, at least the most proactive ones, play a non-secondary role also because regional election cycles are on average much longer than national ones. Therefore, regional governments may have the time – though not always the financial resources or skills – to implement some of their strategies.

Given these features, the Italian policy framework for enterprise and innovation is relatively complex. In what follows we discuss separately the two levels, starting with the regional one.

2. REGIONAL POLICIES

2.1. The Regions have started to implement their policy strategies since the programming period 2007-2013. Actually, they acquired new responsibilities in the field of enterprise and innovation in the previous programming period of EU funds 2000-2006, and some of the most dynamic Regions started to design their intervention in that period. However, the period 2000-2006 was devoted mainly to learning how to manage the new competencies. As a result, up to ten years ago, regional policies were basically limited to the management of formerly national policies, which had been transferred to the Regions.

Since 2007, the picture has become more complex, as the possibility to adopt different policy mixes (Howlett, 1991; Laranja *et al.*, 2008; Flanagan *et al.*, 2011) becomes evident and practised also among the Italian Regions. Caloffi and Mariani (2017) identify Regions adopting a 'minimalist' approach towards enterprise and innovation policy, and others adopting a more proactive and entrepreneurial mix (Mazzucato, 2013). Regions of the first type are characterised by a policymaker who prefers the use of (apparently) neutral tools, such as horizontal incentives to generic firms' investments, delivered in an automatic or semi-automatic way. Such policymaker is not particularly willing to introduce sectoral, technological, or territorial targets. She does not have the ambition to intervene on the structure of relationships between companies or between companies and other organizations in the region, and therefore is not likely to provide support to networks, consortia or other types of collaborations. On the other hand, there are Regions led by proactive policymakers willing to promote innovation and structural change, also helping firms to break the possible lock-ins in which they are trapped. The proactive type of policymaker can give priority to the support of investments in research and development (R&D) and to innovation diffusion processes (Lambooy and Boschma, 2001; Laranja *et al.*, 2008). For example, she can target specific technologies, such as key enabling technologies (KETs), in the hope that

this can support innovation jumps in many sectors (European Commission, 2012). The more the policymaker is sensitive to systemic issues, the more she will try to intervene on collaborations, which form the backbone of a system, rather than on individual companies (Cooke *et al.*, 2004; OECD, 2011; Bellandi and Caloffi, 2016).

The map of Italy resulting from the analysis shows that the well-known North-South divide also characterizes regional enterprise and innovation policies (Caloffi and Mariani, 2017). While Central and Northern regions adopt proactive policy mixes and focus on supporting innovation and structural change, Regions in the South actually adhere to a minimalist style, prioritizing the support to generic investments made by individual firms. However, some degrees of heterogeneity persist within each of the two groups. Some Southern Regions (Campania and Apulia in particular) adopt a type of behaviour that is less minimal than others, for example because they implement some interventions that are inspired to a growth-pole approach (Perroux, 1955; Boudeville, 1966). Indeed, these Regions promote local poles through the attraction of external companies, possibly together with their network of subcontractors. Different types of proactivity can be identified also in the North, with a group of Regions being strongly characterized by a systemic approach, while others show a less pro-active policy mix, which is characterized by an evolutionary view of industrial change (Laranja *et al.*, 2008). The policymaker in the former type of northern Regions puts a relatively high emphasis on supporting various forms of inter-firm or inter-organizational alliances, while governments of the latter Regions focus on the promotion of intermediaries (e.g., technology centres, technopoles, innovation centres) that offer knowledge-intensive services aimed at helping firms increase their cognitive capacity.

Italian Convergence Regions (Campania, Calabria, Apulia, and Sicily) are also targeted by specific national programmes of regional scale (*Programma Operativo Nazionale Ricerca e Competitività* and *Programma Operativo Interregionale – Energie rinnovabili e risparmio energetico*). Once account is taken of these funds, we see that the framework previously outlined changes. In particular, Caloffi and Mariani (2017) show that the policy mix resulting from the sum of the regional and national strategies implemented in the Convergence Regions is relatively close to the systemic or evolutionary mixes adopted in the North. This happens because the national policies

of regional scale are leaned towards innovation, and to a proactive type of policy mix. Therefore, a certain degree of complementarity seems to emerge between the two levels of government. However, it is difficult to understand to what extent this complementarity is actually the result of a deliberate strategy pursued at regional or national level (or both).

2.2. With the start of the current programming period (2014-2020), the Italian Regions have drawn their smart specialization strategy (S3) (Foray *et al.*, 2012). Also in this case, there is a high degree of heterogeneity in the way they have managed the process of identification of both the strategic technologies and the types of stakeholders to be involved, as well as in the results of this process of selection. A common trait of regional governments' behaviour is that they have identified broad domains of specialization (such as green economy, life science, etc.) or even industrial sectors, rather than selecting specific technological domains (Iacobucci and Guzzini, 2016) (see table 1).

Table 1. Domains of specialization of Italian Regions' S3

Region	Innovation ranking	Specialization domains identified by the Regions
Abruzzo	Moderate	Automotive and mechanics; Agrifood; Life Sciences; ICT/space; Fashion/design
Basilicata	Moderate	Aerospace; Automotive; Bio-economy; Energy; Cultural and creative industry
Bolzano	Moderate	Energy/environment; Alpine technologies; Agrofood technologies; ICT and automation; Creative industries; Natural remedies and health technologies
Calabria	Moderate	Agrifood; Building/Green building; Tourism and culture; Logistics; Environment and natural hazards; Life science; Smart cities
Campania	Moderate	Advanced material and nanotechnologies; Aerospace; Energy, environment and green chemistry; Health biotechnologies and agrifood; Technologies for smart communities, cultural heritage, tourism and sustainable construction; Transport and advanced logistics
Emilia Romagna	Moderate	Agrifood; Building; Cultural and creative industries; Health and wellness; Mechatronics and engines
Friuli Venezia Giulia	Moderate	Agrifood; Home system; Chemistry and pharmaceuticals; Blue economy; Life science

Lazio	Moderate	Aerospace; Agrifood; Creative digital industries; Cultural heritage and related technology; Green economy; Life science; Security
Liguria	Moderate	Health and life science; Marine technology; Safety and quality of life
Lombardy	Strong	Advanced manufacturing; Aerospace; Agrifood; Artistic and cultural industries; Green manufacturing; Health; Sustainable mobility
Marche	Moderate	Domotics; Health and wellness; Mechatronics; Sustainable manufacturing
Molise	Moderate	Innovation and sustainability; Sustainable development; Health, independent and active living; Artistic and cultural industries; Manufacturing; ICT; Transport and logistics
Piedmont	Moderate	Aerospace; Automotive; Green chemistry; Mechatronics; Made in Piedmont; Health and life science
Puglia	Moderate	Aerospace; Ambient assisted living; Energy and environment; Human health; New material and nanotechnologies/Smart manufacturing; Technologies for smart communities
Sardegna	Modest	Aerospace; Agrifood; Biomedicine; Energy; ICT
Sicilia	Moderate	Life sciences; Energy; Smart Cities; Tourism/cultural goods/culture; Blue economy; Agrofood
Tuscany	Moderate	Chemistry Nanotechnologies; ICT and Photonics; Smart manufacturing
Trento	Moderate	Agrifood; Energy and environment; Mechatronics; Quality of life
Valle d'Aosta	Moderate	Excellent Mountain; Green Mountain
Veneto	Moderate	Agrifood; Creative industries; Smart manufacturing; Sustainable living

Note to table: The column 'innovation ranking' refers to the Regional Innovation Scoreboard 2016 ranking (Hollanders and Kanerva, 2016).

Source: Our elaboration on Iacobucci and Guzzini (2016)

Now that the S3 have been defined (for some Italian Regions this has occurred very late), regional governments should put them into practice. A first look at the Regional Operational Documents (ROPs, which detail how European Regional Development Funds funds will be used by the Region), as well as to the first policies implemented, do not signal radical differences between the current and the past policies. However, it is still very early to judge the implementation of regional S3.

3. NATIONAL POLICIES

Once that some policy competencies have been transferred to regional governments, the national government has somehow tried to redefine its role. As we shall see below, this has concerned in particular the launch of some enterprise and innovation strategies. The national type of intervention is basically selective and vertical, and the main focus is on supporting R&D and large-scale technology transfer projects. The most innovative strategies are related to the promotion of university-industry collaborations and various types of industrial partnerships. In addition, there are also measures aimed at strengthening the Cassa Depositi e Prestiti as an “unofficial” public investment bank (Ninni, 2013; Pianta and Zanfei, 2016). In what follows, we briefly illustrate these interventions.

3.1. One of the first strategies that can be considered as a result of the attempt to implement a new wave of national innovation policies is the initiative on the so-called technological districts (TD), which somehow follow the example of the *Poles de compétitivité* in France. This strategy was launched in the early 2000s with the idea of promoting a number of centres of excellence for research and innovation. However, they are still on the agenda of both the national and some regional governments. In particular, technology districts were first defined by the 2002-2004 and 2005-2007 National Research Programs of the Italian Ministry of Education, University and Research (MIUR) as aggregations of high-tech firms, universities and knowledge-intensive business services that join together to form a consortium and carry out some innovation and technology transfer projects. Potential technology districts are identified by the Regions in collaboration with the MIUR, which, once the district is constituted, can fund one or more innovation projects implemented by the district.

During the first half of the 2000s technological districts have been created in some Italian regions.¹ After some delays, the policy has been revived by some Regions. According to Bertamino *et al.* (2016), from 2002 to 2011, 450 million euro have been disbursed by the State to support such initiatives (regional funds excluded). The authors provide a first evaluation of the policy, and suggest that it did not have a relevant effect on the

¹ See more detailed information on <http://www.distretti-tecnologici.it/home.htm>.

performance of companies that are involved in the districts. However, no information is available on other important aspects, such as on the TDs ability to stimulate innovation or industry-research collaboration in the territories in which the TDs are located.

The promotion of large-scale university-industry collaborations in some areas of excellence of Italian manufacturing industry was also at the core of the strategy “Industria 2015”, launched in 2006. This strategy was supposed to be focused on innovation, being based on the idea of national strategic projects integrating manufacturing and services, with the help of some key technologies. The elaboration of such projects gathered networks of firms and other organizations. Although the support to Industria 2015 had a short duration (the government changed two years after its constitution) and no identifiable results, it is worth mentioning it as one of the first national attempts of supporting the formation of large-scale innovation networks.

The basic idea underlying these first two types of interventions have been echoed in subsequent policies, such as the national technology clusters (NTC) and the smart cities and smart communities, which have been launched in 2012 and funded by the National Fund for Research (FAR). NTC are networks among universities, research centres, public and private enterprises and other agents, which join together in order to implement some technology transfer projects. Currently, there are 8 NTC and each of them is focused on a strategic technology or domain of application (aerospace, agrifood, green chemistry, smart factory, transportation means and systems for terrestrial and marine mobility, life sciences, ambient intelligence and ambient assisted living, technologies for smart communities).

The network dimension is also central in the acknowledgement of contracts among networks of firms (network contract), which was defined by the national government in 2009 in order to foster inter-firm collaboration. Indeed, the network contract is a contract by which a number of entrepreneurs form a network and define a common program that includes a number of manufacturing, commercial, technical or technological projects. The incentive to join is given by the fact that firms in a network contract can enjoy some tax benefits. As of December 2016, the number of firms that have signed network contracts amount to 16,587, for a

total of 3,243 contracts.² No evaluation exercises are currently available on the main effects of this policy.

Among the policies that target the individual firm, there are lines reserved to SMEs, as well as instruments that are mainly directed to medium or large company. Some policies are also aimed at supporting new firms.

The Innovation Package is an example of the first type of policy. It includes a number of instruments targeting SMEs, such as subsidized loans, equity participation (through the National Innovation Fund) and grants³. The policy aims at supporting the implementation of innovation projects, and stimulating the adoption of intellectual property rights by SMEs. The technological innovation contracts are an example of the second type of policy. Such tools provide grants and loan guarantees for the implementation of relatively large-scale innovation projects (over 10 million euro) that focus on specific technologies. The selection of funded projects and the definition of the specific incentive scheme are the result of a negotiation process between the public and the private sector. Some funds are reserved for firms in the South. Some contracts have been funded at the beginning of the 2010s, but subsequently funding has decreased. An example of the third type of policy is constituted by the support to innovative start-up firms. The initial definition of the final beneficiary of this intervention, launched in 2012, was focused on innovation. Indeed, the label of innovative start-up was assigned to small start-ups either investing 15% of their sales revenue in R&D, or having at least one-third of employees with a PhD and at least 50% of graduates, or the ownership of a patent or license⁴. These firms could benefit from a combination of indirect and direct incentives. The policy has been redefined as Smart & Start in 2014 and is still in place. It is currently aimed at providing support to the implementation of investment plan that are centred on the adoption of new technical and organizational solutions, target new markets or adopt business models leaned towards social and/or environmental innovation.

² See more detailed information on <http://contrattidirete.registroimprese.it/reti/>.

³ See more details on www.sviluppoeconomico.gov.it/index.php/it/incentivi/impresa.

⁴ See more details on <http://startup.registroimprese.it>, and on www.smartstart.invi-talia.it.

In addition to these policies, in recent years the governments have also revived some old policies, among which the provision of guarantees by the Central Guarantee Fund (Fondo Centrale di Garanzia) and the granting of soft loans for investments in machinery by SMEs (Legge Sabatini, or Legge 488, which have been the cornerstone of Italian enterprise and innovation policy in the last decades of the XX century). Recent evaluations of these policies have shown that they have had a positive effect, especially on the variables directly addressed by the policy (i.e. they have led to an increase in long-term bank debt in the first case, and to an increase of firms' investments in the second case), but were less able to improve the firms' competitive ability (see, for example, Bronzini and De Blasio, 2006; Bernini and Pellegrini, 2011; Cerqua and Pellegrini, 2014; De Blasio *et al.*, 2014; Caloffi *et al.*, 2016).

One of the most relevant interventions – at least in the intentions of policymakers – refers to the strengthening of the “Cassa Depositi e Prestiti” as a major buyer of Italian public debt and a private investment bank (or an “unofficial” public investment bank, see Ninni, 2013; Pianta and Zanfei, 2016). The Cassa Depositi e Prestiti collects funds through postal savings under state guarantee and the issuance of bonds, and provides support both to firms and (to a lesser extent) to public administrations. Its mission includes the investment in ‘strategic’ firms (through private equity finance), the provision of support to SMEs, and to the growth of large or medium-sized firms. It supports a variety of investment projects related to internationalization, innovation, and firm consolidation. It also provides funds to public administrations, for the creation of infrastructures. In 2015, it has managed 30 billion euro, 22 of which are related to firms' investment projects.⁵ As the Cassa Depositi e Prestiti has expanded its activity only recently, it is too early to evaluate its effect on the Italian industry. However, Pianta and Zanfei (2016) highlight some critical issues related to the Cassa, which could greatly weaken its effects. The most relevant one is that the Cassa is a private organization, whose investment choices must be driven by profitability. This is at odds with any objective of industrial policy. Indeed, choices about what firm, sector, technological field to support should not be based on current profitability, but on other strategic aspects, including the future profitability.

5 See <http://www.cdp.it/>.

3.2. The industrial policy designed and implemented by the last government (Renzi government, which fell in December 2016; but the person of the Ministry of Economic Development has not changed with the new Gentiloni government) is centred on a so-called Industry 4.0 strategy, following the widespread international attention raised by Germany policies (Industrie 4.0) on the application to manufacturing of new digital technologies (Hermann *et al.* 2015) and by streams of new business strategies related to the expanding application of digital technologies like *servitization* (Baines and Lightfoot, 2013).⁶ Such policy adopts a horizontal approach. The first guidelines suggest that the government is willing to adopt a technology-neutral approach, to intervene through horizontal actions and to work on some enablers. The 2017-2020 plan includes, among the key actions, the support to private investments in new technologies and R&D, to venture capital and start-ups. More specifically, the general objective of promoting the intelligent factory and the smart industry is pursued in several ways: a) stimulating the introduction of capital goods (of course also high-tech ones) in firms, and the investment in R&D; b) encouraging the formation of enterprises, especially the innovative ones; c) more generally, stimulating private investment, and ease firms' access to credit.

Most of the policy instruments outlined in the documents presenting such policy are not new, and have been described above. Such instruments include the guarantees provided by the National Guarantee Fund (Fondo Centrale di Garanzia) and the subsidized loans for the purchase (or lease) of capital goods provided by the Law 488. Moreover, it has allowed firms to increase the carrying value of their capital goods up to 140% (super-depreciation) or up to 250% (hyper-depreciation) for the high-tech goods. Some tax benefits that were already in place, such as the R&D tax credit, have been extended until 2018 or 2020. Other tax benefits are directed to support the emergence of new firms. Examples include the incentives to investors in start-ups or in innovative SMEs. The funds that are allocated by the latest Legge di Stabilità (budget act) to enterprise and innovation policy amount to 6 billion Euros for the 2017-2019 triennium, the majority of which is related to tax benefits (over 70% of the available funds). The direct incentives to firms cover a residual part: only 200 million euro in the three years (Ufficio Parlamentare di bilancio, 2016).

⁶ See details on <http://www.sviluppoeconomico.gov.it/index.php/it/incentivi/impresa/industria-4-0>.

Other key actions of the Industry 4.0 strategy are aimed at upgrading the existing industrial competencies and the creation of Industry 4.0 specific competencies. These goals should be pursued through the dissemination of an Industry 4.0 culture, through plans on the so-called “Scuola Digitale” (Digital School) and the “Alternanza Scuola Lavoro” (Study and Work Programs)⁷; the creation of University courses and Technical Institutes aimed at larger formation of digital skills; the financing of PhDs courses and the creation of Competence Centres and Digital Innovation Hubs. The national strategy also includes the development of technological infrastructures (ultra-broadband and the definition of IoT standards and interoperability criteria).

4. SOME CONCLUDING REMARKS

The previous Sections have illustrated a quite complex set of recent enterprise and innovation policies in Italy. They do not give a complete illustration of the public deliberate initiatives influencing the current business environment and of the levers and barriers to industrial investments and growth in Italy (Cappellin *et al.*, 2015). Of course, much more is implied: law and legal institutions, bureaucratic burden, general business taxation, public demand and investments, trade policies, education, finance, welfare, etc. It has to be added that the Italian business structure is traditionally highly dependent on local variables. For example, the strength of made in Italy has rested for decades on virtuous relations between industrial districts where clusters of specialised SMEs are embedded and larger cities with their specializations in culture-based activities, fashion, design, R&D, media, business tourism, etc. (Becattini, 2004; Bellandi and Caloffi, 2016). Important policies have been deployed at the local level, but in the last decade they have been increasingly submitted to upper-level policies, if not forgotten.

7 The “Scuola Digitale” (digital school; http://www.istruzione.it/scuola_digitale/index.shtml) program aims at introducing new technologies in schools, support life-long learning and virtual learning environments. The program has been financed by national and EU funds, for a total of one billion euro, and it will be implemented by 2020. Following the “Alternanza Scuola Lavoro” plan (<http://hubmiur.pubblica.istruzione.it/web/istruzione/dg-ifts/area-alternanza-scuola-lavoro>), students complete training periods in enterprises or other organizations.

The complexity and the weight of what is left outside enterprise and innovation policies at the regional and state levels in Italy explain perhaps some signs of low attention given by a sample of very dynamic Italian SMEs to direct public support: according to a survey in 2015, just around 10% of those firms has applied for public subsidies in the last years, and only 20% has cooperated with other agents on innovation projects (Carnazza, 2016). In conclusion, while recent enterprise and innovation policies in Italy refer to promising approaches, aiming at the mobilization of collaborative efforts and innovation intermediaries and platforms, the same policies are lacking in terms of coordination between state, regional and local levels, persistency of orientation and funding, and relation to other public initiatives influencing the business context.

REFERENCES

- BAINES, T. & LIGHTFOOT, H., (2013). *Made to Serve: How Manufacturers Can Compete through Servitization and Product Service Systems*. John Wiley & Sons, Hoboken, NJ.
- BECATTINI, G. (2004). *Industrial Districts. A New Approach to Industrial Change*. Cheltenham: Edward Elgar.
- BELLANDI, M. & CALOFFI, A. (2012). System-based policies in Italy: From industrial districts to technological clusters. *European Review of Industrial Economics and Policy*, 5: 1-14.
- BELLANDI, M. & CALOFFI, A. (2016). Industrial policies in a Marshallian-based multi-level perspective. *European Planning Studies*, 24(4): 687-703.
- BERNINI, C. & PELLEGRINI, G. (2011). How are growth and productivity in private firms affected by public subsidy? Evidence from a regional policy. *Regional Science and Urban Economics*, 41 (3): 253-265.
- BERTAMINO, F., BRONZINI, R., DE MAGGIO, M. & REVELLI, D. (2016). Local policies for innovation: the case of technology districts in Italy. *Bank of Italy Occasional Paper*, n. 313.
- BRANCATI, R. (ED) (2015). *Le strategie per la crescita. Imprese, mercati, stato*. Roma: Meridiana Libri.
- BRONZINI, R. & DE BLASIO, G. (2006). Una valutazione degli incentivi pubblici agli investimenti. *Rivista italiana degli economisti*, 11 (3): 331-362.
- CALOFFI, A. & MARIANI, M. (2017). Regional policy mixes for enterprise and innovation policy: A fuzzy-set clustering approach. *Environment and Planning C*, online first.
- CALOFFI, A., MARIANI, M. & STERLACCHINI, A. (2016). Evaluating public supports to the investment activities of business firms: A meta-regression analysis of Italian studies. *CREI Working Papers*, Università degli Studi Roma Tre, N. 116.
- CAPPELLIN, R., BARAVELLI, M., BELLANDI, M., CAMAGNI, R., CICIOTTI, E. & MARELLI, E. (2015). *Investimenti, innovazione e città: una nuova politica industriale per la crescita*, Milano: Egea www.egeaonline.it/ita/investimentiinnovazioneecitta.aspx.

- CARNAZZA, P. (2016). Le strategie di investimenti e di innovazione delle PMI eccellenti italiane nel biennio 2014-2015: i principali risultati di un'Indagine ad hoc. Paper presented at the XIV Workshop of Società italiana di Economia e Politica industriale – SIEPI, Florence, February.
- CERQUA, A. & PELLEGRINI, G. (2014). Do subsidies to private capital boost firms' growth? A multiple regression discontinuity design approach, *Journal of Public Economics*, 109: 114-126.
- COOKE, P., HEIDENREICH, M. & BRACZYK, H.J. (EDS.) (2004). *Regional Innovation Systems. The Role of Governance in a Globalized World*, London: Routledge.
- DE BLASIO, G., DE MITRI, S., D'IGNAZIO, A., FINALDI RUSSO, P. & STOPPANI, L. (2014). Public guarantees to SME borrowing. An RDD evaluation. Paper presented at the 55° Riunione Annuale della Società Italiana degli Economisti, Trento 23-25 October 2014.
- EUROPEAN COMMISSION (2012). *A European strategy for Key Enabling Technologies – A bridge to growth and jobs*, COM(2012) 341 final, European Commission, Bruxelles, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0341&from=EN>.
- FLANAGAN, K., UYARRA, E. & LARANJA, M. (2011). Reconceptualising the 'policy mix' for innovation. *Research Policy*, 40(5) 702-713.
- FORAY, D., GODDARD, J., BELDARRAIN, X. G., LANDABASO, M., MCCANN, P., MORGAN, K. & MULATERO, F. (2012). *Guide to research and innovation strategies for smart specialisations (RIS 3)*. Brussels: European Commission.
- HERMANN, M., PENTEK, T. & OTTO, B. (2015). *Design Principles for Industrie 4.0 Scenarios: A Literature Review*. Working Paper No. 01 / 2015, Technische Universität Dortmund, Fakultät Maschinenbau and Audi Stiftungslehrstuhl Supply Net Order Management - www.snom.mb.tu-dortmund.de
- HOWLETT, M. (1991). Policy instruments, policy styles, and policy implementation. *Policy Studies Journal* 19(2): 1-21.
- HOLLANDERS, H. & KANERVA, M. (2016). *Regional Innovation Scoreboard 2016*. Bruxelles: European Union.
- IACOBUCCI, D. & GUZZINI, E. (2016). Relatedness and connectivity in technological domains: missing links in S3 design and implementation. *European Planning Studies*, 24(8): 1511-1526.
- LAMBOOY, J.G. & BOSCHMA, R.A. (2001). Evolutionary economics and regional policy. *The Annals of Regional Science*, 35(1): 113-131.
- LARANJA, M., UYARRA, E. & FLANAGAN, K. (2008). Policies for science, technology and innovation: Translating rationales into regional policies in a multi-level setting. *Research Policy*, 37(5): 823-835.
- MAZZUCATO, M. (2013). *The entrepreneurial state: Debunking public vs. private sector myths*. London: Anthem Press.
- NINNI, A. (2013). La cassa depositi e prestiti: il ritorno dello stato-guida (e oltre) in politica industriale. *Economia e Politica Industriale*, 3: 141-155.
- PERROUX, F. (1955). Note sur la notion de pôle de croissance. *Economie Appliquée*. 8: 307-320.
- UFFICIO PARLAMENTARE DI BILANCIO (2016). *Rapporto sulla politica di Bilancio 2017*. http://www.upbilancio.it/wp-content/uploads/2016/12/Rapporto-politica-di-bilancio-2017_-_per-sito.pdf.