Impact Evaluation: An Experiment on Development Policies in Agri Valley (Basilicata, Italy) Compared with New Urban Agenda Themes

Priscilla Sofia Dastoli[1(✉)], Francesco Scorza[2], and Beniamino Murgante[2]

[1] DiCEM, University of Basilicata, CdS Architecture, Via Lanera, 20, 75100 Matera, Italy
priscilla.dastoli@unibas.it
[2] School of Engineering, Laboratory of Urban and Regional Systems Engineering, University of Basilicata, 10, Viale Dell'Ateneo Lucano, 85100 Potenza, Italy
{francesco.scorza,beniamino.murgante}@unibas.it

Abstract. The Cohesion Policy of the European Union was established with the aim of redistributing wealth between regions and countries and to stimulate growth in lagging areas. It is the most important structural policy in terms of financial commitment, geographical dimension and timing. The management of the EU Structural Funds (SF) highlights problems related to monitoring and evaluation; the latter aims to measure the effectiveness, efficiency and impact of programs; however, in the regional evaluations of operational programs, the impact assessment is underestimated.

This paper is based on the results developed within the RI.PROVA.RE project and is aimed at defining an impact evaluation proposal based on the data emerging from the analysis of a specific case study.

By the collection of territorial data on public investments financed by EU Structural Funds and other regional funds in the Agri Valley area, several graphic representations on the distribution of funds were made. In addition, the investment priorities were compared with the themes of the New Urban Agenda: the analysis of coherence between the objectives of the previous programs and the future perspective of urban development policies made it possible to identify weaknesses in rebalancing structural territorial trends.

Keywords: European and local policies · Impact evaluation · New Urban Agenda

1 Introduction

The European Commission, for the Cohesion Policy of the 2021–2027 programming cycle, proposes a series of important changes with a view to simplicity, flexibility and efficiency. In particular, the 11 thematic objectives of the period 2014–2020 are replaced by five broader objectives: a smarter Europe, a greener and low-carbon Europe, a more connected Europe, a more social Europe, a Europe closer to citizens [1]. The theme of

© Springer Nature Switzerland AG 2021
O. Gervasi et al. (Eds.): ICCSA 2021, LNCS 12957, pp. 621–633, 2021.
https://doi.org/10.1007/978-3-030-87013-3_48

the impact evaluation is very current, especially if a paradigm change is foreseen based on the results, positive and negative, of the previous programming cycle [2].

This research was developed in the framework of the project "Re-inhabiting countries. Operational Strategies for the Enhancement and Resilience of inland areas" (RI.P.R.O.VA. RE); the research project was funded by the "Call to promote research projects to support the implementation of the National Strategy for Sustainable Development (SNAI)" in the theme "Resilience of communities and territories"; the call was encouraged in 2019 by the current Ministry of Ecological Transition (MiTE). The project is structured around three research objectives [3]: 1. Redesigning the geography of inland areas, 2. Understanding the Resilience of inland areas, 3. Defining strategies for sustainable and resilient development; the latter objective includes the activity aimed at carrying out an Analysis and Evaluation of ongoing policies. The RI.P.R.O.VA.RE project focuses on two regions in southern Italy: Campania and Basilicata. Following the results of the objective 1 activity, three areas of experimentation were identified in the two regions: Matese and Ufita in Campania Region and Agri Valley in Basilicata Region, for a total of 58 municipalities in the inland areas.

The departments involved in the RI.P.R.O.VA.RE project are the Department of Architecture and Industrial Design of the University of Campania Luigi Vanvitelli, the Department of Civil Engineering of the University of Salerno and the Department of European and Mediterranean Cultures, University of Basilicata (UniBas).

The UniBas research unit deals with the Agri Valley, which is located in the southwestern quadrant of Basilicata, between the Tyrrhenian and Ionian coasts. The research program covers territorial development investments, concerning EU instruments and a specific program active in the context of the Agri Valley called the Agri Valley Operational Program (POV). The POV is an impressive program of actions, inspired by regional economic planning lines and covering an enlarged territorial area, which activates the operation of all administrative levels, from regional to municipal. The Program is active in the regional territory affected by oil extraction, to invest the compensatory funds of royalties in a series of actions aimed at economic development, industrial growth and the development of renew energy sector [4–10]. Previous studies investigated the conflicts in current development strategies running in this area highlighting structural weaknesses of the planning process [11–16].

The analysis and impact assessment activities of territorial development policies [14, 17–20] are oriented to understand the Resilience of the inland areas, to deliver planning tools able to define strategies for sustainable and resilient development. The project's choice to focus on the inland areas is also functional to explore the usefulness of the concept of "Resilience", which is still the subject of different interpretations, in the triggering of processes of the revitalization of the inland areas [3]. The theoretical reference model to articulate the concept of Resilience in the RI.P.R.O.VA.RE project comes from the Gunderson and Holling studies [21] on the resilience of socio-ecological systems, of which territorial systems are clearly an expression. The authors point out that socio-ecological systems tend to develop according to evolutionary cycles structured in four phases: exploitation, conservation, release, and reorganization that leads to the triggering of a new evolutionary cycle, characterized by new configurations of the system.

The transition phase of the system - from decline to reorganization - requires high potential and high resilience [22].

A backward design approach has been adopted to identify critical development issues affecting local policies implementation the case study area: the Agri Valley in Basilicata region (Italy), as a precondition to stimulate a process of innovation and to develop a strategic perspective coherent with the principles of the New Urban Agenda (NUA) [23].

The New Urban Agenda was adopted in Quito (Ecuador), during the conference "Habitat III", held from 17 to 20 October 2016. The overall objective that is to be achieved is that of the 'right to the city', which means ensuring acceptable requirements in terms of equity, accessibility, security, healthiness, resilience and sustainability [24]. The 175 points are structured in three parts: sustainable urban development, tools for effective implementation, modalities for monitoring and revising the action plan.

The NUA identifies 12 priority themes that are mainly aimed at cities, where 65% of global energy is consumed and 70% of CO2 emissions are produced. However, in a country such as Italy, where 85% of municipalities have fewer than 10,000 inhabitants - mainly located in the inland areas - it is also necessary to pay attention to the policies and strategies of small municipalities and to the objectives that must be achieved by the "citizens" who live there [5, 25]. The study, therefore, proposes a consideration on the investment priorities of the Funds of a small inland area compared with themes of the NUA and on the coherence between former programs objectives and the future perspective of urban development policies.

2 European and Local Policies: Key Issues Related to Impact Evaluation

According to European Commission, in the evaluation process, you can identify three different types of evaluation related to distinct moments: ex ante, itinere and ex post. The impact assessment is part of the ex-post evaluation but focuses only on the impacts, i.e. the (non-immediate) changes caused by the interaction of cluster projects on the territorial system affected by the interventions. The impact evaluation should try to answer the question "What is the impact or effect of the interventions carried out on the condition of the target groups or territories?" [26].

The literature on public policy evaluation is very extensive [27–31]; the original meaning of the term evaluation has a very broad meaning, used in various contexts, which therefore needs to be framed within the limits of the analysis of the effects of public policies. A definition of evaluation encompasses the salient concepts of "effects of action" and "analytical activity" is as follows: "Evaluation is a multidisciplinary analytical activity that uses the methods of the social sciences to judge the effects produced by the implementation of public action" [32]. It is also necessary to understand what the meaning of the implementation of the evaluation activity is; the evaluation is useful in two areas: on the one hand, to produce information that can help improve the program, on the other, to measure the impact of the program on the target groups. Regulation No 1303/2013 [33] lays down general rules for the operation of Community funding and programs; the Regulation in article 54 specifies «evaluations shall be carried out to improve

the quality of the design and execution of programs and to assess their effectiveness, efficiency and impact».

The information brochure prepared by the European Commission [34] for the period 2014–2020 states that «Managing authorities, together with project beneficiaries, must show the citizens of the region, as well as the media and politicians at all levels, the results of the investments made, while EU taxpayers have the right to know how their money is spent».

In Italy, the management of the Structural Funds improved for the 2014–2020 programming cycle with the introduction of information and communication rules to address the critical issues that had arisen in previous cycles [35]. The Agency for Territorial Cohesion has remedied some of these critical issues with the creation of the OpenCoesione web site (it is a portal of the Agency for Territorial Cohesion created in 2012 and dedicated to information on the implementation of cohesion policy interventions). Monitoring systems of this type are useful for constructing indicators that refer to the quantitative data of interventions, bringing out several problems.

In addition to the communication and information aspects, institutions are obliged to draw up evaluation documents during the implementation phases of Community programs to establish the effectiveness, efficiency and impact of the measures implemented. Evaluation documents are generally drawn up by regional offices because the regions and autonomous provinces represent the decentralized managing authorities of Community resources. It is a question of identifying a set of result and output indicators for each Axis of the Structural Funds, entering the data at the beginning of the implementation of the program and establishing intermediate and final targets that must be achieved based on the funding allocated to Axis. The evaluation takes place according to the degree of achievement of the objectives, comparing the deviation of the values from the initial data. Impact indicators are rarely included and calculated in evaluation documents, despite extensive literature on the subject of impact assessment by the European Community under the Structural Funds [34, 36–40].

A large set of result and output indicators is present in the database of territorial indicators for development policies, the construction of which represents one of the products provided for in the Convention concluded between the National Statistical Institute (ISTAT) and the PON Management Authority "Governance and Institutional Capacity 2014–2020", relating to the implementation of the Territorial and Sectorial Statistical Information Project for cohesion policies 2014–2020. The database contains 327 indicators (258 + 56 gender) available at a regional and provincial level, for macro-area and the target areas of the different development policy cycles, to have updated spatial data and indicators to observe the results gradually achieved by policies in the territories and support any reprogramming of resources [41–43]. Again, impact indicators are not included.

Currently the evaluation of Community policies is possible only based on the result and output indicators, without being able to monitor the effects of the same policies. In addition, this type of monitoring is normally aggregated to the scale of the entire region, so one cannot know the spending capacity or the margin for improvement of a part of the territory, such as inland areas or industrial areas. These are homogeneous data for the

entire region that do not consider the inland dynamics of the same, even for sub-regional areas already prepared for other policies.

The impact evaluation has little application because - to understand the real effects on the territory - suitable and differentiated evaluation tools for sub-regional areas would have to be implemented, starting from the information of the municipal level. Suffice it to say that the Italian municipal administrations, with 4,060 projects, are the beneficiaries who, after private individuals, manage the most significant amount of resources of the ERDF 2014–2020 program, equal to 3.2 billion euros out of a total of over 20 billion [44].

So far, extensive studies have been produced focused on understanding the dynamics of innovation, growth and employment in the regions. Much less, the effort has been made by researchers to analyze the effects of policies. Only recently has an emerging international scientific literature on cohesion policy [45, 46] offered new evaluation evidence produced in a counterfactual perspective [47]. Theoretically, according to this approach, the effect is defined as the difference between what happened after the implementation of a policy (factual situation) and what would have happened if that same policy had not been implemented (counterfactual situation): this definition is based on all the evaluation of the effects with the counterfactual approach [48].

3 Methodology

3.1 A Case Study from the Basilicata Region

The data on the policies affecting the Agri Valley territory were acquired on the official website of OpenCoesione - concerning information on community and national policies at the municipal level - and on the website of the Agri Valley Operational Program (POV) for information on local policy. On the OpenCoesione website, it is possible to download projects (projects.csv / metadata.xls) grouped both for each municipality and for the entire region of interest. The information that has been acquired for each project of the municipalities of Agri Valley [6, 49–51] are as follows: Public cost, payments made, the progress of the project, Nature (Type of operation), Theme, Program, Axis. On the POV website, on the other hand, local policy data are available, organized within Annual Reports on the activities carried out by all implementing actors.

The first activity was to identify policies active in the areas of experimentation: the European Structural Funds, the national and local policies. Then there was the verification of the availability of data at the municipal level, which was followed by a phase of collection in a spreadsheet and georeferencing of the same in the GIS environment. All data were collected in a comma-separated values (.csv) table and join with the resident population data as of 1 January 2020 from ISTAT to be able to perform basic statistics identifying per capita impacts.

The collection phase is fundamental to build maps, which serve to understand the trend in the use of Community resources throughout the area, making a comparison between municipalities and between different types of funds. Maps are the basis for starting to reflect on the impact evaluation and spending capacity of small municipalities in an inland area.

In the next activity, each Axis of financing instruments has been compared with the 12 themes of the NUA, to understand in what aspects the economic resources of the policies concerned affect; the comparison made it possible to find a table of correspondence (see Table 1).

Table 1. Investment priorities at the EU and local levels compared with the themes of the New Urban Agenda.

	1 INTEGRATION OF MIGRANTS AND REFUGEES	2 AIR QUALITY	3 HOUSING	4 URBAN POVERTY	5 CIRCULAR ECONOMY	6 CLIMATE ADAPTATION	7 ENERGY TRANSITION	8 URBAN MOBILITY	9 DIGITAL TRANSITION	10 PUBLIC PROCUREMENT	11 JOBS & SKILLS IN LOCAL ECONOMY	12 SUSTAINABLE USE OF LAND AND NATURE-BASED SOLUTIONS
Plan FSC - Environment												●
Plan FSC - Infrastructure										●		
Plan FSC - Ultra-broadband									●			
Plan FSC - Hydrogeological instability												●
FSC - Tourism, Culture and Natural Resources Enhancement					●						●	
Axis 1 FSE. Create and maintain employment					●						●	
Axis 2 FSE. Strengthen and innovate active inclusion in society	●		●	●								
Axis 3 FSE. Develop learning rights and quality and support smart innovation in key sectors					●						●	
Axis 1. ERDF: Research, technological development and innovation									●			
Axis 2.ERDF: Digital agenda									●			
Axis 3. ERDF: Competitiveness					●						●	
Axis 4. ERDF: Energy and urban mobility		●				●	●	●				
Axis 5. ERDF: Environmental protection and efficient use of resources												●
Axis 6. ERDF: Transport systems and network infrastructures		●				●	●	●				
Axis 7. ERDF: Social inclusion	●		●	●								
Axis 8. ERDF: Strengthening the education system											●	
Measure A. POV: Safeguarding and improving the context of environmental liveability		●				●	●	●				
Measure B. POV: Strengthening of the supply of essential infrastructures								●				
Measure C. POV: Improvement of the provision of services for the enhancement of the quality of life	●		●	●								
Measure D. POV: Increase of the conditions and opportunities for lasting and sustainable employability					●						●	

It is important to stress that this step makes it possible to disregard policies affecting a specific area and to frame the analysis within the framework of the Sustainable Urban Development Goals.

In some cases, the themes have been grouped to constitute a single area of impact; this is the case of social inclusion in which they have merged: 1. Integration of migrants and refugees, 3. Housing, 4. Urban Poverty. Each area of impact, or thematic, corresponds to the share of economic resources of the relevant Axes.

After processing this initial information, the next step was to carry out an impact evaluation of Community and local policies on the whole territory of interest.

The experimentation with impact evaluation is based on the composition of indicators that can assess the effects on the community and the environment for each theme. For each impact area, one or more indicators have been composed, based on the possibility of acquiring statistical data on the subject. Here, too, there is a gap on the part of the institutions: Municipal statistics in the public domain on issues related to the implementation of development policies, both Community and local, are lacking; ISTAT produces a lot of statistical data, but they are mostly aggregated by region or province, sometimes by provincial capital.

Facilitation is given by the Statistical Atlas of Municipalities (ASC), a dynamic web-tool which collects only ISTAT data at a municipal level. The indicators, therefore, were built on the available municipal statistical data, which must be acquired in two not close time moments, to see a change. One of the main reference years, if we consider above all ISTAT data, is 2011; the other reference year varies, but generally relies on the permanent population census 2018–2019. In the data acquisition phase, the ideal condition occurs when considering time moments coinciding with the extremes of programming cycles (i.e. 2014 and 2020), but since the absence of data represents a gap in the assessment of the impact on territories, a first experiment was put in place with the available data.

The approach used for impact evaluation [52] is based on the construction of indicators that can assess the effects on the community and the environment for each theme. The impact evaluation for the theme "11. Jobs & skills in the local economy" is reported as an example (see Table 2), which is connected to the topic of employment in the strict sense, and to the educational system for entry into the world of work. The main questions for assessing the impacts of EU and local policies are as follows: What impact have they had on employment and skills in the local economy? What impact have they had on strengthening the education system?

The indicators that could be constructed are: Change in the workforce (2011–2019), Change in the % of the workforce in the total number of residents (2011–2019), Change in the % of graduates residing > 9 years (2011–2019), Change in the % of graduates residing > 9 years (2011–2019) 2011–2019), Change in university en enrollees (2015–2017), Change in the % of university enrollees in the total number of residents (2015–2017).

The data have been acquired for each municipality and the indicators were calculated. In the Table 2, a symbol indicating the trend was included. The complete table is included as an annex to this paper (see Appendix A [1]), here only data from three Municipality and the whole Study Area are presented. The sum of the statistical data for the twenty municipalities made it possible to understand what the trend was also for the entire area of the Agri Valley, relative to that theme.

Table 2. The following table exemplifies the evaluation process that considers the amounts in euros of all separate policies for the issues of the NUA, the impact indicators and the trend for three municipalities, up to an overall trend for the entire area.

Impact theme	Indicators	Year of Analysis	Aliano	Armento	Corleto Perticara	…	All the municipalities of the Agri Valley
			€ 403.232	€ 9.529	€ 1.278.534	…	€ 20.728.270
11 Jobs & Skills In Local Economy	Workforce (employed and job seekers> 15 years) ISTAT	2011	420	278	1051	…	18064
		2019	337	238	1048	…	18547
	Change in the workforce (2011-2019)		↓	↓	↓	...	↑
	% workforce (out of total residents> 15 years) ISTAT	2011	43%	47%	45%	…	44%
		2019	41%	46%	47%	…	46%
	Change in % of the workforce on total residents (2011-2019)		↓	↓	↑	...	↑
	Degree of education of the resident population> 9 years (% secondary school graduates)ISTAT	2011	23%	29%	27%	…	27%
		2019	30%	36%	32%	…	34%
	Change in% of graduates resident> 9 years (2011-2019)		↑	↑	↑	...	↑
	The total number of residents enrolled in the university (ASC)	2015	34	12	99	…	1739
		2017	38	13	86	…	1598
	Change in university enrollments (2015-2017)		↑	↑	↓	...	↓
	% university enrolled on total residents (ASC)	2015	3,3%	1,8%	3,9%	…	3,6%
		2017	3,9%	2,2%	3,4%	…	3,5%
	Variation in the% of university students on the total number of residents		↑	↑	↓	...	↓

At the same time, the economic resources which have been invested by the policies taken into account have been indicated for each municipality and each theme. At this point, you can really answer the initial question: what is the impact or effect of the interventions carried out on the condition of the target groups or territories? For theme "11. Jobs & skills in the local economy", community and local policies, against an investment of more than 20.7 million euros, had a positive effect on the theme of work, with an increase of about 500 units corresponding to 2% of the workforce on the total number of residents. The results show that around EUR 42 000 has been spent on each new person employed, if we consider the entire investment only on employment; it is neither a little nor a lot but it clearly emerges that there is still a strong disparity between the municipalities of the examined area. The impact of policies on education, on the other hand, shows that the level of education of the resident population has been increased; however, the number of university en enrolees fell by 141, but this corresponds to only 1% of residents.

4 Conclusion

This contribution indicates the elements and main contents of a first experimentation on the theme of impact evaluation - at the municipal and local scale - which achieves preliminary results. It can be said that in Italy the debate on data, on the impacts and on how the results of development policies must be achieved - according to the specific territorial characteristics - is not at the top of the agenda of decision-makers and regional management authorities. Concern is expressed about the evidence emerging from the evaluations conducted in this research: the attention of operators (including beneficiaries) and institutions has focused only on the use of resources rather than working to network procedures, regulations and best practices, which could favour both a concrete assessment of the impacts on territories and institutional models of management of the same most useful resources.

Secondly, there is a lack of monitoring and production of data and indicators at the municipal scale, which represents the basic level from which to start an impact evaluation on territorial areas that do not coincide with the regional territory, as in the case of the Agri experimentation area. In the Community resource evaluation plans, a local level of monitoring should already be investigated, in which to evaluate the effects through statistical data and indicators built specifically for that territorial scale. At this level of disaggregation, there is a lack of municipal statistical data on the issues of agriculture (Utilized Agricultural Area), digital divide (Families with Internet access from home), energy transition (% of hybrid or electric total means of transport) and active mobility [53–55].

The experimentation in Agri Valley revealed that there is no strict coherence between investments and effects on the variables considered; probably, because the variables are few, or these variables are not able to describe the expected effects, but since there are no significant variations on these aspects, there is a weakness in the overall strategy in this territory, which as a whole fails to generate concrete results and actual changes [56]. The effective use of resources depends on numerous variables; already in an internal area such as the Agri Valley, there is a significant imbalance which is the expression of a weak

territorial subsystem that is unable to participate in these development processes. For this reason, it is essential to arrange structural accompanying actions in the weakest territories that can be identified only after having evaluated the effects, based on integrated and effective management of municipal data collection, monitoring of results and evaluation of effects on the territory.

References

1. Reppel, K.: Future Cohesion Policy objective 1: A smarter Europe-innovative and smart economic transformation (2020)
2. Murgante, B., Borruso, G., Balletto, G., Castiglia, P., Dettori, M.: Why Italy first? health, geographical and planning aspects of the COVID-19 outbreak. Sustain. **12**, 5064 (2020). https://doi.org/10.3390/su12125064
3. Galderisi, A., Fiore, P., Pontrandolfi, P.: Strategie Operative per la valorizzazione e la resilienza delle Aree Interne: il progetto RI.P.R.O.VA.RE. BDC. Boll. Del Cent. Calza Bini. 20, 297–316 (2020). https://doi.org/10.6092/2284-4732/7557
4. Santopietro, L., Scorza, F.: A systemic perspective for the Sustainable Energy and Climate Action Plan (SECAP). Eur. Plan. Stud. (2021)
5. Santopietro, L., Scorza, F.: The Italian experience of the covenant of mayors: a territorial evaluation. Sustainability. **13**, 1289 (2021). https://doi.org/10.3390/su13031289
6. Izzi, F., La Scaleia, G., Dello Buono, D., Scorza, F., Las Casas, G.: Enhancing the spatial dimensions of open data: geocoding open PA Information using geo platform fusion to support planning process. In: Murgante, B., et al. (eds.) ICCSA 2013. LNCS, vol. 7973, pp. 622–629. Springer, Heidelberg (2013). https://doi.org/10.1007/978-3-642-39646-5_45
7. Scorza, F.: Towards self energy-management and sustainable citizens' engagement in local energy efficiency agenda. Int. J. Agric. Environ. Inf. Syst. **7**, 44–53 (2016). https://doi.org/10.4018/ijaeis.2016010103
8. Saganeiti, L., Pilogallo, A., Faruolo, G., Scorza, F., Murgante, B.: Territorial fragmentation and renewable energy source plants: which relationship? Sustain. **12**, 1828 (2020). https://doi.org/10.3390/SU12051828
9. Nolè, G., Lasaponara, R., Lanorte, A., Murgante, B.: Quantifying urban sprawl with spatial autocorrelation techniques using multi-temporal satellite data. Int. J. Agric. Environ. Inf. Syst. **5**, 20–38 (2014). https://doi.org/10.4018/IJAEIS.2014040102
10. Murgante, B., Las Casas, G., Sansone, A.: A spatial Rough Set for extracting the periurban fringe. Extraction et Gestion des Connaissances, EGC **2008**, 101–126 (2008)
11. Las Casas, G., Scorza, F., Murgante, B.: Conflicts and sustainable planning: peculiar instances coming from val d'agri structural inter-municipal plan. In: Papa, R., Fistola, R., Gargiulo, C. (eds.) Smart Planning: Sustainability and Mobility in the Age of Change. GET, pp. 163–177. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-77682-8_10
12. Casas, G.L., Scorza, F.: Discrete spatial assessment of multi-parameter phenomena in low density region: the val d'agri case. In: Gervasi, O., et al. (eds.) ICCSA 2015. LNCS, vol. 9157, pp. 813–824. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-21470-2_59
13. Las Casas, G., Murgante, B., Scorza, F.: Regional local development strategies benefiting from open data and open tools and an outlook on the renewable energy sources contribution. In: Papa, R., Fistola, R. (eds.) Smart Energy in the Smart City. GET, pp. 275–290. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-31157-9_14
14. Casas, G.L., Scorza, F., Murgante, B.: Razionalità a-priori: Una proposta verso una pianificazione antifragile. Sci. Reg. **18**, 329–338 (2019). https://doi.org/10.14650/93656

15. Scorza, F., Saganeiti, L., Pilogallo, A., Murgante, B.: Ghost planning: the inefficiency of energy sector policies in a low population density region1. Arch. DI Stud. URBANI E Reg. 34–55 (2020)
16. Elfadaly, A., Attia, W., Qelichi, M.M., Murgante, B., Lasaponara, R.: Management of cultural heritage sites using remote sensing indices and spatial analysis techniques. Surv. Geophys. **39**(6), 1347–1377 (2018). https://doi.org/10.1007/s10712-018-9489-8
17. Casas, G.L., Scorza, F.: Sustainable planning: a methodological toolkit. In: Gervasi, O., et al. (eds.) ICCSA 2016. LNCS, vol. 9786, pp. 627–635. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-42085-1_53
18. Las Casas, G., Scorza, F.: A renewed rational approach from liquid society towards anti-fragile planning. In: Gervasi, O., et al. (eds.) ICCSA 2017. LNCS, vol. 10409, pp. 517–526. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-62407-5_36
19. Murgante, B., Borruso, G., Lapucci, A.: Geocomputation and urban planning (2009).https://doi.org/10.1007/978-3-540-89930-3_1
20. Danese, M., Nolè, G., Murgante, B.: Visual impact assessment in urban planning (2009).https://doi.org/10.1007/978-3-540-89930-3_8
21. Holling, C., Gunderson, L.H.: Resilience and adaptive cycles. Panarchy Underst. Transform. Hum. Nat. Syst. 25–62 (2002)
22. Galderisi, A.: Articolazione del progetto RI.P.R.O.VA.RE: resilienza (2021)
23. Commission, E.: Urban agenda for the EU. Pact of Amsterdam, Amsterdam (2016)
24. Caprotti, F., et al.: The new urban agenda: key opportunities and challenges for policy and practice. Urban Res. Pract. **10**, 367–378 (2017). https://doi.org/10.1080/17535069.2016.1275618
25. Casas, G.L., Scorza, F.: From the UN new urban agenda to the local experiences of urban development: the case of potenza. In: Gervasi, O., et al. (eds.) ICCSA 2018. LNCS, vol. 10964, pp. 734–743. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-95174-4_56
26. Di Napoli, R., Ricci, C.: Vademecum. La valutazione di Leader a livello locale (2019)
27. Dziekan, K., Riedel, V., Müller, S., Abraham, M., Kettner, S., Daubitz, S.: Evaluation matters. a practitioners' guide to sound evaluation for urban mobility measures. Tesinska Tiskarna, A.S., Münster - New York - München - Berlin (2013)
28. Rossi, P.H., Lipsey, M.W., Henry, G.T.: Evaluation: A Systematic Approach. SAGE Publications (2018)
29. EVALSED: The Resource for the Evaluation of Socio-Economic Development (2008). https://doi.org/10.2776/8296
30. Weiss, C.H.: The interface between evaluation and public policy. Evaluation **5**, 468–486 (1999). https://doi.org/10.1177/135638909900500408
31. Weiss, C.H.: Theory-based evaluation: Past, present, and future. New Dir. Eval. **1997**, 41–55 (1997). https://doi.org/10.1002/ev.1086
32. Martini, A.: Cinque modi di interpretare la "valutazione." In: Valutare gli effetti delle politiche pubbliche. Metodi e applicazioni al caso italiano. pp. 19–32. Stampa Tipograf srl, Roma (2006)
33. Rete Rurale Nazionale 2014–2020 Homepage - Regolamento n. 1303/2013. https://www.reterurale.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/14733. Accessed 06 May 2021
34. European Commission: Ensuring the visibility of cohesion policy: information and communication rules 2014–2020 (2014). https://doi.org/10.2776/69343
35. Di Rienzo, M.: La trasparenza nell'uso dei fondi strutturali. Il ruolo delle pubbliche amministrazioni beneficiarie (2012)
36. European Commission: Guidance document on monitoring and evaluation. , Bruxelles (2014). https://doi.org/10.2776/969657.
37. European Commission: Selection and use of indicators for monitoring and evaluation - vol 2. In: MEANS COLLECTION. , Luxembourg (1999)

38. Scorza, F.: Improving EU cohesion policy: the spatial distribution analysis of regional development investments funded by EU structural funds 2007/2013 in Italy. In: Murgante, B., et al. (eds.) ICCSA 2013. LNCS, vol. 7973, pp. 582–593. Springer, Heidelberg (2013). https://doi.org/10.1007/978-3-642-39646-5_42
39. Scorza, F., Casas, G.B.L., Murgante, B.: That's ReDO: ontologies and regional development planning. In: Murgante, B., et al. (eds.) ICCSA 2012. LNCS, vol. 7334, pp. 640–652. Springer, Heidelberg (2012). https://doi.org/10.1007/978-3-642-31075-1_48
40. Las Casas, G., Scorza, F., Murgante, B.: New urban agenda and open challenges for urban and regional planning. In: Calabrò, F., Della Spina, L., Bevilacqua, C. (eds.) ISHT 2018. SIST, vol. 100, pp. 282–288. Springer, Cham (2019). https://doi.org/10.1007/978-3-319-92099-3_33
41. ISTAT Homepage, https://www.istat.it/it/archivio/16777. Accessed 07 May 2021
42. Saganeiti, L., Pilogallo, A., Scorza, F., Mussuto, G., Murgante, B.: Spatial indicators to evaluate urban fragmentation in basilicata region. In: Gervasi, O., et al. (eds.) ICCSA 2018. LNCS, vol. 10964, pp. 100–112. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-95174-4_8
43. Martellozzo, F., Amato, F., Murgante, B., Clarke, K.C.: Modelling the impact of urban growth on agriculture and natural land in Italy to 2030. Appl. Geogr. **91**, 156–167 (2018). https://doi.org/10.1016/j.apgeog.2017.12.004
44. La Repubblica (2019). https://www.repubblica.it/dossier/esteri/fondi-strutturali-europei-progetti-italia/2019/12/31/news/l_europa_in_comune_quando_i_fondi_strutturali_aiutano_il_sindaco-244709880/
45. Becker, S.O., Egger, P.H., Von Ehrlich, M.: Absorptive capacity and the growth and investment effects of regional transfers: a regression discontinuity design with hetero_geneous treatment effects. Am. Econ. J. **5**(4), 29–77 (2013)
46. Bachtrögler, J., Fratesi, U., Perucca, G.: The influence of the local context on the implementation and impact of EU Cohesion Policy (2017)
47. Crescenzi, R., Guia, S.: Politica di coesione in Europa: a quali Paesi conviene? Un confronto di evidenze controfattuali per Germania, Italia, Regno Unito e Spagna. In: L'impatto della politica di coesione in Europa e in Italia. pp. 57–66. Senato della Repubblica Italiana, Roma (2018)
48. Strada, G., Martini, A.: L'approccio controfattuale alla valutazione degli effetti delle politiche pubbliche. Mater. UVAL. **22**, 28–45 (2011)
49. Scorza, F., Casas, G.B.L., Murgante, B.: Spatializing open data for the assessment and the improvement of territorial and social cohesion. In: ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, pp. 145–151. Copernicus GmbH (2016). https://doi.org/10.5194/isprs-annals-IV-4-W1-145-2016
50. Carbone, R., et al.: Using open data and open tools in defining strategies for the enhancement of basilicata region. In: Gervasi, O., et al. (eds.) ICCSA 2018. LNCS, vol. 10964, pp. 725–733. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-95174-4_55
51. Scorza, F., Casas, G.L., Murgante, B.: Overcoming interoperability weaknesses in e-government processes: organizing and sharing knowledge in regional development programs using ontologies. In: Lytras, M.D., Ordonez de Pablos, P., Ziderman, A., Roulstone, A., Maurer, H., Imber, J.B. (eds.) WSKS 2010. CCIS, vol. 112, pp. 243–253. Springer, Heidelberg (2010). https://doi.org/10.1007/978-3-642-16324-1_26
52. Pontrandolfi, P., Dastoli, P.S.: Comparing impact evaluation evidence of EU and local development policies with New Urban Agenda themes: the Agri Valley case in Basilicata (Italy) (2021)
53. Scorza, F., Fortunato, G.: Cyclable cities: building feasible scenario through urban space-morphology assessment. J. Urban Plan. Dev. (2021). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000713

54. Fortunato, G., Scorza, F., Murgante, B.: Hybrid oriented sustainable urban development: a pattern of low-carbon access to schools in the city of potenza. In: Gervasi, O., et al. (eds.) ICCSA 2020. LNCS, vol. 12255, pp. 193–205. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-58820-5_15
55. Scorza, F., Fortunato, G., Carbone, R., Murgante, B., Pontrandolfi, P.: Increasing urban walkability through citizens' participation processes. Sustainability. **13**, 5835 (2021). https://doi.org/10.3390/su13115835
56. Scardaccione, G., Scorza, F., Casas, G.L., Murgante, B.: Spatial autocorrelation analysis for the evaluation of migration flows: the Italian case. In: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), pp. 62–76 (2010). https://doi.org/10.1007/978-3-642-12156-2-5