Measuring Economic Freedom:
A Monitoring Tool of the Italian Regional Landscape

Angela De Martiis*   Aleksandar Damjanovski§   Costanza Marcellino**

February 22, 2024

Abstract

The current economic conditions in the Eurozone underscore the pressing need for structural reforms aimed at enhancing economic competitiveness. However, competitiveness and productivity are inherently intertwined with the concept of Economic Freedom, recognizing it as a strong catalyst.

This working paper delves into the realm of Economic Freedom and its potential impact at the national level by introducing the EFIRI 2023 regional index, a tool designed to evaluate and monitor regional quality using the lenses of economic freedom. Comprising 32 indicators spanning policy areas like energy, finance, trade, education, society, security, innovation, and competition, this index provides a comprehensive perspective on regional economic and societal progress. It equips policymakers and regional development initiatives with invaluable insights.

The research proposes a strong data-oriented economic analysis framework with a suite of statistical indicators, thereby offering a methodology for assessing regional performance. By shedding light on regional disparities and growth dynamics, this project aligns with the overarching objective of enhancing regional competitiveness within the European Union.

*Centro Einaudi, Corso Re Umberto, 1 10121 Torino, Italy. Email: demartiis@centroeinaudi.it;

§Centro Einaudi, Corso Re Umberto, 1 10121 Torino, Italy. Email: damjanovski@centroeinaudi.it;

**Centro Einaudi, Corso Re Umberto, 1 10121 Torino, Italy. Email: marcellino@centroeinaudi.it.

1 Introduction

The prevailing economic conditions, with the Eurozone teetering on the brink of a near-zero growth rate, have once again underscored the necessity of structural reforms as a mean to increase economic competitiveness. In this regard, the European Commission clearly stated that competitiveness and productivity serve as foundational pillars for the flourishing of businesses, employment generation, innovation, and overall prosperity [EC, 2023]. Yet, existing research shows how the concept of Economic Freedom is intricately linked to broader economic considerations as it is an important driver of economic and social development that can increase levels of well-being [HF, 2023].

Though not formally listed among the elements of the European model for an inclusive economic growth, economic freedom encompasses them all as it includes energy, finance, trade, education, society, security, and aspects of competition. While economic freedom empowers individuals and businesses, it also aligns with the EU's long-term vision of a revamp of competitiveness. The EU has displayed remarkable resilience and adaptability in the face of recent crises, emphasizing the collective strength that transcends individual member state efforts. Challenges such as supply chain disruptions due to the COVID-19 pandemic and fluctuations in energy prices have rigorously tested the European model. The Commission however emphasized that crisis management, while crucial, cannot serve as sole foundation for building a robust and sustainable economy.

The Commission's call to focus on long-term competitiveness of the EU beyond 2030 resonates with the core principles of economic freedom. By embracing economic freedom at the regional level, this research not only addresses existing disparities but also contributes to the EU's broader objective of fostering global competitiveness and sustainable growth by proposing a monitoring tool, the EFIRI index. In measuring regional economic freedom, the EFIRI project reinforces the need for a forward-looking, well-defined and coordinated framework for the relaunch of competitiveness. Regional economic freedom constitutes an integral part of a nation's pursuit of long-term competitiveness, echoing the importance of an increase in total factor productivity to spur economic efficiency which derives from the quality of the investments made, rather than their quantity [Russo, 2023]. Precisely for this reason, in the vein of the European Commission's 17 fundamental indicators of competitiveness [EC, 2023], this study proposes an array of indicators and policy areas aimed at measuring regional quality.

Existing research shows an increasing focus on measuring economic freedom in all its facets, from international trade, to the role of market conditions, environmental and cultural factors, migration, and institutional quality. Whilst many measures were built over this concept using distinct definitions, areas and indicators (see, Lewis Dijkstra and Kovacic [2023], Campagnolo and Ciferri [2018], Vincent Chin and Rueda-Sabater [2017], Nifo and Vecchione [2015]) and covering several countries (see, Ronca [2002], Gwartney et al. [2023]), less attention has been paid to measuring economic freedom at the regional level, or even at the province level (see, Deaglio [1973]), as an optimal scale for the comparative analysis of economic and social phenomena. Regions, more than nations, are a homogeneous aggregation and a suitable partition to implement effective cohesion policies, and can highlight discrepancies that are invisible at country-level. Existing regional research has often a limited scope, or time-frame (comprising few NUTS-2 regions), and frequently involves only a small array of indicators (see, Chelli et al. [2013] and Lasagni et al. [2015]).

Relying on the Italian experience, inspired by the work of the Fraser Institute on the economic freedom of the world (see, Gwartney et al. [2023] for the 2023 index), this project aims at measuring the economic freedom of the Italian regions and support evidence-based policy making toward future innovative cohesion policies through the original construction

of an Economic Freedom of the Italian Regions' Index (hereafter, "EFIRI"). The EFIRI index provides a comprehensive overview of the Italian economic and societal growth at the regional level, plus an array of indicators grouped into 10 policy areas. In its simplicity, such tool can serve policy makers to formulate regional policy agendas.

The EFIRI is unprecedented and its methodology is a novel work. The innovative element of this index consists in its methodology, which can be used in future comparative analyses at the European level, and beyond. Altogether, this study strives for developing a monitoring tool that can be used to put existing regional disparities under the magnifying glass, highlight new ones, and detect differing speeds of growth and recovery among the Italian regions and macroareas. The main findings of this preliminary work highlight the existence of regional areas with differing speeds, with: a group of regions in good health, a group in slowdown, a group with potential, and a group in recession.

Within this framework, this project develops a comprehensive index, based on 32 equally weighted components, that capture not only the essence of economic freedom in its traditional notion, but also the multiple layers related to aspects of the economic freedom of individuals and businesses. The index embeds most of the key areas that shape the societal and economic activities of a region, from finance to society, justice and security, energy and environment, culture, labor market, infrastructure, education, and business dynamics. The overall objectives of this project can be summarized as follows. First, this study develops the conceptual framework and methodology for the analysis of economic freedom at the regional level. Second, it builds an editable set of statistical indicators, organized in the form of an index. Last, it aims to disseminate the results, of what we refer to as a monitoring tool of regional quality, at the European, national and local level.

The rest of this study proceeds as follows. Section 2 addresses the concept of economic freedom as a whole and its existing studies at the regional level. This section is followed by the methodology and data (Section 3), a descriptive analysis of the overall results of the index of economic freedom of the Italian regions (Section 4), and an interpretation of the results for each policy area. Section 5 concludes by discussing some critical aspects and by outlining future avenues of research.

2 Regional Economic Freedom: The EFIRI

The concept of economic freedom is often associated with definitions of economic growth, wealth, and financial development. Yet, in some instances, high levels of economic performance do not necessarily translate into higher degrees of well-being for a given country, or region. Here, evidence reveals that, along with economic growth indicators, cultural, institutional and societal factors play an equally important role in steering the economic performance and success of a country (see, Hall and Jones [1999], Easterly and Levine [2002]). When assessing the impact of these indicators on economic development, scholars found, among others, the openness to international trade, the quality of market regulation, firm productivity, the presence of a favorable environment with a sturdy infrastructure, high employment rates and innovation as significant determinants of a country's economic well-being (see, among others, Vincent Chin and Rueda-Sabater [2017], Nifo and Vecchione [2015], Lasagni et al. [2015], Lewis Dijkstra and Kovacic [2023]).

Given the eclectic nature of economic freedom and its pertaining indicators, in line with the Fraser Institute's definition [Gwartney et al., 2023], economic freedom is "the absence of any type of coercion or constraint on production, on the distribution or consumption of goods and services beyond the limits necessary for individuals to preserve freedom itself".[1] This definition goes back to the theory of Ludwig von Mises, who alludes to the compelling linkage and the necessary reciprocal influence of the economic and political spheres within a geographical entity [von Mises, 2011]. Hence, a policy that aims at spurring economic growth can simultaneously create a favorable ground for other forms of freedom to take root, implying a spillover of one area of the society to another [Ronca and Guggiola, 2004, 2007].

With this interdependence of policy areas in mind, many scholars built indicators and/or indexes to assess a country's economic welfare and well-being, showing how considering only GDP measures and ignoring environmental and social costs in the equation would depict an incomplete portrait of the economic status quo.[2] Other relevant studies include the Human Development Index (HDI) [UNDP, 1990] and the Sustainable Net Benefit Index (SNBI) (see, Lawn and Sanders [1999], Lawn [2006], Ellis [1985]). At the country level, it is worth mentioning the Economic Freedom Index [HF, 2023], the Economic Freedom of the World [Gwartney et al., 2023], the Measure of Economic Welfare (MEC/MEW) [Nordhaus and Tobin, 1972], while at regional level the indexes closest to ours are the OECD regional well-being index [OECD, 2014], the Regional Competitiveness Index (RCI) [Lewis Dijkstra and Kovacic, 2023], and the Assessment, Projection and Policy of Sustainable Development Goals Index (APP) of Campagnolo and Ciferri [2018] who propose an index capturing the pathway to the sustainable development goals.

Furthermore, there is increasing interest in the sub-national level, investigating specifically the regional scale. On this, the Index of Sustainable Economic Well-Being (ISEW) is computed also at the regional level (R-ISEW) for specific countries [Tim Jackson and Marks, 2008], along with the innovative estimate of the Institutional Quality Index (IQI) [Nifo and Vecchione, 2014]. Considering the Italian regional level, few studies however designed regional indexes of economic freedom. In this regard, beyond the initial calculations performed for the UK regions, the R-ISEW is available only for few Italian provinces and regions, among which the Province of Siena for the year 1999 (see, Federico Maria Pulselli and Zappia [2006]), the Provinces of Modena and Rimini in the year 2008, the whole

---

[1]The original version of this definition is included in Ronca and Guggiola [2004, 2007], in collaboration with Centro Einaudi and Guerini e Associati, in Italian language. The reported citation has been manually translated in English language.

[2]For a summary of the literature on the pivotal factors for measuring economic growth beyond GDP see, Jorgenson [2018].

region of Toscana for the period 1971 to 2006, and finally for the regions of Toscana and Marche in a comparative setting from 1999 to 2009 (see, Chelli et al. [2013]).

The economic freedom index of the Italian regions (EFIRI),[3] developed by the Centro Einaudi in collaboration with the Fraser Institute of Vancouver saw Ronca and Guggiola [2004, 2007] proposing a first regional index with data capturing the year 2004 in Ronca and Guggiola [2004] and the year 2007 in Ronca and Guggiola [2007]. Nevertheless, research for longer and more recent time spans, and/or more sub-national units was still lacking. For this reason, De Martiis and Russo [2019] built the index over a longer time span using data on 40 indicators grouped in 11 policy areas over the period 1995-2015. This approach allowed to perform empirical analyses pre-, post- and during crises periods, providing the opportunity to compare regions across different time periods (see, Figure 1 for a snapshot of the 2018 index).

Building on an existing structure (EFIRI), the index proposed in this study aims to provide a solid regional index built on a whole set of additional policy areas (e.g., trade and innovation) and data reaching the year 2019. This makes room for updated analyses, that not only provide a more exhaustive overview of the current Italian landscape, but also round off previous methodological challenges. The methodological details along with the data sources employed are described in the next section.
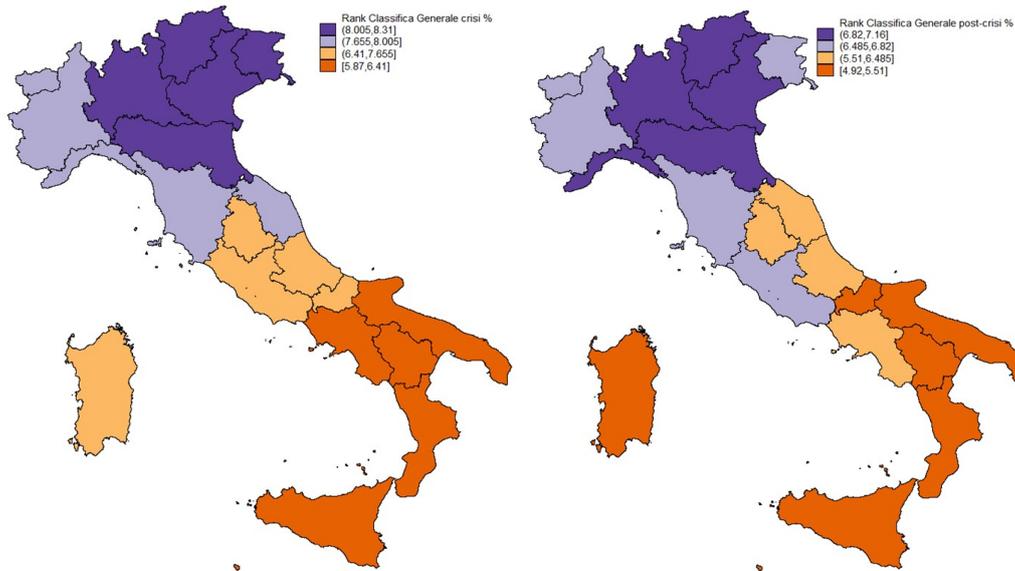

Figure 1: **EFIRI 2018: Overall Scores for crises and post-crises periods.** This map plots the overall scores assigned to each region based on the sum of the indicators included in each policy area. The darker the color, the higher the vote assigned to the region. The map on the right-hand side shows the results for post-crises periods, while the map on the left-hand side shows the results for crises periods. Source: Authors' projections on ISTAT, Eurostat, OECD and Bank of Italy data.

---

[3]EFIRI is the abbreviation of Economic Freedom Italian Regions Index. The Italian abbreviation of "Indice della liberta' economica delle regioni Italiane" is ILERI.

3 Methodology and Data

The methodology of the EFIRI evolved from the versions presented in De Martiis and Russo [2019] and in Ronca and Guggiola [2004, 2007]. The index described in this working paper is calculated using 32 components grouped in 10 policy areas that encompass a wide spectrum of economic, social, and environmental factors. Each component is based on quantitative data from established and updated sources (data is from 2002 to 2019). The 10 areas are: 1.) Energy, 2.) Society, 3.) Finance, 4.) Culture, 5.) Economy, 6.) Trade, 7.) Innovation, 8.) Education, 9.) Labor Market, and 10.) Legality and Security.

Differently from the previous version of the index, all areas are weighted equally reflecting the fact that there are trade-offs and that respondents from survey tools are not always a statistically representative sample. Improvements in one component can also come at the price of a deteriorating performance in another variable. Within each policy area, further granularity is introduced through 32 components. The policy area related to society, for instance, includes the components "weight of cooperatives", "hospital migration" and "age-adjusted mortality rate". Though not all areas have an equal number of components, an effort has been made to maintain a balanced approach across the board. On average, each policy area comprises 3 to 4 components, with some areas featuring more variables than others. This choice reflects a deliberate emphasis on areas that are related to the economic dimension, such as economy and trade.

The data employed to build the index is sourced from prominent statistical databases, both on a national and international scale. The contributors of such regional data sources are the Istituto Nazionale di Statistica (ISTAT), the Organisation for Economic Cooperation and Development (OECD), and Eurostat from the European Commission. Of particular relevance is the access to ISTAT "Territorial Database of Indicators for Development Policies". This repository, which comprises a comprehensive compendium of 331 indicators, is used to shape the content of our data set, by including 32 indicators meticulously sourced from it, and to develop a customized set of data that can be used to deliver relevant statistics as well as a framework to inform future investments' decisions. Table 1 summarizes the 10 policy areas, their indicators and respective data sources.

1. Energy. This area, of key relevance for the Italian competitiveness towards the climate agenda, is composed of energy consumption from renewable energies, which relates to gross electricity generation from renewable sources (including hydro) as a percentage of gross domestic electricity consumption measured in GWh, and urban waste collection, which represents the percentage of collected municipal waste out of the total municipal wastes.

2. Society. Among the aspects related to regional economic life, it is important to measure the dynamism and modernization of its society. For this reason, this area includes: the weight of cooperatives in the Italian regional landscape, the percentage of employees of cooperatives to the total number of employees, hospital migration as the ratio of hospital discharges made to regions other than the region of residence to the total discharges of the residents in the region, as well as the regional age-adjusted mortality rate.

3. Finance. This area is composed of four indicators related to access to credit. Intensity of capital accumulation, which relates to gross fixed capital formation as a percentage of GDP, business services development capacity, which captures labor units in the sector of financial and insurance activities, real estate activities, professional, scientific and technical activities, administration and support services out of the total labor units of marketable services, private investments to GDP, and

bank lending to non-financial enterprises to GDP, which relates to bank loans of households and non-financial corporations.

4. Culture. This area was not present in the first editions of the index [Ronca and Guggiola, 2004, 2007] and is meant to capture spending in recreation and culture, which is measured as domestic consumption (of residents and non-residents) for recreation and culture out of the total consumption, and the touristic rate calculated with the days of attendance (Italians and foreigners) in touristic establishments per inhabitant.

5. Economy. A key area composed of variables that contribute to the development of a region or signal its dynamism. The five selected indicators are: the birth rate of enterprises, which is the ratio of enterprises born at year t to the active enterprises in the same year per 100, the enterprises net turnover rate, which represents the difference between the birth and death rate, export capacity, which is the value of goods exported to GDP, the degree of market openness, related to the value of goods imported as a % of GDP, and household income.

6. Trade. This area is a new entry in the index and is meant to show the regional performance from a competition standpoint. Four indicators are of particular relevance for the Italian landscape: the growth rate of the agricultural sector, the labor productivity in manufacturing industries, food industries, as well as in the business services sectors such as financial and insurance activities, real estate activities, professional, scientific and technical activities, and administration and support services.

7. Innovation. This area of analysis is new with respect to the version presented in De Martiis and Russo [2019] and has the objective to capture the regional capacity in terms of research and development. It is composed of total R&D expenditures to GDP and R&D expenditures by public and private enterprises to GDP.

8. Education. The participation rate in secondary education, the dropout rate at the end of the first two years of secondary education and the attractiveness of universities are important factors for the development of regional economies.

9. Labor. Unemployment and entrepreneurship rates are key indicators to assess the health conditions of regional labor markets as well as Italy's competitiveness capacity. Entrepreneurship is measured by looking at youth and female entrepreneurship, owners/women of proprietorship under 30 years of age as a percentage of total sole proprietors registered in the records of the Italian Chambers of Commerce. The unemployment rate indicators relate to the labor force between 15 and 64, as well the labor force between 15 and 24 (youth unemployment).

10. Legality and Security. A relatively new area, introduced for the first time in De Martiis and Russo [2019] is aimed at signaling the level of regional criminality that can negatively affect regional growth. The indicators considered are the ratio of reported thefts and robberies, as well as the rate of voluntary homicides consumed per hundred thousand inhabitants.

The selection of the time span, 2002-2019, is underpinned by the imperative of upholding methodological consistency across indicators. This decision is driven by the fact that disparities existed in the initial year of the data series for several indicators. This incongruity was notable for the newly introduced indicators by ISTAT, such as Energy, Education, and Innovation, all of which entered the series in 2002. To ensure methodological consistency, 2002 was chosen as common starting point. A second rationale, intrinsically linked to the first, pertains to methodological revisions undertaken by ISTAT, which resulted in the discontinuation of certain historical data series that were no longer subject to

Policy area	Indicator	Source
Energy	Energy consumption (renewable energies), %	ISTAT
	Urban waste collection	ISTAT
Society	Weight of cooperative societies, %	ISTAT
	Hospital migration, %	ISTAT
	Age-adjusted mortality rate, %	OECD
Finance	Intensity of capital accumulation	ISTAT
	Business services development capacity	ISTAT
	Private investments, %	ISTAT
	Bank lending to non-financial enterprises, %	ISTAT
Culture	Spending on recreation and culture, %	ISTAT
	Touristic rate, %	ISTAT
Economy	Enterprise birth rate, %	ISTAT
	Enterprise net turnover rate, %	ISTAT
	Export capacity, %	ISTAT
	Degree of market openness: imports	ISTAT
	Households income	Eurostat
Trade	Agriculture growth rate, %	ISTAT
	Food industry labor productivity	ISTAT
	Manufacturing industry labor productivity	ISTAT
	Business services labor productivity	ISTAT
Innovation	R&D expenditure, %	ISTAT
	Enterprise R&D expenditure, %	ISTAT
Education	Participation rate in secondary education, %	ISTAT
	Dropout rate at end of first two years of secondary school	ISTAT
	Universities attractiveness index	ISTAT
Labor	Youth entrepreneurship	ISTAT
	Female entrepreneurship	ISTAT
	Unemployment rate, % , labor force 15-64	OECD
	Youth unemployment, % , labor force 15-24	OECD
Legality & Security	Thefts, %	ISTAT
	Robberies, %	ISTAT
	Homicides, %	OECD

Table 1: **EFIRI Index: Policy areas, indicators, and data sources.** The table describes the ten policy areas, their 32 indicators, and the respective data sources used to compose the EFIRI index. The ten policy areas were chosen based on ISTAT territorial database of indicators for development policies, while the 32 indicators represent a selection based on regional and time-frame coverage.

updates. Furthermore, both the scope and methodology of data collection used by ISTAT underwent multiple revisions, which further justifies the necessity of adopting a uniform time frame to ensure methodological coherence.

The data sourced from the aforementioned statistical databases form the foundation of our analytical framework from which we devise regional-level indicators. Each of these indicators, in turn, affords insights into regional performance and is accompanied by an individual ranking. The ranking is executed by assigning a quality score to the performance of the individual regions across the spectrum of single indicators. This score is a numerical value from 4 to 10, where 4 is an arbitrary value and the minimum score, while 10 is the maximum value a region can score. The rationale for using scores as a metric for assessing regional performance is rooted in its normalization purpose: enabling the comparison of the rankings of diverse indicators that employ different metrics in order to establish a comprehensive ranking within policy areas. Subsequently, the aggregation of the individual rankings within a given policy area yields a comprehensive ranking for that particular area.

To illustrate this process, let us consider the "Energy" area as an example. The overall ranking for this area is derived by aggregating the results of individual regions concerning the indicators of energy consumption based on renewable energies and urban waste. As with all data, a caveat must be considered: in instances where certain data series exhibited gaps or missing values for a particular region during a specific time period, an averaging procedure was adopted. The overall ranking is computed by summing the results of the general rankings for each policy area and their respective indicators.

Figure 2 shows the outcome of the regional ranking. Different shades of blue corresponds to higher or lower regional scores. Precisely, the darker the color the higher the score assigned to a specific region. The map shows Trentino-Alto Adige with the highest score, placing the region in first position, followed by Piemonte, Lombardia, Emilia-Romagna and Veneto that complete the top 5. Among the regions at the bottom of the ranking there are Sicilia, ranked last overall, preceded by Campania, Puglia, Calabria, and Sardegna. In the middle of the ranking we find the regions of Valle d'Aosta, Abruzzo, Molise, Lazio, and Liguria.

Figure 2: **Regional disparities: Overall Score.** This map plots the overall score assigned to each region based on the sum of the ten policy areas and their respective indicators. The darker the color, the higher the score. Source: Authors' projections on ISTAT, Eurostat, and OECD data.

4 Empirical Results

Figures 2 and 3 provide a comprehensive overview of the outcomes resulting from the evaluation of the EFIRI 2023. Figure A1, in the Appendix, shows the regional score as well as the ranking for the entire period (2002-2019). The empirical analysis underscores existing economic disparities between the northern regions and the remaining regions on the peninsula, with these discrepancies in rankings becoming even more evident when we juxtapose the North-East macro area with Southern Italy. To avoid the typical clichés of looking at things only in "black and white", let us delve deeper into the analysis of the overall scores first, the results over time next, and into each policy area last.

From Figure 3 we can gauge the average votes within each macro area. Among the four macroareas, the North-East emerges as a distinct area characterized by significantly greater economic freedom, boasting a score of 7.48.[4] This distinction is further reinforced by the presence of all its constituent regions securing prominent positions in the rankings. Specifically, Trentino-Alto Adige claims the coveted first position, Emilia-Romagna occupies the fourth rank, Veneto asserts its presence at the fifth position, and Friuli-Venezia-Giulia solidly holds the sixth spot. In contrast, the macroarea of North-West, while exhibiting the second highest score of 7.13, showcases a notable concentration of high-ranking regions, with Lombardia and Piemonte respectively securing the second and third positions within the overall score. The area of the Center, characterized by a score of 6.99, demonstrates a consistent presence among top-ranking regions, with nearly all its regions featured in the top 10. Specifically, Umbria secures the seventh position, Toscana holds the eighth rank, Marche occupies the ninth position, while Lazio falls somewhat behind positioning itself 13th in the overall rankings.

---

[4]We consider four major macroareas: North-East, including Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna; North-West with Valle d'Aosta, Liguria, Lombardia, Piemonte; Center with Toscana, Umbria, Marche, Lazio; South with Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, and the islands of Sicilia, Sardegna.
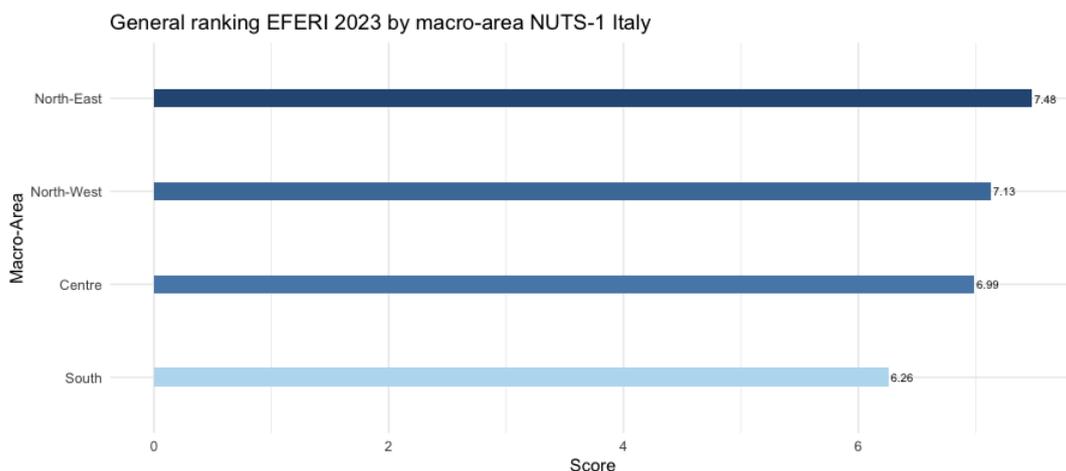
Figure 3: **EFIRI General Ranking by Macro-areas NUTS-1.** The graph is a horizontal bar chart that presents the average score for different macroareas within NUTS-1 Italy, based on the sum of each region for their respective macroarea.

The outcomes achieved by the macroarea of the South indicate an average performance, with a score of 6.26. Notably, apart from Abruzzo (6.85) and Molise (6.58) securing the 11th and 12th position and surpassing Lazio, and Liguria, the remaining regions in this macro area find themselves at the bottom class of the ranking. Basilicata is positioned at the 15th rank, closely followed by Calabria in 17th place. The lowermost positions in the ranking are occupied by Puglia (18th rank) and Campania (19th rank), underlining the challenges that these regions confront themselves with the context of economic freedom.

If we zoom in the EFIRI 2023 general ranking and draw a parallel with the ILERI 2007 [Ronca and Guggiola, 2007], a host of additional insights come to light. While it is acknowledged that adjustments in the composition of the EFIRI, compared to its predecessor indexes, make it challenging to undertake a homogeneous comparison, it remains feasible to draw comparisons about relevant changes occurred over the past two decades.[5] Despite the variations in the indicators and the criteria employed in their assessments, observable trends manifest through the reference to the ranking positions. An example of this, among others, is the shift in the top position from Emilia-Romagna to Trentino-Alto Adige. The ascent of Piemonte from fourth to second rank and the progress of Lombardia from seventh to third position reflects notable advancements in regional economic freedom. Such shifts warrant a deeper analysis to comprehend possible drivers, and implications, for regional economic policy and development, and Italy's competitiveness prospects as a whole.

What matters more than the ranking position of a region is its performance over time, an additional contribution with respect to the previous versions of the economic freedom index. Hence, Figure 4 shows a heat map with the regions' scores of the past and the present on a 4 year window, plus the most recent year and the whole timeframe. The first window is from 2002 to 2006, the second from 2007 to 2010, the third from 2011 to 2014, the fourth from 2015 to 2018, followed by the regional score of the most recent (and re-

---

[5]Although the number and type of indicators increased over the last five years, allowing us to measure more factors than ever before across a variety of policy areas, the availability of comprehensive regional data covering long time series became more challenging. This can be due to a combination of data revisions following population censuses as well as changes in data publication processes from major regional data sources. This explains why the current version (EFIRI 2023) has 32 indicators grouped in 10 policy areas, while the 2018 version had 38 indicators grouped in 11 policy areas (and data from 1995 to 2015) and the 2007 version had 25 indicators for 7 policy areas and provided a snapshot of one year only, 2007. These differences further explain why the scales employed in the various versions of the index are not directly comparable.

gionally available) year, 2019, and the whole period (2002-2019).[6] This data visualization tool, also called heat map, allows us to present the performance of a region over time. The intensity of the colors shows the impact of the data series over the whole data set. The color scale varies from green to yellow to red. The green color signals the highest importance, while red the least significance. Specifically, regions with the highest score are assigned the color green, those performing the worst are in the red color scale, while the yellow scale highlights the average performers. It is interesting to note that out of 20 regions, 10 are in the green color scale, 6 in the red scale and the remaining in the yellow.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	6.84	6.84	6.98	6.90	6.73	6.85
Basilicata	6.40	6.31	6.38	6.60	6.62	6.39
Calabria	5.99	6.00	6.06	6.01	6.29	5.97
Campania	5.88	5.93	6.00	5.90	5.97	5.86
Emilia-Romagna	7.56	7.43	7.45	7.43	7.61	7.42
Friuli-Venezia Giulia	7.22	7.35	7.54	7.49	7.38	7.34
Lazio	6.77	6.64	6.49	6.62	6.78	6.53
Liguria	6.55	6.48	6.66	6.66	6.91	6.53
Lombardia	7.54	7.50	7.48	7.44	7.55	7.44
Marche	7.16	7.09	7.20	7.11	7.26	7.10
Molise	6.62	6.65	6.58	6.52	6.61	6.58
Piemonte	7.44	7.51	7.61	7.58	7.87	7.65
Puglia	6.08	6.06	6.02	6.01	6.12	5.96
Sardegna	6.29	6.39	6.32	6.36	6.44	6.26
Sicilia	5.76	5.60	5.55	5.63	5.82	5.57
Toscana	7.37	7.11	7.14	7.17	7.04	7.14
Trentino-Alto Adige	7.61	7.82	7.86	7.77	7.67	7.76
Umbria	7.39	7.33	7.10	7.09	7.25	7.21
Valle d'Aosta	6.90	7.17	6.97	6.81	6.99	6.93
Veneto	7.42	7.47	7.46	7.47	7.57	7.40

Figure 4: **EFIRI Overall Score Over Time.** This graph shows a heat map of the EFIRI overall scores over time. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT, Eurostat and OECD data.

From this figure, we can notice that certain virtuous regions, such as Emilia-Romagna and Toscana, experienced a decline in their overall scores. Emilia-Romagna, for instance, witnessed a reduction, from 7.56 during the first quarter of 2002-2006 to 7.43 in the final quarter of 2015-2019. Notably, the decline in the rating of the region Toscana is even more significant, transitioning from 7.37 in the period 2002-2006 to 7.04 in 2019. While Umbria, despite its constant declining score, from 7.39 in 2002-2006 to 7.09 in the last quarter, experienced a recovery in 2019 (7.25). Conversely, regions like Piemonte show a notable positive trend in their overall scores. This region exhibits an improvement, with a score of 7.44 in the period 2002-2006, which increased to 7.58 in the final quarter of 2015-2018, to 7.87 in the most recent period of 2019.

---

[6]The time period 2002-2019 was chosen as the most comprehensive timeframe in terms of regional availability, consistency with past indicators [De Martiis and Russo, 2019], ease of being updated and reproduced, as well as the availability of new indicators aimed at expanding the lenses of economic freedom as the world around us changes.

Nevertheless, delving into a more detailed analysis provides nuances that can deliver a better understanding of the performance of individual regions within the 10 distinct policy areas. The next section provides an overview into the performance of each region across the chosen policy areas that constitute the EFIRI 2023 index. Notably, it is important to observe that, even if a region does not secure a position among the top five in the overall ranking, certain regions exhibit remarkable scores and positions within specific policy areas. Consequently, these regions can serve as valuable benchmark for others, even those with higher overall ranking positions, seeking to improve their scores across specific policy areas, or over time (see, Appendix A.1 for more details on the analysis over time), and ultimately their overall performance.

Next, a description of the results obtained for each policy area is provided in separate sections with the objective of assigning an interpretation to the overall scores and rankings.

4.1 Energy

The energy policy area unveils pronounced disparities between northern and southern regions of Italy, as shown in Figures 5 and 6. This contrast becomes evident when we observe the significant variance in scores, with Valle d'Aosta securing the highest score at 8.88 and Sicilia attaining the lowest score (4.09). Furthermore, even within the top-5 substantial differences in performance are evident. For instance, Veneto, holding the third position, records a score of 7.14, whereas Trentino-Alto Adige, positioned in second place, achieves a significantly higher score of 8.42. Notably, all other regions positioned below the third rank exhibit scores falling below the threshold of 7.00, underscoring profound regional disparities that are prevalent in the realm of the energy policy.

The critical aspect of combining only two indicators, energy consumption from renewable energies and urban waste, is that the true regional energy capacity production from renewable sources is not properly taken into account. If we instead consider the two indicators separately, some regions in the Center (Abruzzo, Molise, Toscana) and in the South (Calabria, Basilicata) would have a higher ranking due to the fact that their installed renewable energy capacity is greater respect to their relatively modest industrial and residential consumption.

Within the shared objective of relaunching competitiveness capacity, as from the European Commission long-term focus, [EC, 2023], an interesting example, worth following, is the case of Sardegna. Using funds from the PNRR (National Recovery and Resilience Plan, or Recovery Plan),[7] this region is a candidate to become the hydrogen hub of Europe, with the objective to install several green hydrogen power plants across the region. Another example, looking instead at the macro-area of the South, where choices in the domestic agenda of energy policy can drive a competitive advantage for the country relates to the fact that the regions of Sardegna, Sicilia, Basilicata, Calabria and Campania bought a total of 25 hydrogen trains with the goal of developing a CO_2-free railroad network. Put it differently, the opportunities are there and the game is all to play.

---

[7]The National Recovery and Resilience Plan, PNRR in Italian, is the plan approved in 2021 by the Italian government with the objective of reviving the economy after the COVID-19 pandemic and enabling the country's green and digital development.

Figure 5: **Regional disparities in Energy.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of energy. The darker the colour, the higher the vote assigned to the region. Source: Authors' projections on ISTAT data.
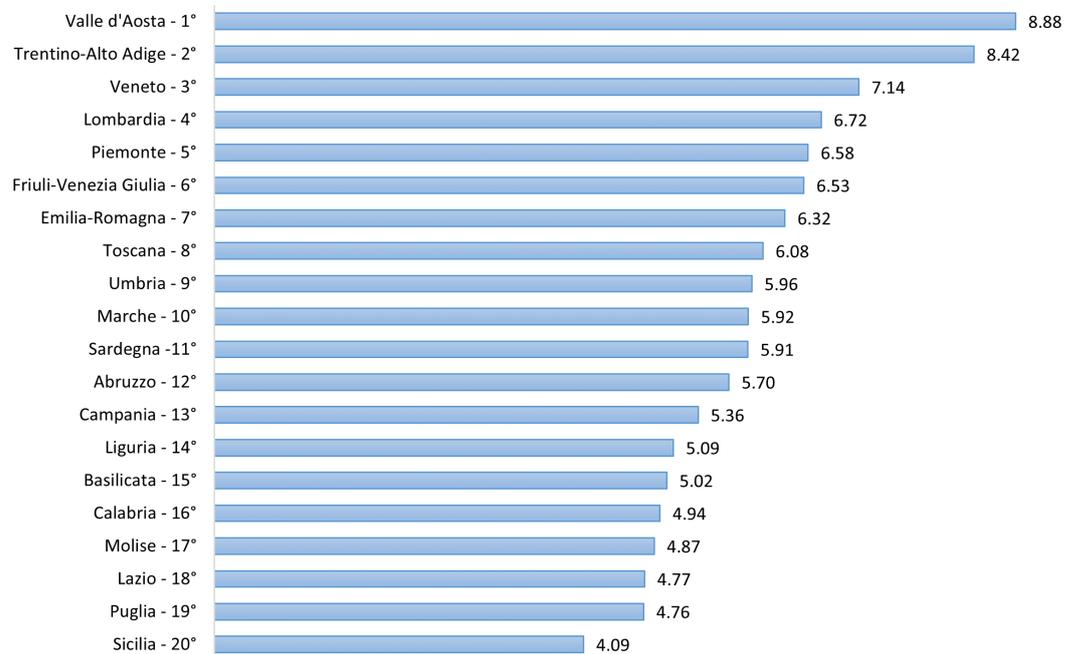

Figure 6: **Regional disparities in Energy: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the nine policy areas and their respective sub-categories, and the ranking. Source: Authors' projections on ISTAT data.

4.2 Society

The outlook within this policy area (see, Figures 7 and 8) appears relatively more balanced, with the majority of the Italian regions achieving scores exceeding 7.00. Substantial disparities however persist, notably between the top 3, where Marche leads with a score of 9.73, followed by Umbria at 9.44, and Liguria in third place with a score of 8.72. Conversely, the lowest three regions, namely Sicilia (5.52), Lazio (5.51), and Campania (5.18), trail behind, indicating a considerable performance gap.

When examining the average score for each macro-area, the disparities however diminish. The North-East macroarea boasts an average score of 7.60, the North-West attains a score of 8.00, the Center excels with a score of 8.14, and the South registers 7.17. Each macro-area showcases one standout region with remarkable performance, effectively elevating the overall score for their respective macro-area. This phenomenon contributes to the overall balanced scenario within the policy area. Specifically, the South boasts Calabria, securing the 4th position with a score of 8.38, while the North-West features Liguria in 3rd position with a score of 8.72.

If we observe the individual indicators, additional insights emerge. For example, age-adjusted mortality rates show regions like Trentino-Alto Adige, Marche, Umbria, Veneto and Toscana as top performers with the lowest mortality rates. At the bottom of the distribution there are instead, partly surprising but also quite disturbing, Lazio (16th), Piemonte (17th), Valle d'Aosta (18th), Sicilia (19th) and Campania (20th). Lombardia is positioned at rank 7 with a score of 8.71, followed by Puglia (8th position), Sardegna (9th), Abruzzo (10th), Basilicata (11th), Molise (12th), Friuli-Venezia Giulia (13th), Liguria (14th) and Calabria (15th).

Another angle of regional quality related to society is provided by the indicator on hospital migrations. The 2002-2019 ranking for this indicator show Umbria, Liguria, Marche, Valle d'Aosta and Calabria as top performers, meaning regions that were assigned a higher score due to their lower hospital migration. Puglia (17th position), Piemonte (18th), Lazio (19th) and Campania (20th) are the worst performers, while Lombardia (9th), Sardegna (10th), Toscana (11th) and Veneto (12th) are in the middle of the ranking.

Figure 7: **Regional disparities in Society.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of society. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT and OECD data.

Figure 8: **Regional disparities in Society: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to society, and the ranking. Source: Authors' projections on ISTAT and OECD data.

4.3   Finance

Figures 9 and 10 display the results of the four indicators (capital accumulation, private investments, bank lending and business services' development capacity) composing the area of Finance. Regional disparities in this area are quite evident not only across northern regions, with Emilia Romagna in the top position with a score of 8.57, followed by Piemonte (8.48), Lombardia (8.10) and Friuli Venezia Giulia (7.64), but also across Center and South. In particular, central regions show differences between Center-North, with Toscana in 9th position, the Center, with Umbria in 7th position and a score of 7.28, and the eastern and western regions of the Center with Abruzzo and Marche in 13th and 15th position and Lazio in 14th position.

In the South, variations in scores are especially stark among the regions of Calabria, in 16th position, Sicilia, at the bottom of the ranking, and Liguria, Campania and Puglia with a ranking of 17, 18 and 19, respectively. Such differences are evident for indicators related to capital accumulation and private investments, underlining existing financial divergences among the North, the Center and the South. Figure A4 in the Appendix visualizes the regional performance over time and shows that except the top 5 (Emilia Romagna, Piemonte, Lombardia, Friuli-Venezia Giulia, Trentino-Alto Adige) that are in the green color scale, the rest are in the yellow and red scale pointing to a flat or decreasing performance over time in key indicators such as bank lending, where Lombardia, Trentino, Emilia Romagna and Veneto are the top performers, and private investments where the regions of Piemonte, Emilia Romagna, Basilicata, Veneto and Umbria are leading.
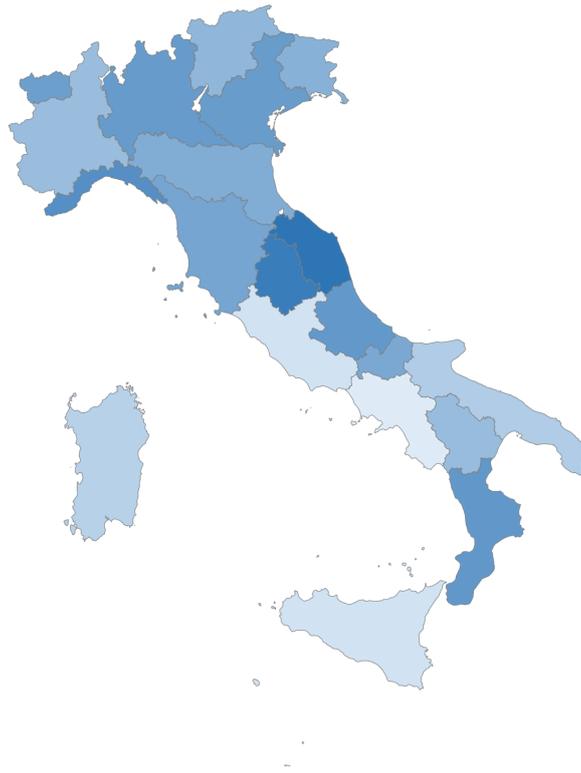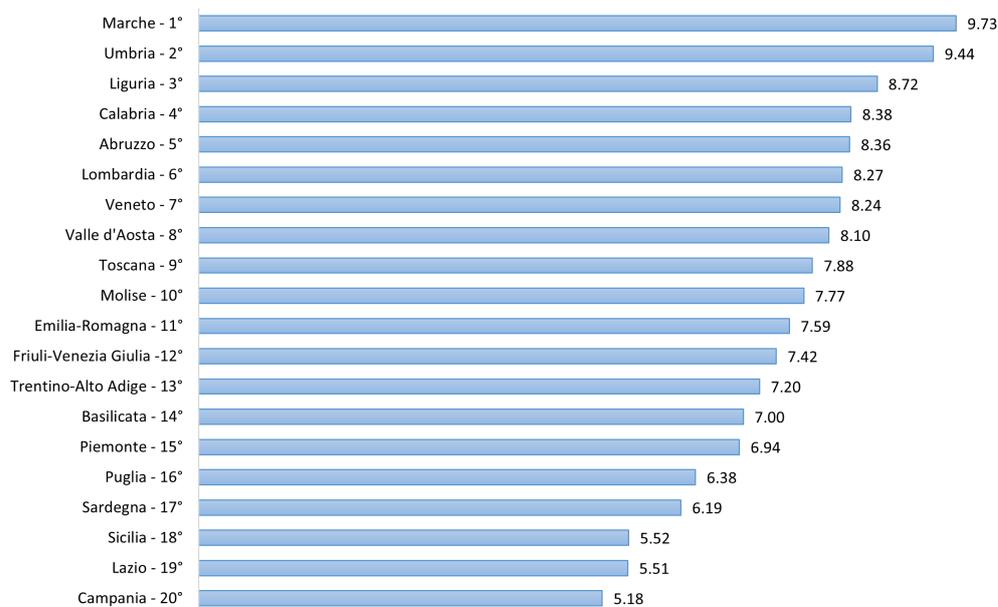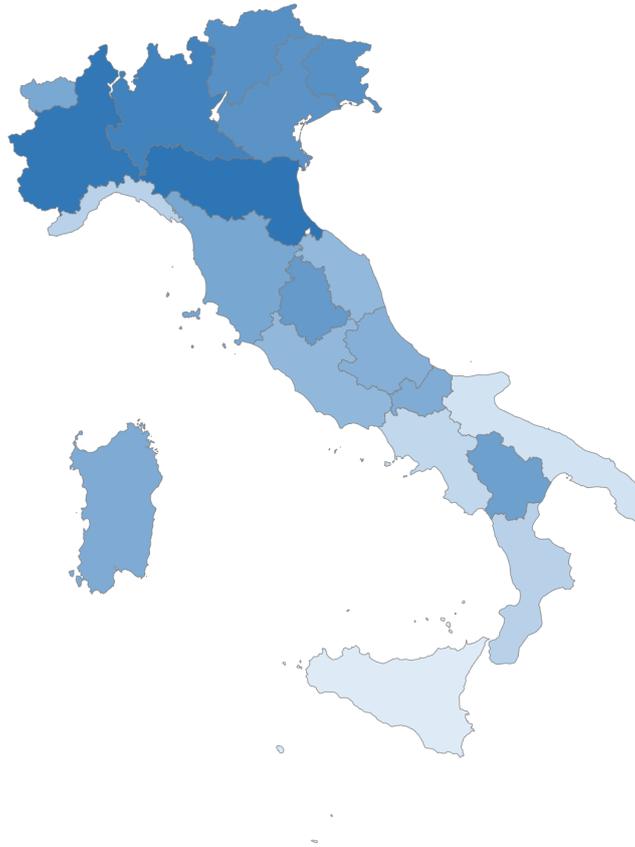

Figure 9: **Regional disparities in Finance.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of finance. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT and OECD data.
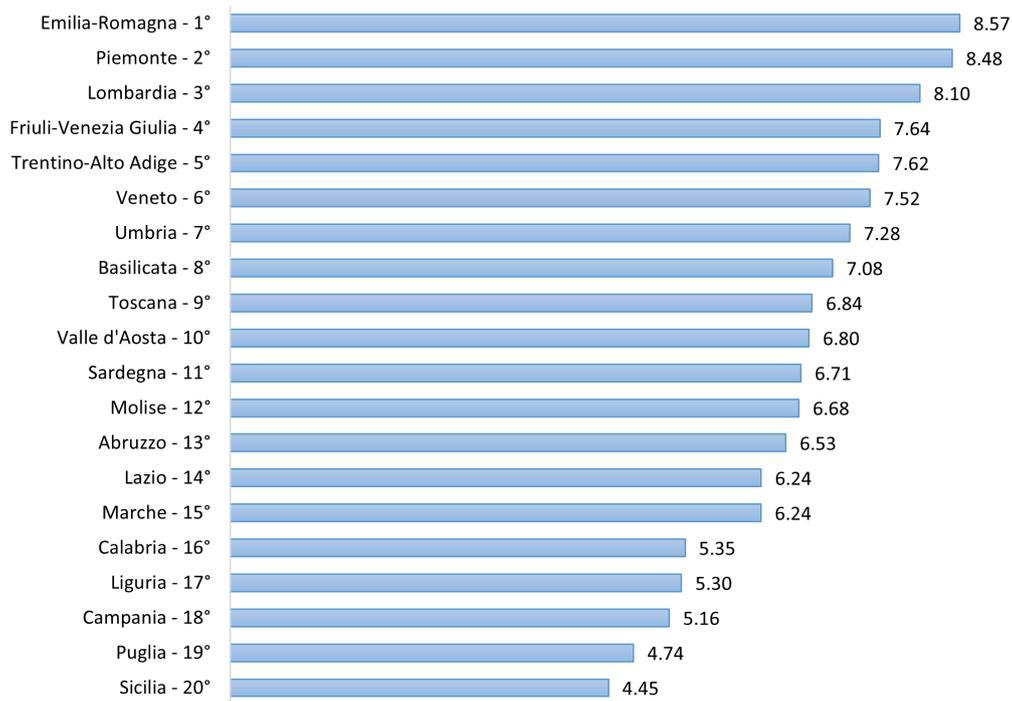
Figure 10: **Regional disparities in Finance: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to finance, and the ranking. Source: Authors' projections on ISTAT and OECD data.

4.4 Culture

In this policy area disparities become apparent when we examine the regional scores (see, Figures 11 and 12), as well as macroareas' scores. At the regional level, Trentino-Alto Adige secures the highest score at 8.65, while Sicilia attains the lowest at 4.07. Nonetheless, within the top-ranking regions, there are noticeable differences in performance. For instance, Emilia-Romagna, holding the third position, records a score of 6.55, while Piemonte, in second place, achieves a significantly higher score of 7.07. All other regions positioned below the third rank exhibit scores falling below the threshold of 6.00, highlighting profound cultural disparities.

When examining the average score of each macroarea, the disparities diminish but remain notable. The North-East boasts an average score of 6.91, the North-West attains a score of 6.07, the Center achieves a score of 5.96, and the South registers 4.96. Each macroarea showcases one region effectively downgrading the overall score for their respective macroarea. This phenomenon contributes to the overall imbalanced scenario within the policy area. Specifically, the North-East boasts Friuli-Venezia Giulia in 9th position with a score of 5.94, while the North-West features Liguria in 18th position with a score of 4.86. In the South, variations in scores are especially stark between Calabria in 13th position and Sicilia at the bottom of the ranking. Such differences are especially evident in the indicators related to cultural heritage and investment in cultural initiatives, indicating existing and long standing cultural divergences among the North, the Center and the South.

Regional disparities in this area are quite evident not only across northern regions, with Emilia-Romagna in the top position with a score of 6.55, followed by Piemonte (7.07), Lombardia (6.04), and Friuli-Venezia Giulia (5.94), but also across Center and South. In particular, central regions show differences between Center-North, with Toscana in 7th position, Center, with Umbria in 5th position and a score of 6.33, as well as eastern and

western regions of the Center with Marche in 10th and Lazio in 12th position.

Figure 11: **Regional disparities in Culture.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of culture. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT data.
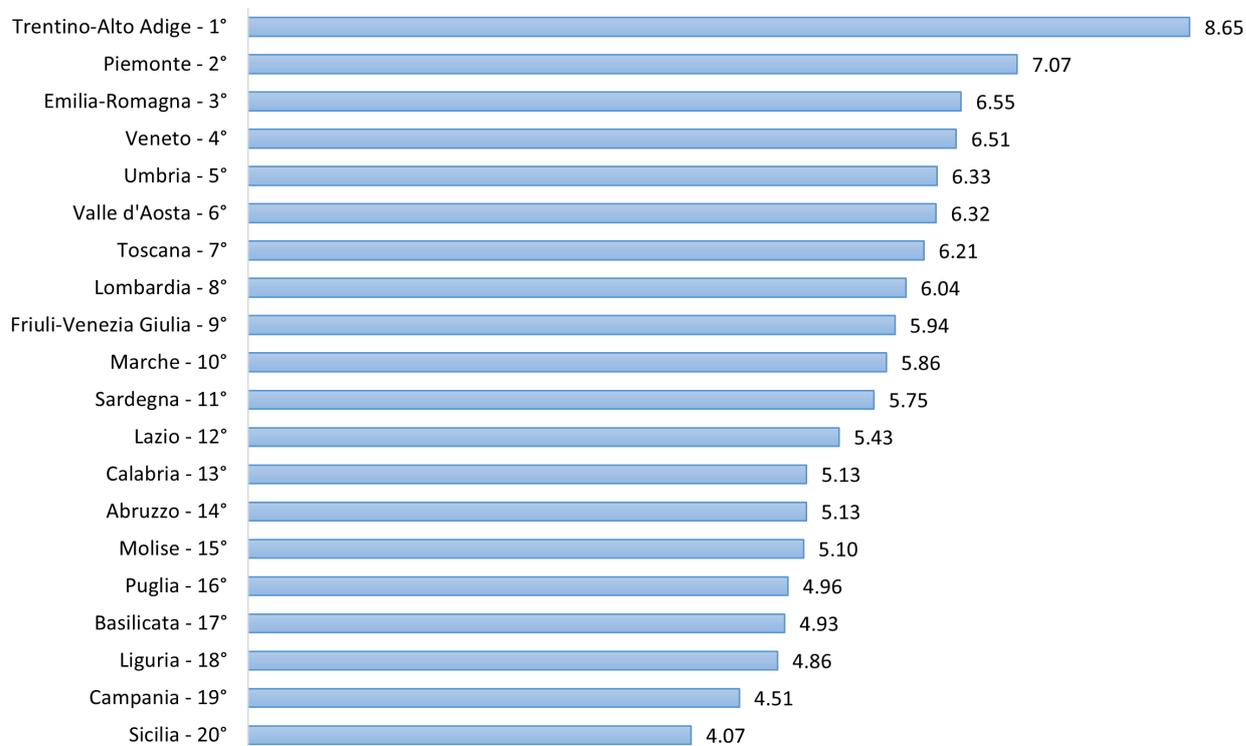

Figure 12: **Regional disparities in Culture: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to culture, and the ranking. Source: Authors' projections on ISTAT data.

4.5 Economy

Figures 14 and 13 display relevant differences within top ranked regions. For instance, Lombardia secures the top spot with 8.68, whereas Veneto, positioned in second place, achieves a score of 7.67, Lazio ranked third with 7.32, Piemonte is 4th with a score of 7.04 and Emilia-Romagna 5th with 6.98. These results reflect the economic strength of Northern Italy, as all top five positions are secured by Northern regions, except for Lazio.

North-Eastern regions, however, show competitively less remarkable scores, with Trentino (6.33) and Friuli-Venezia Giulia (6.26) ranked 13th and 14th, respectively. Meanwhile, the Central and Southern regions display disparities, with Lazio (3rd place, 7.32) standing out in the Center, while Campania (6th place, 6.83) performing comparatively well in the South. The outlook changes as we descend into the middle and lower ranks. Regions like Campania, Toscana, Abruzzo, Puglia, Marche, Sicilia, and Sardegna exhibit a mixed bag of scores, ranging from 6.39 to 6.83. This mid tier positioning showcases a relatively narrow score gap among these regions signifying a more balanced performance, with each contributing positively to their respective macroareas.

Calabria, Valle d'Aosta, Molise, and Umbria round out the rankings with scores of 5.11 to 5.80, each facing its unique set of economic policy hurdles. These regions, positioned in the bottom tier, emphasize the need for targeted policy interventions to bridge the economic policy disparities that persist across Italy. The Italian economic landscape presents a dynamic snapshot with varying degrees of success, mirroring the intricate economic diversity across its regions. Lombardia stands out as front-runner, while Calabria faces the most significant challenges. The mid-tier regions exhibit mixed performance, reflecting the challenging economic landscape of the nation. To achieve a more balanced economic policy scenario, focused efforts and competition policies aimed at finding novel mechanisms are required to uplift regions facing long standing inequalities.

Figure 13: **Regional disparities in Economy.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of economy. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT and Eurostat data.

Figure 14: **Regional disparities in Economy: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to economy, and the ranking. Source: Authors' projections on ISTAT data.

4.6 Trade

The Italian trade policy area, plotted in Figures 15 and 16, a new area introduced in this version of the EFIRI, unveils a more balanced scenario across its regions as ranks between the 3rd and the 10th position exhibit a relatively narrow scores' gap ranging from 6.90 to 6.14, signaling a more stable regional performance. However, Trentino-Alto Adige takes the lead with a remarkable score of 9.70, suggesting an exceptional trade policy environment. Valle d'Aosta closely follows in second place, achieving a notable score of 7.39, followed closely by Lombardia with a score of 7.19.

As we move further down the ranking, Lombardia, Piemonte, and Toscana occupy the 3rd, 4th, and 5th positions, respectively, with scores ranging from 7.19 to 6.88 that contribute positively to their respective macroareas. Umbria, Veneto, and Lazio take the 8th, 9th, and 10th positions, with scores ranging from 6.14 to 6.81. The top 10 positions thus highlight a relatively balanced trade policy landscape within the upper part of the peninsula, though the North-East macro area achieves a higher average score.

At the lower end of the ranking, we find a cluster of regions, including Molise, Puglia, Basilicata, Calabria, Campania, and Sardegna, with scores ranging from 5.06 to 5.71 emphasizing pronounced trade policy hurdles. In summary, the trade policy landscape presents a gradient score of performance levels, with a divide between North and South, and regions at the bottom of the ranking facing significant challenges. Such a wide spectrum of performances highlights the importance of tailored interventions in areas such as manufacturing and business services labor productivity.

Figure 15: **Regional disparities in Trade.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of trade. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT data.

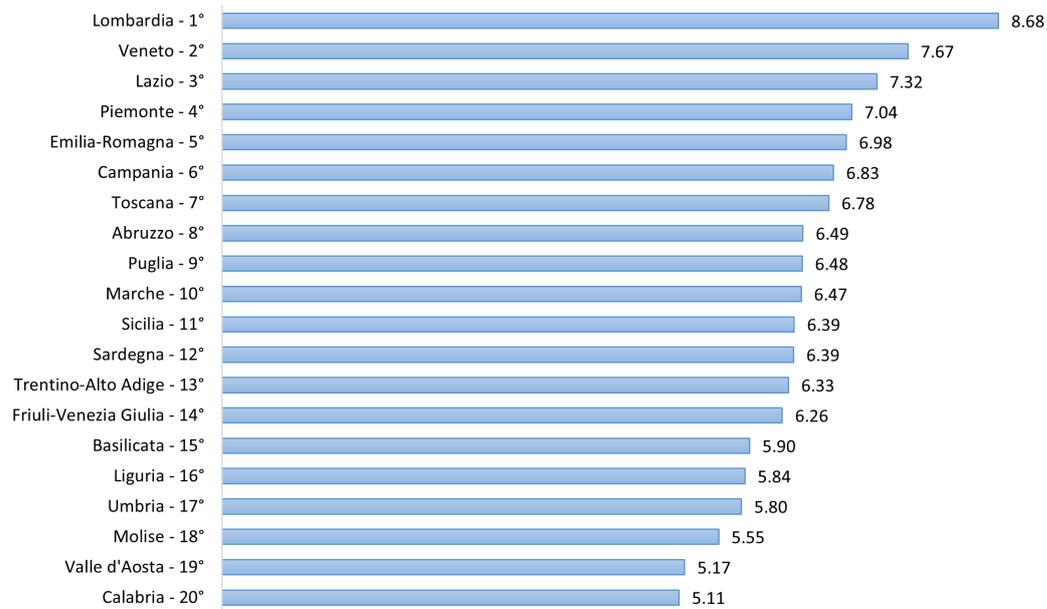| Region	Score
Trentino-Alto Adige - 1°	9.70
Valle d'Aosta - 2°	7.39
Lombardia - 3°	7.19
Piemonte - 4°	6.90
Toscana - 5°	6.88
Friuli-Venezia Giulia - 6°	6.83
Emilia-Romagna - 7°	6.83
Umbria - 8°	6.81
Veneto - 9°	6.47
Lazio - 10°	6.14
Liguria - 11°	5.82
Marche - 12°	5.77
Sicilia - 13°	5.75
Abruzzo - 14°	5.72
Molise - 15°	5.71
Puglia - 16°	5.58
Basilicata - 17°	5.46
Calabria - 18°	5.11
Campania - 19°	5.10
Sardegna - 20°	5.06

Figure 16: **Regional disparities in Trade: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to trade, and the ranking. Source: Authors' projections on ISTAT data.

4.7 Innovation

The results related to this policy area, a new addition into the EFIRI 2023, reveal substantial differences in the performance of the Italian regions. Piemonte is leading the way as top-ranked region, scoring a perfect 10.00, signaling a highly innovative environment. Interestingly, the score achieved by Piemonte is the highest ever registered within the EFIRI 2023. In contrast, Calabria and Basilicata are at the 20th and 19th positions, with scores of 4.10 and 4.42, respectively, showcasing significant challenges in fostering innovation and substantial disparities with the top-ranked regions.

Among the best performing regions, Emilia-Romagna secures the second position with a strong score of 8.26, while Friuli-Venezia Giulia and Lazio are closely behind, ranked 3rd and 4th, with scores of 7.42 and 7.40, respectively. The Northern regions, including Lombardia, Liguria, and Veneto, perform well, with scores above 7.00, reflecting a strong innovation-oriented culture.

Examining the macro area of the South, regions like Calabria, Sicilia, and Puglia find themselves among the lower-ranking regions, highlighting the need for targeted policies aimed at stimulating innovation and bridging existing gaps. At the same time, the structure of this area comes with critical aspects that are mostly related to having only two indicators, R&D total expenses to GDP and business expenses in R&D. For both indicators, Piemonte is the top performing region, with a score of exactly 10. A leading position that has already rewarded this region in the past. A 2017 study by Il Sole 24 Ore saw Piemonte at the top of the ranking as most innovative cluster for investments in R&D. Among the other regions scoring high in terms of R&D expenses and business expenses in R&D are Emilia-Romagna, Lombardia and Friuli Venezia Giulia.

Figure 17: **Regional disparities in Innovation.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of innovation. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT data.
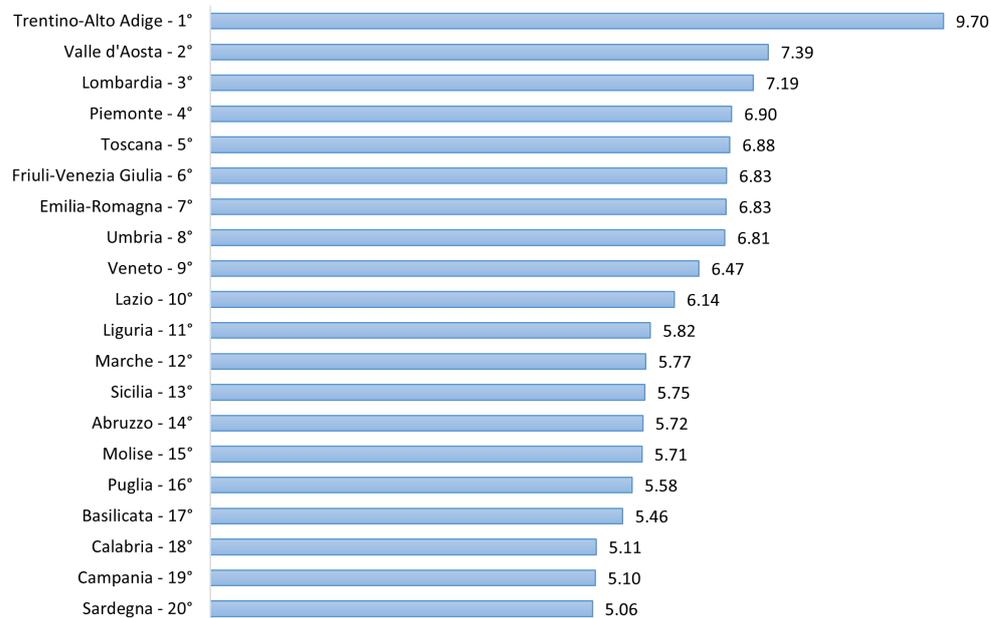
Figure 18: **Regional disparities in Innovation: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to innovation, and the ranking. Source: Authors' projections on ISTAT data.

4.8 Education

In comparison to the other policy areas, Education exhibits a greater prevalence of high scores (see, Figure 19 and 20). In fact, almost all regions attained a score above 7, with the sole exception of Valle d'Aosta (5.31). Marche emerges as top-ranking region with a high score of 9.29, immediately followed by Umbria with 9.26. The placements of Toscana and Lazio, both with a score of 8.68, complement the relatively better performance of the macro area of the Center, indicating a strong education system.

Abruzzo, Emilia-Romagna, and Friuli-Venezia Giulia also perform well, securing the 4th, 5th, and 3rd positions, respectively. While, surprisingly, other Northern regions, including Lombardia and Veneto, lag behind with a rank of 18 and 9, indicating room for improvement in their education systems. Valle d'Aosta is at the 20th position with a score of 5.31, suggesting challenges in its education sector. Southern regions like Sicilia and Campania are among the lower ranking regions, emphasizing the need for targeted policies to enhance participation rates and educational opportunities.

If we observe the performance over time (see, Figure A9), rather than solely considering the regional rankings for the whole time-frame (2002-2019) one can gain additional insights. In particular, Marche, Umbria, Emilia-Romagna, Friuli Venezia Giulia and Abruzzo stand out with a steady high score, in green color scale, while the majority display a rather flat trend over time as the remaining regions are mostly in yellow or red color scale, signaling a diminished or average performance. Altogether, these findings highlight the importance of securing investments in the educational sector, particularly in regions with low scores, in order to promote equal access to quality education and bridge the existing divide across regions and macro-areas, but at the same the inclusion of other indicators and the monitoring of their progress over time might reveal additional dynamics.
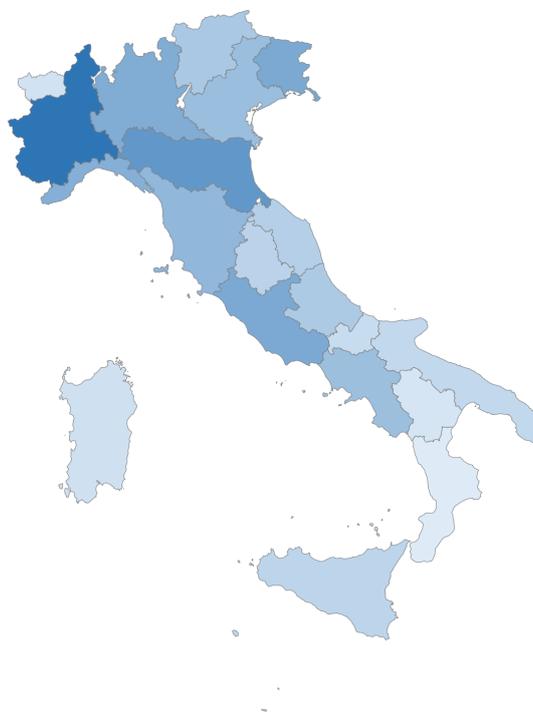
Figure 19: **Regional disparities in Education.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of education. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT data.
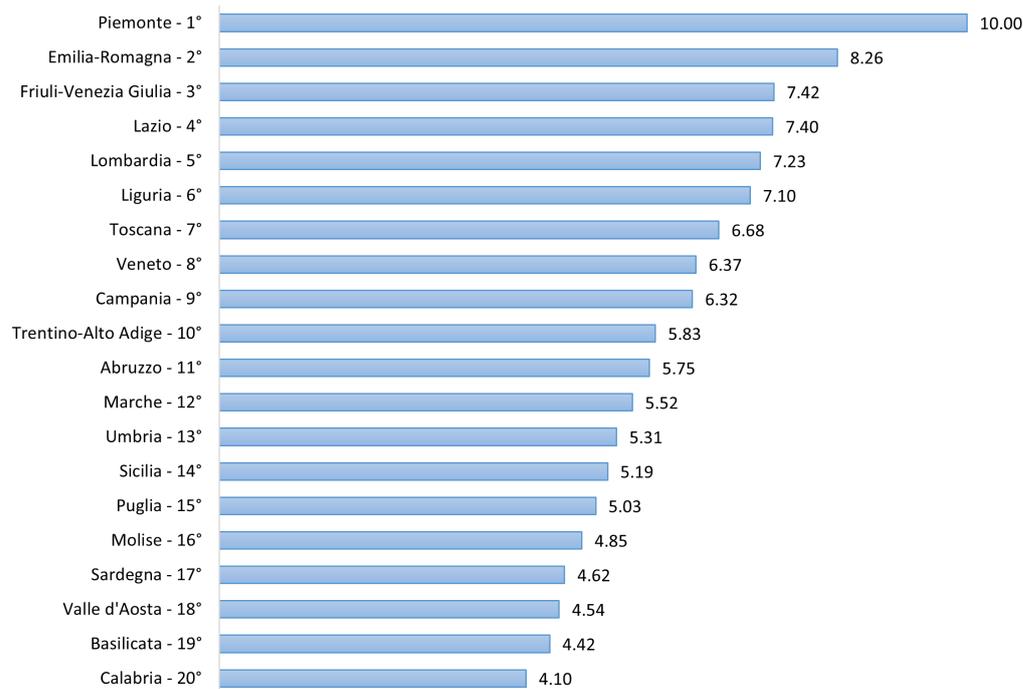

Figure 20: **Regional disparities in Education: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to education, and the ranking. Source: Authors' projections on ISTAT data.

4.9 Labor Market

Figures 21 and 22 show the results of the EFIRI rankings and scores with respect to the area related to the labor market. Piemonte stands out as top-performing region, securing the 1st position with a strong score of 8.05, suggesting an overall well-functioning and dynamic labor market. Conversely, Sardegna is in the 20th position, with a score of 5.45, while regions like Veneto, Liguria, Emilia-Romagna and Trentino-Alto Adige occupy the middle of the ranking with a score of 7.07 for Veneto and Liguria, 7.05 for Emilia-Romagna and 7.04 for Trentino-Alto Adige. All four regions have pretty close values,

suggesting common labor market challenges.

Northern regions such as Lombardia, Friuli-Venezia Giulia and Veneto, perform rather well, ranking 5th, 6th and 9th, respectively. In contrast, several Southern regions like Puglia, Sicilia, and Calabria are in the bottom of the rank, suggesting the need of targeted labor market policies in terms of, for example, youth unemployment.

If we examine the individual indicators composing labor market, we notice that precisely regions like Sicilia, Calabria and Campania, although having the highest youth unemployment rates across the country, display the highest rates of youth entrepreneurship, signaling that such regions are a breeding ground for startups and business ideas. If we look at female entrepreneurship, we do not find predominantly norther regions at the top of the ranking, rather Molise, Basilicata, Abruzzo, Umbria, and only 5th Piemonte. Interestingly, Trentino-Alto Adige detains the lowest position, 20th, preceded by Lombardia for percentage of female business owners.

Observing instead the regional performance over time in the heat map shown in Figure A10 in the Appendix, a different story might be described. Over time, the first 4-year time window (2002-2006) shows the majority of the regions, 14 out of 20, in the green or yellow color scale, indicating high or average scores, while from the second 4-year window to 2019 the color scale decreases alarmingly with only 7 regions in the green color scale in 2007-2010 and just 2 in 2011-2014 and 2015-2018. The rest are in either yellow or red color scale, indicating flat trends, no improvements, or decreasing scores, hence a worsening in the overall labor market conditions.

Figure 21: **Regional disparities in Labor.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of labor market. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT and OECD data.

Figure 22: **Regional disparities in Labor: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to labor, and the ranking. Source: Authors' projections on ISTAT and OECD data.

4.10 Legality & Security

This policy area, relatively new to the EFIRI index as it was first introduced in the 2018 version of the index (see, De Martiis and Russo [2019]), displays a large variation between best performers, with a vote of 9.81 for the first ranked (Basilicata), and worst performers, with a vote as low as 6.01 for the region of Campania. Figures 23 and 24 report the results of the overall regional scores and rankings.

The top 5 performers of this area are Basilicata, 1st position (9.81), Molise, 2nd (9.54), Trentino-Alto Adige, 3rd (9.18), Marche, 4th (9.10) and Friuli-Venezia Giulia, 5th position (9.07). The least performing are instead Emilia Romagna in 16th position and a vote of 7.32, preceded by Sicilia (15th) and followed by Lombardia 17th (7.30), Piemonte 18th (7.18), Lazio 19th (6.93) and Campania in last position and a vote of 6.01.

Examining the regional performance over time, Figure A11, it however stands out that except for 7 regions that are in the green color scale, best performers in terms of lower perceived criminality, the rest of the regions display either a deadlock, yellow color scale, or a worsening outlook altogether, red color scale. This scenario can also be due to data limitations, as we only have indicators related to reported crimes and perceived criminality, thus highlighting the need of finding additional indicators to further improve this policy area and its monitoring over time.

Figure 23: **Regional disparities in Legality and Security.** This map plots the overall score assigned to each region based on the sum of the indicators included in the policy area of legality and security. The darker the color, the higher the vote assigned to the region. Source: Authors' projections on ISTAT and OECD data.

Region	Score
Basilicata - 1°	9.81
Molise - 2°	9.54
Trentino-Alto Adige - 3°	9.18
Marche - 4°	9.10
Friuli-Venezia Giulia - 5°	9.07
Valle d'Aosta - 6°	8.93
Abruzzo - 7°	8.81
Sardegna - 8°	8.60
Umbria - 9°	8.54
Veneto - 10°	8.54
Toscana - 11°	7.89
Puglia - 12°	7.86
Liguria- 13°	7.48
Calabria - 14°	7.33
Sicilia - 15°	7.33
Emilia-Romagna - 16°	7.32
Lombardia - 17°	7.30
Piemonte - 18°	7.18
Lazio - 19°	6.93
Campania - 20°	6.01

Figure 24: **Regional disparities in Legality and Security: Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the indicators of the policy area related to legality and security, and the ranking. Source: Authors' projections on ISTAT and OECD data.

5   Discussion

The objective of this work, and the 2023 Economic Freedom Index of Italian Regions (EFIRI), is to provide valuable insights into the economic and policy landscape of Italy. The EFIRI serves as a comprehensive tool for assessing the economic performance and policy effectiveness across the various regions, shedding light on existing disparities and opportunities for improvement.

This analysis demonstrates the evolution of economic freedom in the Italian regions over time. By examining regional performances from 2002 to 2019, it becomes apparent that some regions experienced improvements, while others faced setbacks and other declines. Notably, on the one hand, Piemonte stands out with a positive trend in its overall scores, reflecting advancements in regional economic freedom. On the other hand, regions like Toscana and Emilia-Romagna saw declines in their scores over time, indicating challenges in sustaining their regional quality.

The introduction of new policy areas such as Trade, Innovation, and Legality & Security, provides a more comprehensive assessment of regional performance. These areas offer further insights into the strengths and weaknesses of the Italian regions. For instance, Piemonte excels in innovation, while Basilicata leads in legality and security, showcasing the need to dig deeper into the regional results of each specific policy dimension.

Altogether, the EFIRI 2023 provides a comprehensive and detailed analysis of regional quality in Italy, using the lenses of economic freedom. It underscores regional disparities and highlights the need for targeted policy interventions to promote economic growth and competitiveness. Such a tool, although simple and preliminary, could serve policy makers, researchers, and stakeholders seeking to design improved regional policies.

References

European Commission EC. Long-term competitiveness of the eu: Looking beyond 2030. *European Commission*, 2023.

Heritage Foundation HF. Index of economic freedom: Promoting economic opportunity and prosperity by country. Technical report, Heritage Foundation, 2023. URL `"//www.heritage.org/index/"`.

Giuseppe Russo. Competitivita' da rilanciare, che cosa l'europa si aspetta da draghi. *Mondo Economico*, 2023.

Begoña Cabeza Martinez Laura de Dominicis Lewis Dijkstra, Eleni Papadimitriou and Matija Kovacic. Eu regional competitiveness index 2.0. 2023.

Lorenza Campagnolo and Davide Ciferri. Is italy on the pathway for achieving sustainable development goals? In Luigi Paganetto, editor, *Getting Globalization Right*, pages 209–239, Cham, 2018. Springer International Publishing. ISBN 978-3-319-97692-1.

Dinesh Khanna Vincent Chin, Shu Ling Heng and Enrique Rueda-Sabater. The challenge of converting wealth into well-being the 2017 sustainable economic development assessment. 2017.

Annamaria Nifo and Gaetano Vecchione. Measuring institutional quality in italy. *Rivista economica del Mezzogiorno*, 29(1-2):157–182, 2015.

Giovanni Ronca. Indice della libertà economica dell'unione europea. secondo rapporto annuale 2002. *Biblioteca della Libertà. Centro Einaudi*, 2002.

James Gwartney, Robert Lawson, and Ryan Murphy. Economic freedom of the world: 2023 annual report. *Fraser Institute*, 2023.

Mario Deaglio. *Le province Italiane tra sviluppo e sottosviluppo*, chapter 43. Biblioteca della libertà, Centro Einaudi, 1973.

Francesco Chelli, Mariateresa Ciommi, and Chiara Gigliarano. The index of sustainable economic welfare: A comparison of two italian regions. *Procedia - Social and Behavioral Sciences*, 81, 06 2013. doi: 10.1016/j.sbspro.2013.06.457.

Andrea Lasagni, Annamaria Nifo, and Gaetano Vecchione. Firm productivity and institutional quality: Evidence from italian industry. *Journal of Regional Science*, 55(5): 774–800, 2015.

Robert E Hall and Charles I Jones. Why do some countries produce so much more output per worker than others? Working Paper 6564, National Bureau of Economic Research, June 1999. URL `http://www.nber.org/papers/w6564`.

William Easterly and Ross Levine. Tropics, germs, and crops: How endowments influence economic development. Working Paper 9106, National Bureau of Economic Research, August 2002. URL `http://www.nber.org/papers/w9106`.

Giovanni Ronca and Gabriele Guggiola. *Misurare la libertà economica nel mondo, in Europa, in Italia*. Guerini & Associati, 2004.

Giovanni Ronca and Gabriele Guggiola. *La libertà economica nel mondo, in Europa, in Italia*. Guerini & Associati, 2007.

Ludwig von Mises. The Economic Foundations of Freedom, May 2011. URL `https://mises.org/library/economic-foundations-freedom`.

Dale W. Jorgenson. Production and welfare: Progress in economic measurement. *Journal of Economic Literature*, 56(3):867–919, 2018. ISSN 00220515, 23288175. URL https://www.jstor.org/stable/26494236.

United Nations Development Programme UNDP. Human development report 1990. *UNDP (United Nations Development Programme)*, 1990.

Philip A Lawn and Richard D Sanders. Has australia surpassed its optimal macroeconomic scale? finding out with the aid of 'benefit' and 'cost' accounts and a sustainable net benefit index. *Ecological Economics*, 28(2):213–229, 1999. ISSN 0921-8009. doi: https://doi.org/10.1016/S0921-8009(98)00049-4. URL https://www.sciencedirect.com/science/article/pii/S0921800998000494.

Philip Lawn. *An assessment of alternative measures of sustainable economic welfare*, pages 139–165. Edward Elgar Publishing, 2006. ISBN 9781845420994.

Howard S. Ellis. Economic growth and declining social welfare. by xenophon zolotas. new york: New york university press, 1981. distributed by columbia university press, new york. pp. xiv, 199. *The Journal of Economic History*, 45(3):770–772, 1985. doi: 10.1017/S0022050700035026.

William D. Nordhaus and James Tobin. *Is Growth Obsolete?*, pages 1–80. NBER, 1972. URL http://www.nber.org/chapters/c7620.

OECD. How's life in your region?: Measuring regional and local well-being for policy making. *OECD Regional Development Studies, OECD Publishing, Paris*, 2014. doi: https://doi.org/10.1787/9789264217416-en.

Saamah Abdallah Tim Jackson, Nat McBride and Nic Marks. Measuring regional progress: regional index of sustainable economic well-being (r-isew) for all the english regions. *Centre for well-being*, 2008.

Annamaria Nifo and Gaetano Vecchione. Do institutions play a role in skilled migration? the case of italy. *Regional Studies*, 48(10):1628–1649, 2014. doi: 10.1080/00343404.2013.835799.

Enzo Tiezzi Federico Maria Pulselli, Francesca Ciampalini and Carlo Zappia. The index of sustainable economic welfare (isew) for a local authority: A case study in italy. *Ecological Economics*, 60(1):271–281, 2006. ISSN 0921-8009. doi: https://doi.org/10.1016/j.ecolecon.2005.12.004. URL https://www.sciencedirect.com/science/article/pii/S0921800905005823.

Angela De Martiis and Giuseppe Russo. Come cresce l'italia: libertà economica nelle regioni e attrattività del paese. Technical report, Centro Einaudi, 2019. URL //www.centroeinaudi.it/economic-freedom-index/9490-come-cresce-l-italia-libert%C3%A0-economica-nelle-regioni-e-attrattivit%C3%A0-del-paese.html".

A   Appendix

A.1   Additional Results

Figure A1: **Regional disparities: Overall Score and Ranking.** This graph plots both the score assigned to each region, based on the sum of the nine policy areas and their respective sub-categories, and the ranking. Source: Authors' projections on ISTAT, Eurostat, and OECD data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	5.01	5.23	5.97	6.43	6.47	5.70
Basilicata	4.30	4.44	5.14	5.99	6.08	5.02
Calabria	4.60	4.64	4.81	5.64	5.62	4.94
Campania	4.45	5.06	5.91	6.00	5.42	5.36
Emilia-Romagna	5.97	6.23	6.41	6.55	6.80	6.32
Friuli-Venezia Giulia	5.95	6.47	6.84	6.81	6.63	6.53
Lazio	4.39	4.42	4.80	5.40	5.21	4.77
Liguria	4.87	4.94	5.10	5.44	5.23	5.09
Lombardia	6.88	6.55	6.52	6.85	6.96	6.72
Marche	4.99	5.36	6.46	6.63	6.84	5.92
Molise	4.23	4.47	5.20	5.47	5.90	4.87
Piemonte	6.36	6.73	6.70	6.53	6.43	6.58
Puglia	4.30	4.37	4.80	5.46	5.51	4.76
Sardegna	4.35	5.91	6.42	6.69	7.23	5.91
Sicilia	4.08	4.03	4.14	4.19	4.23	4.09
Toscana	6.21	5.94	5.98	6.17	6.17	6.08
Trentino-Alto Adige	8.01	8.56	8.76	8.28	8.52	8.42
Umbria	5.45	5.56	6.13	6.52	6.62	5.96
Valle d'Aosta	8.62	8.90	8.81	9.11	9.16	8.88
Veneto	7.12	7.03	7.17	7.17	7.20	7.14

Figure A2: **Regional ranking over time in Energy.** This figure shows a heat map of the EFIRI scores over time for energy. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	7.52	8.60	8.76	8.72	8.99	8.36
Basilicata	6.91	7.09	7.20	7.35	6.82	7.00
Calabria	8.57	8.18	8.36	8.45	7.76	8.38
Campania	6.23	5.23	5.79	5.15	5.27	5.18
Emilia-Romagna	8.04	7.57	7.68	7.84	8.03	7.59
Friuli-Venezia Giulia	7.40	7.36	7.72	8.16	7.97	7.42
Lazio	6.56	6.30	5.34	5.45	6.35	5.51
Liguria	8.50	8.51	8.70	8.97	8.83	8.72
Lombardia	8.40	8.06	8.24	8.69	8.59	8.27
Marche	9.37	9.82	9.71	9.61	9.91	9.73
Molise	7.78	8.32	8.06	7.40	7.30	7.77
Piemonte	6.61	7.34	7.38	7.39	8.85	6.94
Puglia	7.18	6.68	6.32	6.71	6.47	6.38
Sardegna	6.63	6.49	6.29	6.67	6.05	6.19
Sicilia	6.12	5.48	5.86	5.73	6.86	5.52
Toscana	7.97	7.58	7.92	8.79	8.20	7.88
Trentino-Alto Adige	7.81	8.15	6.76	7.43	7.15	7.20
Umbria	9.34	9.40	9.26	9.37	9.31	9.44
Valle d'Aosta	8.01	8.09	8.39	8.03	7.98	8.10
Veneto	8.48	8.22	8.58	8.34	8.58	8.24

Figure A3: **Regional ranking over time in Society.** This figure shows a heat map of the EFIRI scores over time for society. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT and OECD data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	5.66	6.73	7.23	7.10	7.10	6.53
Basilicata	6.78	7.03	7.23	7.29	6.71	7.08
Calabria	5.53	6.12	5.93	4.42	4.03	5.35
Campania	5.94	5.43	4.56	4.93	5.22	5.16
Emilia-Romagna	9.02	8.72	7.97	8.10	7.90	8.57
Friuli-Venezia Giulia	7.47	7.65	7.93	7.73	7.49	7.64
Lazio	6.27	6.28	6.81	6.89	6.69	6.24
Liguria	5.11	5.37	5.68	5.79	6.69	5.30
Lombardia	8.11	8.46	8.16	8.08	8.16	8.10
Marche	6.62	6.51	6.36	6.23	6.25	6.24
Molise	6.96	7.03	6.49	5.99	5.68	6.68
Piemonte	7.61	7.39	8.35	8.70	8.42	8.48
Puglia	4.86	5.15	4.91	5.07	5.15	4.74
Sardegna	7.75	7.80	5.48	5.21	5.27	6.71
Sicilia	5.14	4.81	4.31	4.32	4.58	4.45
Toscana	7.25	6.98	6.75	6.88	6.45	6.84
Trentino-Alto Adige	7.39	6.93	7.54	8.14	8.50	7.62
Umbria	6.87	7.98	7.34	7.16	7.02	7.28
Valle d'Aosta	6.88	7.08	6.88	6.11	6.53	6.80
Veneto	7.63	7.51	7.36	7.48	7.80	7.52

Figure A4: **Regional ranking over time in Finance.** This figure shows a heat map of the EFIRI scores over time for finance. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	5.74	5.42	5.32	5.18	5.24	5.13
Basilicata	5.76	4.70	5.10	5.23	5.25	4.93
Calabria	5.61	5.26	5.33	5.48	5.54	5.13
Campania	5.13	4.72	4.59	4.32	4.33	4.51
Emilia-Romagna	7.52	7.05	6.96	7.06	7.20	6.55
Friuli-Venezia Giulia	6.41	6.81	6.23	6.12	6.26	5.94
Lazio	6.07	5.87	5.62	5.64	5.75	5.43
Liguria	4.91	4.94	4.87	5.03	5.10	4.86
Lombardia	6.64	6.82	6.35	6.54	6.50	6.04
Marche	6.43	6.28	6.19	6.19	6.31	5.86
Molise	5.66	5.98	5.21	4.99	4.94	5.10
Piemonte	6.91	7.05	7.09	7.12	7.12	7.07
Puglia	5.88	5.38	5.03	4.88	4.90	4.96
Sardegna	6.33	5.87	5.95	6.38	6.47	5.75
Sicilia	4.04	4.06	4.09	4.10	4.10	4.07
Toscana	7.28	6.80	6.56	6.26	6.33	6.21
Trentino-Alto Adige	9.36	8.60	9.01	9.43	9.72	8.65
Umbria	6.98	6.77	6.93	6.80	6.96	6.33
Valle d'Aosta	7.14	6.70	6.25	6.11	6.13	6.32
Veneto	7.69	7.28	6.63	6.69	6.81	6.51

Figure A5: **Regional ranking over time in Culture.** This figure shows a heat map of the EFIRI scores over time for culture. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT and OECD data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	7.10	6.09	6.82	6.08	6.30	6.49
Basilicata	5.52	5.97	5.64	6.78	6.06	5.90
Calabria	5.05	5.28	5.22	5.52	5.90	5.11
Campania	6.67	6.62	6.77	7.41	7.33	6.83
Emilia-Romagna	7.46	6.55	7.26	6.86	7.24	6.98
Friuli-Venezia Giulia	6.47	6.37	6.52	6.21	6.26	6.26
Lazio	7.25	7.50	7.17	7.46	7.43	7.32
Liguria	5.76	6.47	6.06	5.71	6.05	5.84
Lombardia	8.78	8.74	8.57	8.55	8.98	8.68
Marche	6.91	6.72	6.59	5.96	6.18	6.47
Molise	6.04	5.90	5.33	5.35	5.51	5.55
Piemonte	6.96	7.51	7.02	7.21	6.91	7.04
Puglia	6.24	7.01	6.49	6.38	6.69	6.48
Sardegna	6.65	6.64	6.34	6.54	6.99	6.39
Sicilia	6.05	6.62	6.81	6.57	7.26	6.39
Toscana	6.86	7.12	6.93	6.65	6.48	6.78
Trentino-Alto Adige	6.29	6.24	6.33	6.09	6.31	6.33
Umbria	6.22	6.14	5.81	5.44	5.66	5.80
Valle d'Aosta	5.63	6.02	4.91	4.57	5.03	5.17
Veneto	8.00	7.66	7.57	7.52	7.34	7.67

Figure A6: **Regional ranking over time in Economy.** This figure shows a heat map of the EFIRI scores over time for economy. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	5.17	5.73	5.66	5.85	6.10	5.72
Basilicata	5.63	5.47	5.43	4.89	5.92	5.46
Calabria	5.36	4.74	4.50	4.77	5.87	5.11
Campania	4.87	5.67	4.99	4.69	5.77	5.10
Emilia-Romagna	5.76	7.29	7.51	6.36	7.50	6.83
Friuli-Venezia Giulia	5.70	6.11	7.21	7.72	7.07	6.83
Lazio	6.13	6.30	5.73	6.04	6.46	6.14
Liguria	5.78	5.68	6.20	6.14	7.74	5.82
Lombardia	6.15	7.44	7.51	6.75	7.66	7.19
Marche	5.89	5.42	6.22	5.42	5.95	5.77
Molise	5.90	5.39	5.57	4.69	5.50	5.71
Piemonte	6.74	6.61	7.28	6.41	7.63	6.90
Puglia	5.63	5.44	5.45	5.29	5.24	5.58
Sardegna	4.40	5.27	5.88	4.90	4.99	5.06
Sicilia	6.06	5.67	5.34	5.37	5.29	5.75
Toscana	7.03	6.39	6.55	6.26	6.58	6.88
Trentino-Alto Adige	8.41	9.61	9.84	8.99	8.12	9.70
Umbria	7.37	6.78	5.79	5.64	6.90	6.81
Valle d'Aosta	6.53	7.87	7.39	6.42	8.08	7.39
Veneto	5.63	6.83	6.83	6.76	6.83	6.47

Figure A7: **Regional ranking over time in Trade.** This figure shows a heat map of the EFIRI scores over time for trade. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance.. Source: Authors' projections on ISTAT and OECD data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	6.54	5.83	5.40	5.52	5.82	5.75
Basilicata	4.95	4.82	4.22	4.09	4.62	4.42
Calabria	4.20	4.03	4.25	4.25	4.48	4.10
Campania	6.43	6.60	6.37	6.15	6.52	6.32
Emilia-Romagna	7.58	7.87	8.22	9.14	9.35	8.26
Friuli-Venezia Giulia	7.00	7.77	7.64	7.46	7.53	7.42
Lazio	7.93	7.59	7.17	7.01	7.63	7.40
Liguria	7.30	7.17	7.11	7.05	7.01	7.10
Lombardia	7.54	7.40	7.28	6.98	7.09	7.23
Marche	5.34	5.37	5.52	5.98	6.17	5.52
Molise	4.30	4.16	4.51	6.20	6.51	4.85
Piemonte	10.00	10.00	10.00	10.00	10.00	10.00
Puglia	5.05	5.14	5.17	5.09	5.24	5.03
Sardegna	4.95	4.64	4.60	4.61	4.79	4.62
Sicilia	5.55	5.21	5.34	5.03	5.10	5.19
Toscana	6.48	6.52	6.72	6.94	7.54	6.68
Trentino-Alto Adige	5.25	6.37	6.37	5.95	5.04	5.83
Umbria	5.48	5.35	5.21	5.42	5.76	5.31
Valle d'Aosta	4.52	5.00	4.52	4.64	4.50	4.54
Veneto	5.51	6.62	6.57	6.88	7.18	6.37

Figure A8: **Regional ranking over time in Innovation.** This figure shows a heat map of the EFIRI scores over time for innovation. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	9.11	8.78	8.97	8.74	8.74	8.90
Basilicata	7.73	7.58	7.81	7.97	8.00	7.73
Calabria	7.59	7.80	8.34	8.24	8.55	8.02
Campania	6.92	7.17	8.00	8.24	8.51	7.56
Emilia-Romagna	9.10	8.47	8.67	8.67	8.61	8.70
Friuli-Venezia Giulia	9.22	8.55	8.90	8.94	8.76	8.94
Lazio	8.97	8.47	8.79	8.75	8.84	8.68
Liguria	8.17	7.43	8.31	8.26	8.21	7.97
Lombardia	7.54	6.94	7.83	7.82	7.74	7.50
Marche	9.37	8.96	9.24	9.34	9.42	9.29
Molise	8.80	8.59	8.86	8.38	8.74	8.67
Piemonte	7.92	7.46	7.97	8.12	8.18	8.30
Puglia	7.26	7.65	8.73	8.36	8.44	8.08
Sardegna	7.87	7.28	8.20	8.67	8.49	7.91
Sicilia	6.82	6.62	7.54	7.51	7.62	7.02
Toscana	8.67	8.29	8.81	8.98	8.92	8.68
Trentino-Alto Adige	7.38	7.51	7.84	7.60	7.42	7.65
Umbria	9.78	9.19	9.04	9.04	9.06	9.26
Valle d'Aosta	5.63	5.00	5.81	5.81	5.50	5.31
Veneto	8.37	7.99	8.43	8.55	8.39	8.45

Figure A9: **Regional ranking over time in Education.** This figure shows a heat map of the EFIRI scores over time for education. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT and OECD data.

	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	7.40	7.12	7.24	6.99	6.79	7.12
Basilicata	6.66	6.11	6.33	7.06	7.32	6.59
Calabria	6.09	6.71	6.14	5.90	5.76	6.20
Campania	6.33	6.65	6.52	6.68	6.57	6.54
Emilia-Romagna	7.44	7.08	6.72	6.96	7.00	7.05
Friuli-Venezia Giulia	7.58	7.33	7.34	7.27	7.35	7.36
Lazio	6.94	6.76	6.77	6.93	6.95	6.85
Liguria	7.45	7.17	6.97	6.85	7.06	7.07
Lombardia	7.60	7.39	7.20	7.19	7.33	7.38
Marche	7.41	7.34	6.86	6.85	6.87	7.08
Molise	7.08	7.18	7.01	7.05	6.75	7.02
Piemonte	7.63	7.32	7.00	7.14	7.30	8.05
Puglia	6.02	5.76	5.75	5.79	6.01	5.77
Sardegna	5.62	5.22	5.36	5.63	5.60	5.45
Sicilia	5.67	5.81	6.11	6.01	5.83	5.89
Toscana	7.66	7.52	7.37	7.33	7.24	7.46
Trentino-Alto Adige	6.96	7.00	7.00	7.16	7.46	7.04
Umbria	7.71	7.64	7.19	7.20	7.30	7.42
Valle d'Aosta	8.23	7.77	7.53	7.83	7.93	7.82
Veneto	7.27	7.09	6.97	7.00	6.99	7.07

Figure A10: **Regional ranking over time in Labor Market.** This figure shows a heat map of the EFIRI scores over time for labor market. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT data.

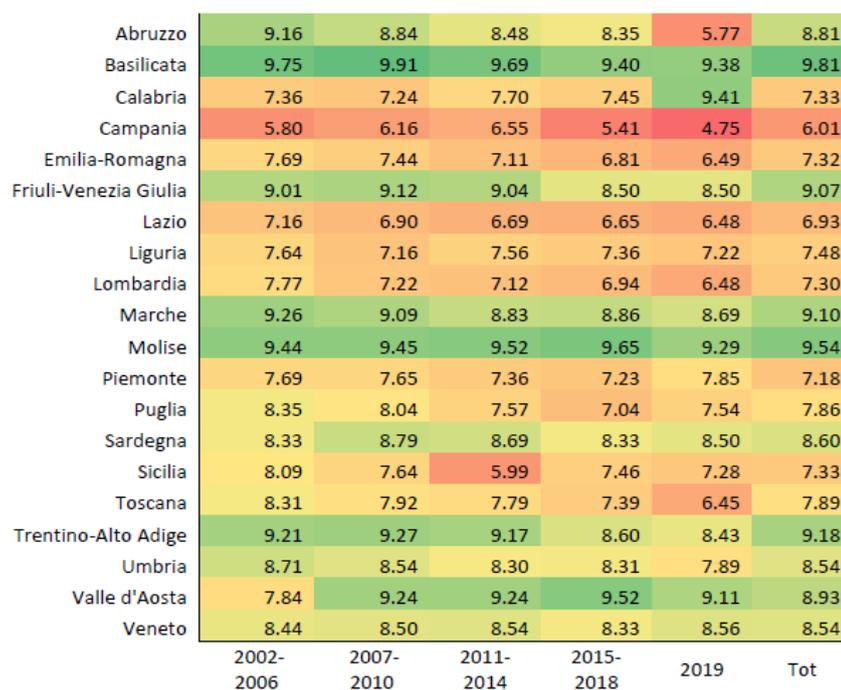|	2002-2006	2007-2010	2011-2014	2015-2018	2019	Tot
Abruzzo	9.16	8.84	8.48	8.35	5.77	8.81
Basilicata	9.75	9.91	9.69	9.40	9.38	9.81
Calabria	7.36	7.24	7.70	7.45	9.41	7.33
Campania	5.80	6.16	6.55	5.41	4.75	6.01
Emilia-Romagna	7.69	7.44	7.11	6.81	6.49	7.32
Friuli-Venezia Giulia	9.01	9.12	9.04	8.50	8.50	9.07
Lazio	7.16	6.90	6.69	6.65	6.48	6.93
Liguria	7.64	7.16	7.56	7.36	7.22	7.48
Lombardia	7.77	7.22	7.12	6.94	6.48	7.30
Marche	9.26	9.09	8.83	8.86	8.69	9.10
Molise	9.44	9.45	9.52	9.65	9.29	9.54
Piemonte	7.69	7.65	7.36	7.23	7.85	7.18
Puglia	8.35	8.04	7.57	7.04	7.54	7.86
Sardegna	8.33	8.79	8.69	8.33	8.50	8.60
Sicilia	8.09	7.64	5.99	7.46	7.28	7.33
Toscana	8.31	7.92	7.79	7.39	6.45	7.89
Trentino-Alto Adige	9.21	9.27	9.17	8.60	8.43	9.18
Umbria	8.71	8.54	8.30	8.31	7.89	8.54
Valle d'Aosta	7.84	9.24	9.24	9.52	9.11	8.93
Veneto	8.44	8.50	8.54	8.33	8.56	8.54

Figure A11: **Regional ranking over time in Legality and Security.** This figure shows a heat map of the EFIRI scores over time for legality and security. The first period considered refers to the 4-year window 2002-2006, the second to 2007-2010, the third to 2011-2014, the fourth to 2015-2018, the fifth considers only the year 2019, as most recent year of observation, and finally the overall period (Tot) refers to 2002-2019. The green color scale captures higher scores, hence a higher regional performance, while yellow and red color scales highlight lower scores, hence a medium to low performance. Source: Authors' projections on ISTAT and OECD data.