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The impact of the Recovery Fund

on the Italian economy

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Introduction

This study intends to examine in detail the impact that the Recovery Fund has had and will have on the Italian economy. The thesis is divided into four chapters, starting from more general issues and arriving at the analysis of a specific case.

The first chapter will provide a general overview of the Recovery Fund, explaining what it is, the history of its approval and the related European framework. Despite the rapid approval of the Recovery Fund, given the emergency caused by the Covid-19 pandemic, numerous discussions have been raised about it. Two factions have been created: the first in favor of an aid policy to revive national economies, led by Italy, Spain, Greece and Portugal; the second against this type of aid, led by Germany, France and the Netherlands. The Southern States prevailed, and it was decided to distribute 750 billion among the member states. The document will analyze the nature of these funds, opening a parenthesis on the issue of corruption and the need for rigorous controls. After this general overview, the Italian situation will be explored, differentiating the analysis by geographical area: north, center, south and islands. Basically, it can be said that the distribution of funds from the National Recovery and Resilience Plan (PNRR) has been divided into two macro-areas: Central-Northern and Southern Italy, with a clear prevalence of funds for the latter.

In the second chapter, the focus will be shifted to the structure of the PNRR, i.e. the Italian component of the Recovery Fund. The objectives of the PNRR were defined by the Italian Government in collaboration with the European Union, on the basis of the guidelines established at European level for the use of funds from the Recovery Fund. The National Recovery and Resilience Plan represents a long-term strategy to stimulate Italy's economic recovery and promote its future resilience and competitiveness. The plan includes aid for 191 billion euros and is made up of 6 missions: Digitization and Innovation, Green Revolution, Infrastructures for sustainable mobility, Education and Research, Inclusion and Cohesion, and Health. Each mission was assigned a budget based on the strategic importance deemed by the government. The goal is to be able to spend all the money granted by the PNRR, a topic that is anything but obvious nowadays, given the complexity of the requirements to be met to access the funds. After talking about the objectives and missions, the macroeconomic impact and the possibilities of implementing the plan will be analyzed. This work aims at highlighting that the PNRR is only just beginning, the funding has still to be largely disbursed and it is essential to control, monitor and improve operations.

The importance of the plan will be analyzed in the third chapter, which will discuss the impact that Covid and the war in Ukraine have had on the Italian economy. Italian companies have faced a double difficulty, first with the forced closures and subsequently with the increase in the prices of raw materials, which have had a heavy impact on the final consumer. The intent is to underline the importance of aid. The PNRR appears to be the only economic-financial instrument capable of offering hope for light in a future that appears very gloomy for Europe, increasingly squeezed between the United States and China. GDP growth will be analyzed, highlighting that growth would have been much slower, if not downright negative, without the massive aid plan. In particular, the situations of three of the most important sectors for the Italian economy will be documented: infrastructure, real estate and consultancy. The three sectors just mentioned were chosen for their current and future strategic role. Just think, for example, that it is consultancy that helps the Public Administration understand how to obtain and make the most of the available European funds. Furthermore, it is infrastructure that defines a country's level of development and determines its future, for better or for worse. Therefore, the fund's resources could help mitigate the negative effects of the economic crisis, support domestic demand, encourage investment in infrastructure and promote technological innovation.

Keeping this in mind, the last chapter of the thesis will be addressed, in which the financial data of a company will be analyzed. The scope is to understand if and how much the Recovery Fund has influenced the ecological transition process of Italian companies. For the analysis, the multinational ENI was chosen, an Italian company that could benefit from PNRR funds for sustainability and energy transition, as it has expressed its intention to become a low-carbon company and is working to increase the production of energy from renewable sources. Also, returning to the issue of infrastructure, large investments in energy infrastructure have been planned. ENI could use these resources to update and modernize its infrastructure, improving its energy transport and distribution capacity. In conclusion, in the fourth chapter a case study will be presented, defining the methodology used, the literature review and analyzing the financial data found.

FIRST CHAPTER

1. Recovery Fund overview

In this first chapter we will talk about the Recovery Fund in general, starting from a general introduction, and then going on to explain in detail the causes, the debate behind the approval and the consequences that have arisen both at European and Italian level. In particular, as regards Italy, the different impact of the Recovery Fund will be analyzed for three macro-areas: north, center and south.

1.1 Introduction

The Recovery Fund (subsequently Fund) is a European Union (EU) initiative designed to help member states recover from the economic impact of the COVID-19 pandemic. The fund, officially known as the NextGenerationEU, was proposed by the European Commission in May 2020 and approved by European Parliament in July 2020.
The fund has a total budget of €750 billion, which will be raised by the EU through borrowing on capital markets. This money will then be distributed to member states in the form of grants and loans. The main difference between the two types is that grants do not have to be repaid, while loans do.
The aim of the Recovery Fund is to provide financial support to member states that have been hit hardest by the pandemic and help them to rebuild their economies. The Fund is also intended to help promote the EU's broader policy objectives, such as the transition to a greener, more digital economy. "If the program REACT EU aims at preserving and creating jobs in sectors affected by the crisis, such as tourism or travel, the question arises what exactly can be achieved through public policies"[1].
To receive funding from the Recovery Fund, member states must submit detailed plans outlining how they intend to use the money to support their economic recovery. These plans must be approved by the European Commission are constantly subject to monitoring and evaluation. Overall, the Recovery Fund represents a significant financial commitment by the EU to support its member states during a period of unprecedented economic uncertainty and disruption. Basically, this Fund is part of a larger EU response to the COVID-19 pandemic, which also includes measures to support health systems, protect jobs, and promote economic stability. Just to provide an example, in addition to the Recovery Fund, the EU has also created the Support to mitigate Unemployment Risks in an Emergency (SURE)

[1] Fuest, C. (2021). The NGEU economic recovery fund. In *CESifo Forum* (Vol. 22, No. 01, pp. 03-08). München: ifo Institut-Leibniz-Institut für Wirtschaftsforschung an der Universität München.

program, which provides loans to member states to help cover the costs of national short-time work schemes and other measures to support workers and businesses.

"The Recovery Fund is designed to complement existing EU funding programs, such as the European Regional Development Fund, the European Social Fund, and the Cohesion Fund. The fund will focus on supporting investments in areas such as digitalization, sustainable infrastructure, education and training, which are seen as key drivers of economic growth and job creation"[2].

The distribution of funds from the Recovery Fund will be based on a combination of economic criteria, such as the decline in gross domestic product (GDP) and the level of unemployment, and social criteria, such as poverty and inequality. This has led to an unequal division of funding. In fact, the countries hardest hit by the pandemic crisis received a larger slice of the pie. It is worth mentioning that the Recovery Fund is a one-off initiative and is intended to be in place for a limited period of time. However, it is seen as a key element of the EU's long-term strategy to promote economic recovery and resilience in the aftermath of the pandemic.

1.2 Recovery Fund history

This paragraph will analyze the history of the Recovery Fund. In particular, the causes that led to the establishment of this fund, the political debate and the consequent approval process will be explained.

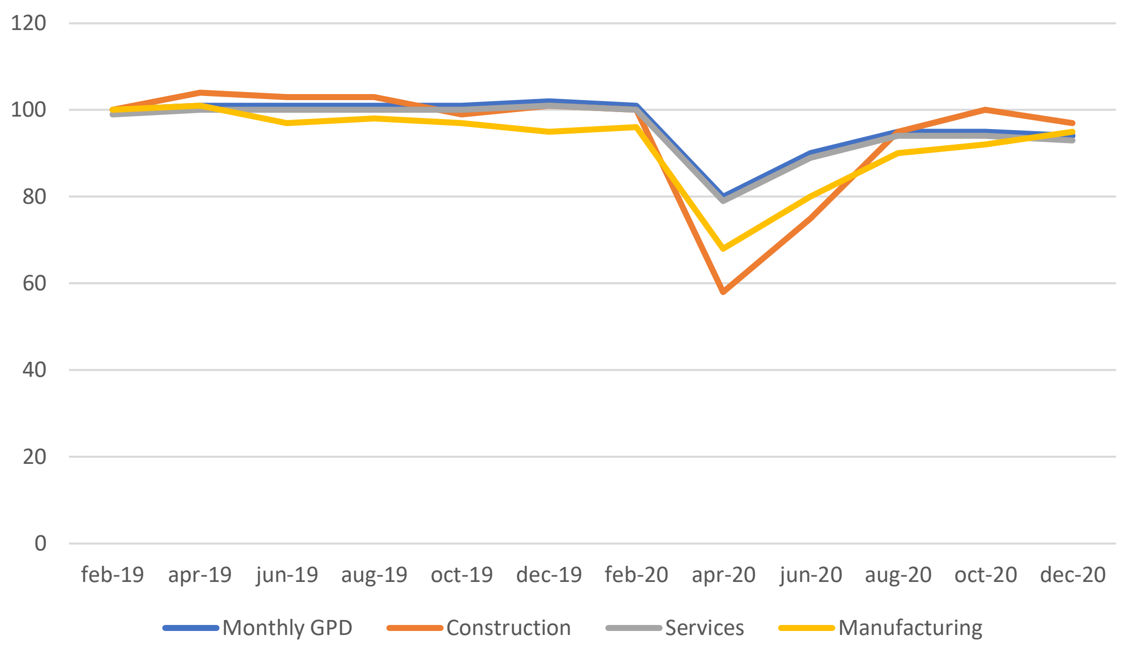
1.2.1 Causes

There are several causes that led to the creation of the Recovery Fund:

- Economic Impact of COVID-19: The COVID-19 pandemic led to a sharp contraction in economic activity across Europe, as businesses were forced to close, due to the lockdown, and consumers reduced their spending. This resulted in a significant loss of jobs and a consequent reduction of income, particularly in sectors such tourism, and retail. The basic concept is that the economic crisis resulted from the fear of contagion, in fact "if most of these activities are already disrupted by voluntary behavior of consumers and workers that do not consume certain goods and services and perform certain tasks for the fear of contagion, then the additional damage of coercive policies may be negligible"[3].

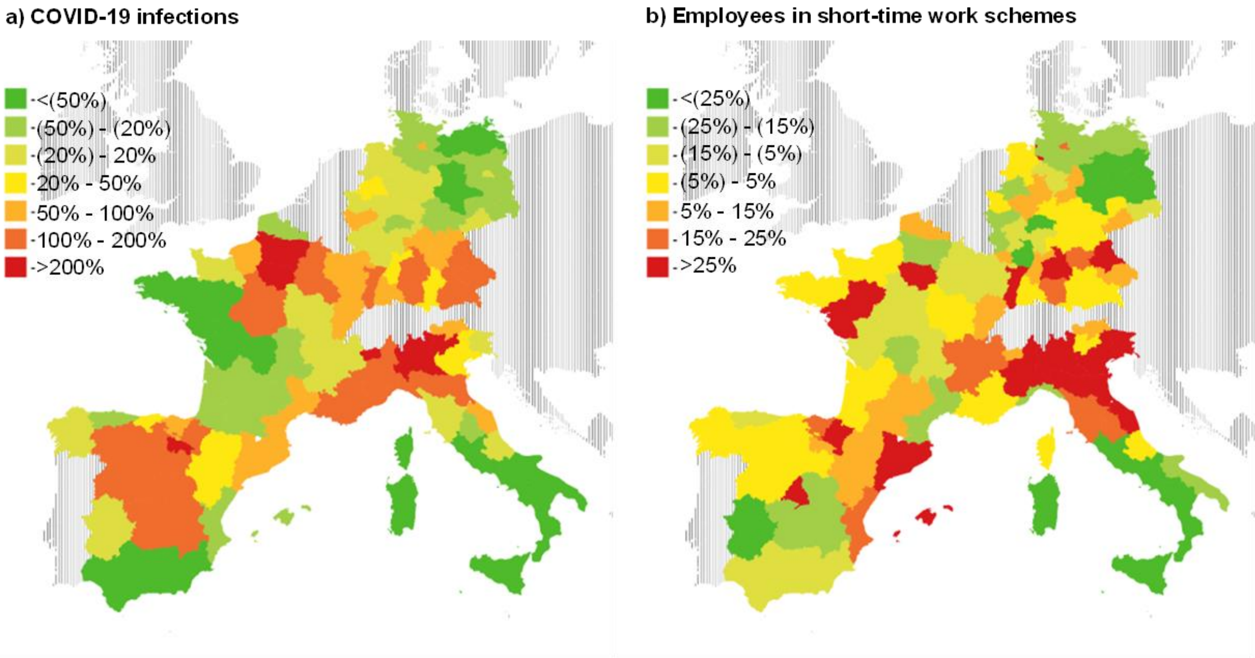
[2] Krotz, U., & Schramm, L. (2022). Embedded bilateralism, integration theory, and European crisis politics: France, Germany, and the birth of the EU corona recovery fund. JCMS: Journal of Common Market Studies, 60(3), 526-544.

[3] Chen, S., Igan, D. O., Pierri, N., & Presbitero, A. F. (2020). Tracking the economic impact of COVID-19 and mitigation policies in Europe and the United States. *IMF Working Papers*, *2020*(125).



Picture 1: The graph shows that there has been a decrease in production as early as February 2020, which is about a month before the coercive policies were put in place.

- Need for Solidarity: The pandemic highlighted the need for solidarity and cooperation among EU member states to address common challenges. The Recovery Fund is a demonstration of this solidarity, providing support to member states that have been hardest hit by the pandemic.
- Disparities in Economic Resilience: The pandemic affected different regions and sectors of the European economy to varying degrees. Some countries and regions have proven to be more resilient than others, depending on their economic structure and level of integration with global supply chains.



Picture 2: correlation between COVID-19 infections and employees in short-time work schemes

- Climate and Digital Transformation: The Recovery Fund also intends to support the European economy's transformation in favor of a more sustainable and digital future, addressing long-term challenges such as climate change and technological innovation.

As a whole, the Recovery Fund was established to provide a coordinated and comprehensive response to the economic and social challenges posed by the COVID-19 pandemic, while also supporting the transformation of the European economy towards a more sustainable and digital future.

1.2.2 Political debate

"Economic ideas relate to the question how to steer the economy and how best to organize and link monetary, economic, and fiscal matters in a polity"[4]. The political debate that underpinned the Recovery Fund was multifaceted and involved several key issues that required negotiation and compromise between EU member states. One of the most significant issues concerned how to finance the Recovery Fund. The EU's existing budget was not large enough to provide the necessary support to all member states and especially to the states most in need by the COVID-19 pandemic, such as Italy and Spain. As a result, some member states proposed the issuance of joint debt, which would be backed by all EU member states, rather than relying solely on the contributions of individual member states. However, this proposal faced opposition from some member states, particularly those with stronger economies, such as Germany and the Netherlands. These countries were concerned about taking on the risk of the debt of other countries and argued that joint debt issuance would be a significant departure from the EU's traditional approach to fiscal policy. Moreover, the debate over joint debt issuance was further complicated by the fact that some member states, particularly those in southern Europe, were already burdened with high levels of debt. This made them more vulnerable to market pressures and has polarized the debate on the debt issuance, making it a more attractive option for them, but much less so for Northern European states. In the end, a compromise was reached that involved the issuance of joint debt in the form of grants and loans. The grants have been provided to member states most affected by the pandemic, while loans have been disbursed available to all member states, but subject to certain conditions and criteria. This compromise was a significant departure from the EU's traditional approach to fiscal policy, as it involved the issuance of joint debt backed by all member states, and the prevalence of the thinking carried out by the southern states.

Another key issue in the political debate was the conditions attached to the funding. Some member states were concerned that these conditions could have been too stringent and infringe on their

[4] Schramm, L. (2023). Economic ideas, party politics, or material interests? Explaining Germany's support for the EU corona recovery plan. *Journal of European Public Policy*, *30*(1), 84-103.

sovereignty, while others argued that they were necessary to ensure the money was spent effectively and in line with EU priorities. The conditions attached to the funding were mainly focused on economic reform and investment in areas such as green technology and digital infrastructure. Some member states argued that these conditions could have been too burdensome and could impede their economic recovery, while others believed that the conditions would be necessary to ensure that the funding was used in the most effective way possible.

Finally, there were concerns about the distribution of the funds (we will discuss this in detail in the next section) and how they would be allocated between member states. Some states argued that the distribution of funding should be based on economic needs, while other states pushed for distribution based on population or other criteria.

In conclusion, the political debate that underpinned the Recovery Fund was complex and multifaceted. It involved negotiations and compromises on issues such as joint debt issuance, the conditions attached to the funding, and the distribution of the funds. Ultimately, the adoption of the Recovery Fund represented a significant departure from the EU's traditional approach to fiscal policy and a significant step towards greater EU fiscal integration.

"Despite all this talk, it should never be forgotten that issues of solidarity of member states, particularly in times of crisis, are the basis of the EU's stability and key to its legitimacy"[5].

1.2.3 Approval

The approval process for the European Union Recovery Instrument (also known as the Recovery Fund) has provided several stages and levels of decision-making:

- Proposal from the European Commission: In May 2020, the European Commission proposed a budget of €750 billion for the Recovery Fund as part of the EU's overall budget for the period of 2021-2027. The Commission's proposal included a breakdown of how the funds would be allocated between grants and loans, and how much each EU member state would receive.
- Negotiations and agreement by the European Council: The European Council, which is composed of the heads of state or government of the EU member states, negotiated and reached an agreement on the Recovery Fund in July 2020.
- Approval by the European Parliament: The European Parliament, which is the directly elected legislative body of the EU, had to give its approval to the Recovery Fund. In November 2020,

[5] Miró, J. (2022). Debating fiscal solidarity in the EU: interests, values and identities in the legitimation of the Next Generation EU plan. *Journal of European Integration*, *44*(3), 307-325.

the Parliament approved the fund with some modifications to the Commission's original proposal, such as an increase in funding for certain areas like health and research.

- Ratification by EU member states: The Recovery Fund had to be ratified by all EU member states in order for it to come into effect (Ratification involves each member state completing their own domestic approval process, such as parliamentary votes or approval by national leaders). The ratification process was completed by all member states by early 2021.
- Approval of national recovery and resilience plans: The final stage of the approval process envisaged each member state submitted a National Recovery and Resilience Plan, which delineated how the states intended to use the funds to support their economic recovery and promote resilience. The plans have been evaluated by the European Commission, which must approve them before the funds can be disbursed. As of February 2023, all member states have submitted their plans, and many have already received funding from the Recovery Fund.

After all this procedural process the Fund is now fully operational and is expected to support EU member states in their economic recovery from the COVID-19 pandemic over the coming years.

1.3 European framework

As previously mentioned, the Fund was agreed upon by EU leaders in July 2020 and will be implemented over the period of 2021-2026. The fund consists of grants and loans, with the grants accounting for €390 billion and loans accounting for €360 billion. The fund is part of the larger EU budget for the period of 2021-2027, with the ERF being funded by borrowing on financial markets by the European Commission. This is a significant departure from the usual EU budgeting system, which is largely financed through contributions from EU member states. "Times of acute crisis, in particular, require actors with the necessary resources and political will to provide crucial leadership services"[6].

The ERF has two main objectives: to support the economic recovery of EU member states, and to ensure that the recovery is sustainable, inclusive, and promotes resilience. To achieve these objectives, the fund is targeted towards three key areas: supporting investments and reforms, mitigating the economic and social impact of the pandemic, and preparing for the EU's green and digital transition. To receive funding from the ERF, member states must submit a National Recovery and Resilience Plan (NRRP) outlining their economic and social priorities and how they plan to use the funds to achieve them. The plans must be aligned with the EU's objectives and priorities and must

[6] Krotz, U., & Schramm, L. (2022). Embedded bilateralism, integration theory, and European crisis politics: France, Germany, and the birth of the EU corona recovery fund. *JCMS: Journal of Common Market Studies*, *60*(3), 526-544.

include specific reform and investment measures in areas such as climate change, digitalization, health, and education. The ERF is expected to have a significant impact on the economic recovery of EU member states, particularly those hardest hit by the pandemic. However, there are also concerns about the potential for the fund to create unsustainable levels of debt for member states, and about the potential for corruption and misuse of funds. So, the European Recovery Fund represents a major investment in the EU's economic and social recovery from the COVID-19 pandemic. Its success will depend on the effective implementation of the NRRPs, and the ability of member states to use the funds in a way that promotes long-term sustainability and growth.

1.3.1 Breakdown of funds

The distribution of the grants is based on several factors. One key factor in determining the distribution of grants was the severity of the economic impact of the pandemic on each country. Countries that have been hit hardest by the pandemic, such as Italy and Spain, received the largest share of the grant funds. These countries were also among the first to be affected by the pandemic, and they experienced significant economic and social disruptions as a result.

Another factor in determining the distribution of grants was the size of each country's economy. Larger economies such as France and Germany received larger amounts of funding, highlighting their role as key players in the EU economy. However, it is worth noting that some smaller countries, such as Greece and Romania, also received significant amounts of funding due to the severity of the economic impact of the pandemic on their economies.

Finally, the level of unemployment in each country was also a factor in determining the distribution of funds. Countries with higher levels of unemployment, such as Greece and Spain, received larger amounts of funding in order to support job creation.

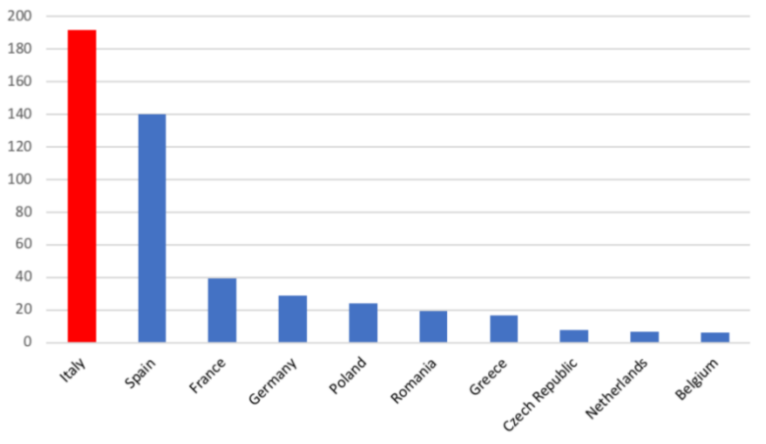
It is worth noting that the distribution of funds from the Recovery Fund was not without controversy. Some countries, such as the Netherlands and Austria, initially opposed the size and distribution of the funds, arguing efforts should have been focused on the countries most affected by the pandemic. Ultimately, however, a compromise was reached that reflected the diverse economic and social challenges faced by EU member states caused of the pandemic. “Some who talk about recovering from the pandemic cite an appealing goal: a return to normalcy. But that is the wrong target; normal is broken. Rather, the goal should be, as many have put it, to "build back better”[7].

The allocation of the grants was decided through a negotiation process among EU states, and the final agreement was reached in July 2020.

[7] Mazzucato, M. (2020). Capitalism after the pandemic: getting the recovery right. Foreign Aff., 99, 50.

The distribution of grants for the top ten countries is as follows:

- Italy: €191.5 billion
- Spain: €140 billion
- France: €39.4 billion
- Germany: €28.8 billion
- Poland: €23.9 billion
- Romania: €19.3 billion
- Greece: €16.8 billion
- Czech Republic: €7.6 billion
- Netherlands: €6.8 billion
- Belgium: €5.9 billion



Picture 3: highlights how the two main beneficiaries of the Recovery Fund were Italy and Spain. Poland and Romania also stand out, in fifth and sixth positions, respectively.

The loans are available to all EU member states, and the amount each country can borrow is based on their relative gross national income (GNI, that is the sum of all income generated by residents and businesses in a country). The loans will be provided on favorable terms, with low interest rates and long repayment periods. The loans will be repaid by the borrowing member states, and the repayment schedule will be determined on a case-by-case basis. The repayment of the Recovery Fund will be the responsibility of the member states. The EU will raise the funds through issuing bonds on the international capital markets. The bonds will be guaranteed by the EU budget, which is funded by contributions from member states. Each member state will be required to repay its share of the funds. The repayment will be made over a period of 30 years, starting in 2026. The repayment will be made through contributions to the EU budget, which is already funded by member states.

"The EU budget is used to finance a range of activities, including agricultural subsidies, regional development, research and innovation, and foreign aid. The contributions to the EU budget are determined by a system of own resources, which includes traditional customs duties, a share of value-added tax (VAT) revenue, and a new tax on plastic waste"[8].

In addition to the grants and loans, the EU has also provided additional funding through its regular budget to support the economic recovery of member states. This includes €94.4 billion for the EU's flagship research and innovation program, €13.5 billion for the EU's digital transformation, and €7.5 billion for the EU's health program.

[8] Luo, C. M. (2022). The COVID-19 crisis: The EU recovery fund and its implications for European integration–a paradigm shift. *European Review*, *30*(3), 374-392.

1.3.2 Corruption and Recovery Fund

The Recovery Fund is subject to strict rules and regulations to prevent corruption and ensure that fund is used for its intended purposes. “The exceptional nature of the situation under which recovery funds are managed also hinders the evaluation of results, given the lack of terms of reference”[9]. The European Commission has established a number of measures to prevent corruption and fraud in the allocation and management of the Recovery Fund Financing. These measures include:

- Strong accountability and transparency requirements: Member States are required to publish information on the allocation and implementation of the Fund and ensure that all projects are subject to rigorous monitoring and evaluation processes.
- Robust anti-fraud mechanisms: The European Anti-Fraud Office (OLAF) and national authorities are responsible for investigating any allegations of fraud or corruption related to the use of the Fund.
- Stringent eligibility criteria: Member States must demonstrate that their proposals for the use of financing are consistent with EU law, and that they have adequate measures in place to prevent corruption and ensure proper financial management.
- Independent audits: The European Court of Auditors is responsible for controlling the implementation of the funds, ensuring that all funds are used for their intended purposes and that proper financial management procedures are followed.

Furthermore, the European Commission has made it clear that any misuse of RRF funds will be met with severe consequences, including the suspension of funding and possible legal action.

The risk of corruption and fraud in the allocation and management of funds remains at an all-time high. The scale and complexity of the RRF program, combined with the urgent need for funding to support post-pandemic recovery, create an environment in which corruption can flourish. It is therefore essential that member states remain vigilant and proactive in preventing and detecting any instances of corruption or fraud.

In summary, the EU Recovery Fund, including the RRF, is subject to strict measures to prevent corruption and ensure that funds are used for their intended purposes.

[9] Cacciatore, F., Di Mascio, F., & Natalini, A. (2022). Do Economic Recovery Packages Open a Window of Opportunity for Corruption and Mismanagement? The Case of Italy in the Aftermath of the Covid-19 Pandemic. *Public Organization Review*, *22*(3), 527-544.

1.4 Italian framework

"Italy is one of the largest recipients of the Recovery Fund, with a total allocation of €191.5 billion. The funds will be distributed to Italy over the course of six years, until 2021 to 2026"[10].

The distribution of the funds to Italy is divided into three main components:

1. Grants: €68.9 billion in grants, which do not need to be repaid. These funds will be used to support investments and reforms that promote economic growth, social cohesion, and environmental sustainability.
2. Loans: €122.6 billion in loans, which will need to be repaid over a period of 30 years. These loans will be used to support investments in areas such as digitalization, innovation, and infrastructure.
3. Pre-financing: €24.8 billion. This advance payment will help Italy start implementing its recovery plan.

The distribution of funds to Italy is contingent on the country implementing a series of reforms and investments that have been agreed upon with the European Commission. These include reforms to the Public Administration, justice system, and labor market, as well as investments in green and digital technologies. Now it will be analyzed in detail the distribution of Recovery Fund in the three principals Italy geographic areas.

1.4.1 North

The allocation of funds to the regions of Italy depended on a number of factors, including the specific needs and priorities of each region, as well as the proposals put forward by the Italian Government. It is expected that northern Italy will receive a significant share of the funds, given its importance to the Italian economy and its need for investment in areas such as digitalization, innovation, and infrastructure. Some of the specific areas of investment that could benefit northern Italy include Digital infrastructure. Infact, Northern Italy is home to many high-tech industries and businesses and investing in digital infrastructure such as broadband internet and 5G networks could help these businesses to compete and innovate. Digital infrastructure is one of the key areas of investment that is expected to benefit from the Recovery Fund in Italy. Italy's digital infrastructure has historically lagged behind that of many other EU countries, with slow internet speeds and limited access to high-speed broadband in some areas. "The objective of achieving a greener, more digital and more resilient EU suggests that the NGEU fund has an allocative function insofar as environmental protection and

[10] Domorenok, E., & Guardiancich, I. (2022). The Italian national recovery and resilience plan: Coordination and conditionality. Contemporary Italian Politics, 14(2), 191-206.

digitization are primarily about internalizing externalities and providing public infrastructures”[11]. The COVID-19 pandemic has highlighted the importance of digital infrastructure in enabling remote work, online education, and e-commerce, and there is now a growing recognition of the need to invest in this area. The Recovery Fund will play a key role in this modernization process. Italy is expected to receive around €7.5 billion for digitalization, which will be used to fund a range of initiatives and projects aimed at improving the country's digital infrastructure and supporting the growth of the digital economy.

Furthermore, some of the funds will be used to invest in green technologies and sustainable development projects. Some examples are sustainable mobility, which includes investments in electric and hybrid vehicles, cycling infrastructure, and public transport systems, renewable energy, that includes solar and wind energy installations, the installation of smart meters and the renovation of public buildings to reduce energy consumption. The government intends to support the development of a circular economy in northern Italy, which aims to reduce waste and promote the reuse and recycling of materials. This comprehends investments in waste management infrastructure, the development of eco-friendly products, and the promotion of sustainable consumption practices.

“In any case, we believe that there has been a significant change in the policies applied during this crisis with respect to those implemented during the 2008 crisis (Great Recession). In this sense, we consider that it would be interesting to analyze whether the distribution of funds in the future, which will inject liquidity into the budgets of the most affected Member States, will lead to a faster recovery of the economies of these countries”[12]. Thus, the importance of these funds is highlighted. Funding is expected to lead to the establishment of innovation hubs which aim to promote collaboration between businesses, research institutions, and universities, and skills development to increase the availability of highly skilled workers in key areas such as technology and innovation. This is also achievable through investments in education and training programs, as well as the development of apprenticeship schemes.

Overall, the Recovery Fund is providing an opportunity for northern Italy to accelerate its transition towards a more innovative and knowledge-based economy, while also promoting the creation of new high-skilled jobs and industries.

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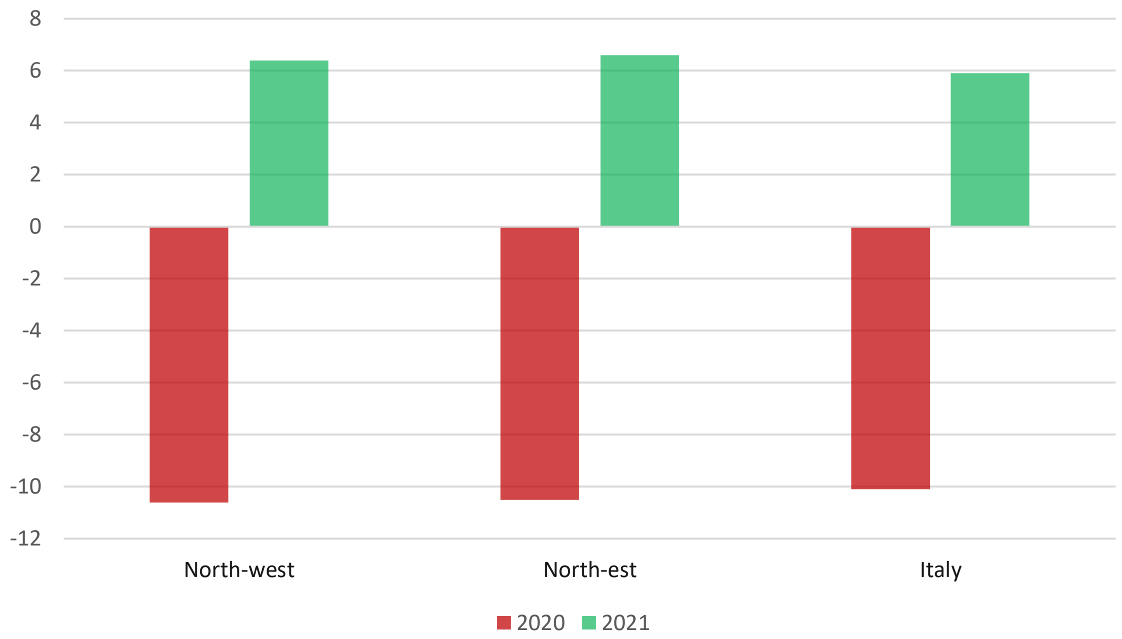
[11] Fuest, C. (2021). The NGEU economic recovery fund. In CESifo Forum (Vol. 22, No. 01, pp. 03-08). München: ifo Institut-Leibniz-Institut für Wirtschaftsforschung an der Universität München.

[12] Guillamón, M. D., Ríos, A. M., & Benito, B. (2021). An assessment of post-COVID-19 EU recovery funds and the distribution of them among member states. Journal of Risk and Financial Management, 14(11), 549



Picture 4: The figure highlights which the GDP contraction in northern Italy was greater than the national average, both in the northeast and in the northwest.

1.4.2 Center

Even the central regions of Italy (Abruzzo, Lazio, Marche, Tuscany, Umbria, and Molise) are set to benefit from the European Union's Recovery Fund, which is intended to support member states in their recovery from the economic impact of the COVID-19 pandemic.

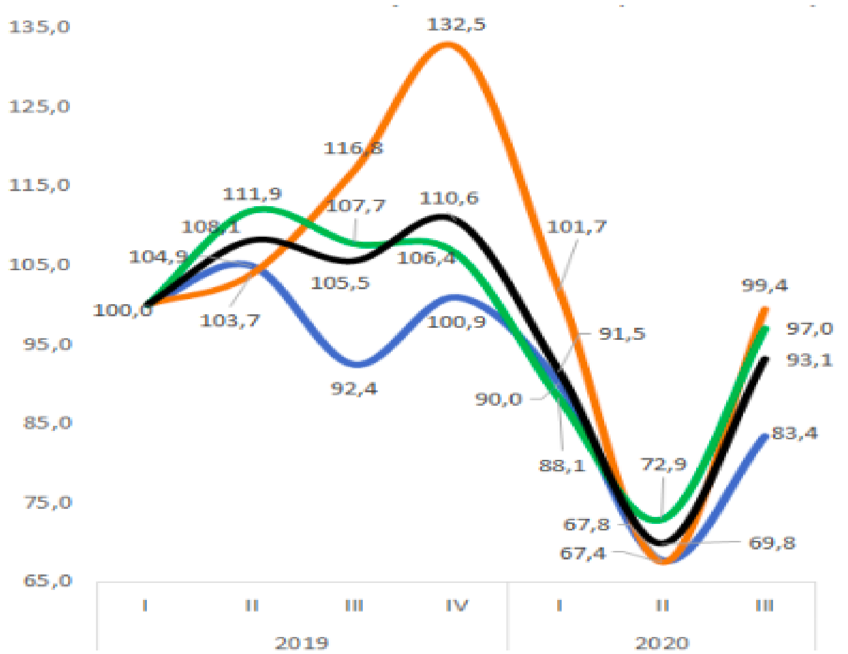
The Recovery Fund will provide significant financial support to these regions, with the aim of stimulating economic growth and improving social and environmental conditions. The funding will be used to support a wide range of projects and initiatives across various sectors, including infrastructure, digitalization, and innovation.

"In terms of infrastructure, the Recovery Fund will support the modernization and improvement of transportation networks, including roads, highways, and railways. This will enable faster and more efficient transport of goods and people, supporting economic growth in the region. Possessing a good infrastructure network is critical to the development of a given geographic area"[13]. In terms of digitization, the Recovery Fund will ensure the development of digital infrastructure, such as broadband networks and e-government services. In terms of innovation, the Recovery Fund will support the development of sustainable infrastructure. Concretely, investments will be made in renewable energy (solar and wind power) and water management and waste disposal systems will be

[13] Caravita, B. (2022). PNRR e Mezzogiorno: la cartina di tornasole di una nuova fase dell'Italia. *Rivista giuridica del Mezzogiorno*, *35*(1), 15-24.

improved. These investments will help promote environmental sustainability and mitigate the impact of climate change in the region.

Finally, the Recovery Fund will support initiatives aimed at promoting social inclusion and reducing poverty in the regions mentioned above. This includes investments in education and training programs, as well as support for small and medium-sized enterprises and the tourism sector.



Picture 5: Done percent in the first quarter of 2019, the graph shows the trends in the following sectors in the Marche region in 2019 and 2020: Manufacturing (blue), Construction (orange) and Services (green). The black curve, on the other hand, represents the total.

1.4.3 South

Southern Italy, which includes the regions of Abruzzo, Basilicata, Calabria, Campania, Molise, Apulia, Sardinia, and Sicily, will receive the most significant portion of the funds allocated to Italy. "Around 40% of this money has been allocated to southern regions to help solve the country's north–south divide. Over the years the economic crisis of Italy's South also known as "Mezzogiorno" has worsened. In some cases, unemployment rates are double the national average"[14]. The Recovery Fund will provide support to southern Italy through a variety of measures aimed at promoting economic growth, job creation, and social development. One of the main priorities of the Recovery Fund in southern Italy is to address regional disparities and reduce the gap between southern and northern regions in terms of economic performance.

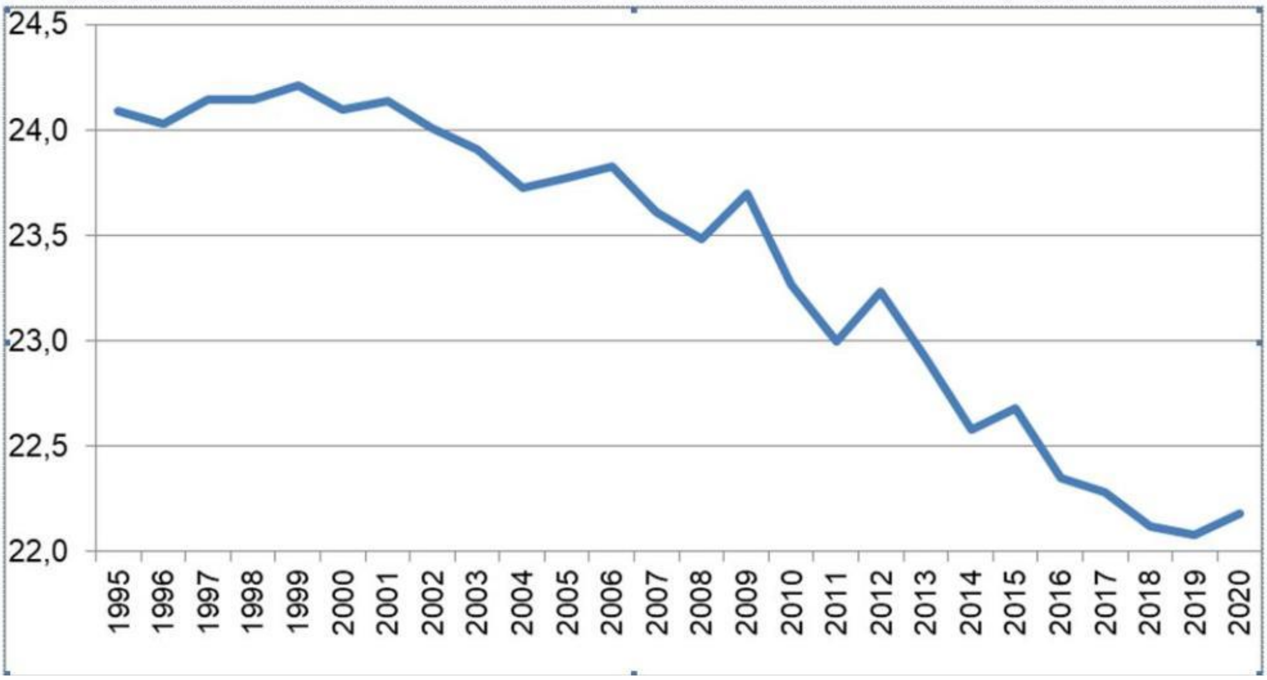
[14] https://www.euronews.com/2022/09/13/how-are-italys-eu-covid-19-recovery-funds-being-spent-in-the-south

The Recovery Fund will support investments in infrastructure projects that are critical for economic development in southern Italy. This includes investments in transportation, such as the development of railways, highways, and ports, which will help to improve connectivity between different parts of the region and increase its integration with the rest of Europe.

The Recovery Fund will also support investments in digital infrastructure, such as high-speed broadband networks, which are essential for promoting digitalization and innovation in the regions. This will help to support the development of digital services, such as e-commerce and e-government, which can provide new opportunities for businesses and citizens.

Additionally, the Recovery Fund will support investments in renewable energy, sustainable tourism, and the protection of cultural heritage, which are key sectors for the development of southern economy.

"An historic opportunity presents itself: finally addressing the European and national question of the delays of our South in an organic (at least) medium-term perspective"[15], so, all Recovery Fund initiatives will be aimed at promoting social inclusion, improving education and training opportunities, and reducing poverty.



Picture 6: The graph shows the percentage weight of the South in relation to total Italy from 1995 until 2020.

Now it will be analyzed specific region of southern Italy with their strength and weakness:

- Campania is the most developed region in southern Italy. Despite this, it will benefit from a large portion of the funds allocated to the Mezzogiorno. The Recovery Fund will provide

[15] Barone, A. (2021). Il tempo della perequazione: il Mezzogiorno nel PNRR. PA Persona e Amministrazione, 9(2).

significant financial support to Campania, which will be used to enact a range of projects and initiatives across different sectors, with the aim of promoting economic growth and social development in the region. One of the main priorities of the Recovery Fund in Campania is to invest in infrastructure projects that are critical for economic development in the region. This includes investments in transport infrastructure, such as the modernization and improvement of roads, highways, and railways, which will improve connectivity within the region and with other parts of Italy and Europe (the Milan-Naples high-speed rail route could be a good example from which to start). The funding will also be used to support the development of digital infrastructure, such as broadband networks and e-government services, which are essential for promoting digitalization and innovation in the region. The Recovery Fund will also support investments in renewable energy and the protection of natural resources, which are important sectors for the development of the economy and Campania survival. This includes investments in projects such as solar and wind power, as well as initiatives aimed at improving the management of water resources and reducing waste. In addition to supporting economic growth, the Recovery Fund will also invest in social development initiatives in Campania. This includes investments in education and training programs, focused on the issue of school dropout, and support for small and medium-sized enterprises and the tourism sector. So, the Recovery Fund is expected to have a significant impact on Campania, promoting economic growth, job creation, and social development in the region. The funding will help to address the economic impact of the COVID-19 pandemic, promote sustainability and reduce regional disparities.

- In Puglia the funds will be used to support a wide range of projects aimed at boosting economic growth, creating jobs, and promoting social cohesion. "Starting to the touristic sector, these projects may include investments in infrastructure, such as roads, bridges, and public transport systems, as well as initiatives to support small and medium-sized enterprises (SMEs), enhance digital connectivity, and improve environmental sustainability"[16]. The exact amount of funding that Puglia will receive has not yet been determined, as the allocation of funds will depend on a number of factors, including the region's economic situation, its recovery needs, and the proposed projects' viability. Puglia's regional government will be responsible for identifying the projects that will receive funding and for managing the funds' distribution.

[16] Fiore, A. (2022). *Instant Report N. 9/2022-Il Piano Nazionale di Ripresa e Resilienza: un'analisi per target ed indicatori delle missioni in Puglia* (No. 09). Regional Agency for Technology and Innovation (Apulia, Italy).

Last region analyzed, but not least, is Sicily, which is the largest region in Italy. The funds will be used to support a wide range of projects that will help boost economic growth and create jobs. Some of the ways the Recovery Fund can help the Sicilia economy investing in critical infrastructure such as roads, bridges, public transport systems, and broadband networks. These investments can help connect businesses, communities, and people, which can lead to increased economic activity. Moreover redress “the "water service gap", that consists of the difficulty in accessing high-quality water services in a significant part of the country's south and islands. The Italian government should use funds from the National Recovery and Resilience Plan to make access to water services easy in the regions that would need them most[17]”. In addition, the NRP wants to support small and medium-sized enterprises (SMEs): The Recovery Fund can provide support to SMEs through grants, loans, and other financial instruments. This support can help SMEs to stay in business, expand, and create jobs. The Recovery Fund can be used to invest in education and skills development programs. This can help to ensure that the workforce in Sicilia has the skills and knowledge needed to compete in a global economy. In the end, “it must be said that Sicily is the main beneficiary of the PNRR Funds as far as culture is concerned”[18]. Total, the Recovery Fund has the potential to support a wide range of projects and initiatives that can have a significant impact on the economy of Sicilia, creating jobs, promoting economic growth, and improving social cohesion.

[17] Marotta, S. (2022). Una questione di governance. Il PNRR e il “water service divide” tra Centro-Nord e Mezzogiorno. *CARTOGRAFIE SOCIALI*, (13), 83-100.

[18] https://www.openpolis.it/numeri/cultura-la-sicilia-e-la-principale-beneficiaria-dei-fondi-PNRR/

SECOND CHAPTER

2. PNRR structure

In this second chapter, the structure of the PNRR will be analyzed in detail. In particular general objectives, reforms and missions, implementation and monitoring and macroeconomic impact assessment will be analyzed. “The grants have been based on economic criteria and population size, while the real immediate effects of the pandemic, such as regarding excess mortality rates, the number of pandemic-related bankruptcies or the increase in income inequality and poverty, never entered the allocation key agreed by the European Council when determining the size of grants”[19].

2.1 General objectives

The fund is designed to support EU member states and help them recover from the economic downturn caused by the pandemic. We can state that the objectives of the Recovery Fund are as follows and there are five of them:

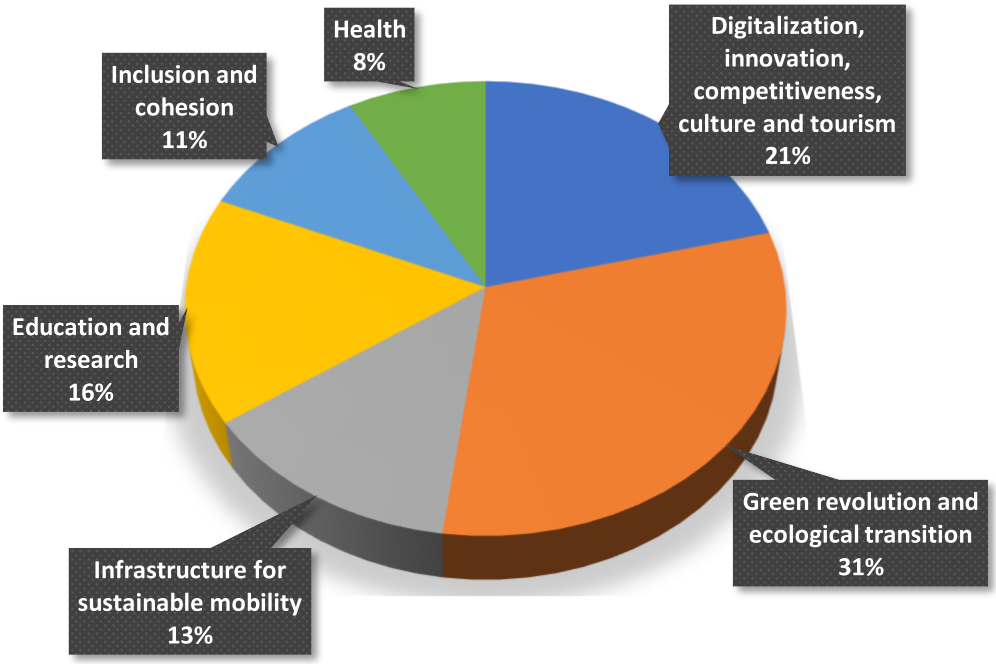
- Economic recovery: it refers to the process of rebuilding and restoring economic growth and stability after a period of economic downturn. This can occur at different levels, such as the global, national, or regional level. During a period of economic downturn, there is typically a decrease in economic activity, which can lead to job losses, decreased investment, and reduced consumer spending. Economic recovery aims to reverse these trends by increasing economic activity, creating new jobs, and promoting investment in key sectors of the economy. The specific strategies for economic recovery can vary depending on the nature and severity of the downturn. In general, however, economic recovery often involves a combination of government policies and private sector initiatives. Examples of policies that can promote economic recovery include fiscal stimulus measures such as tax cuts, government spending on infrastructure, and monetary policies such as interest rate cuts. Private sector initiatives that can support economic recovery include investment in research and development, innovation, and new technologies.

[19] Armingeon, K., De La Porte, C., Heins, E., & Sacchi, S. (2022). Voices from the past: economic and political vulnerabilities in the making of next generation EU. *Comparative European Politics*, *20*(2), 144-165.

- Investment in the Future: The Recovery Fund aims to invest in the future of the EU by supporting projects that are in line with the EU's long-term objectives. This includes projects related to digitalization, climate change, and social cohesion.
- Resilience: in the context of communities refers to the ability of a community to withstand and recover from external shocks and stressors, such as natural disasters, economic downturns, or social disruptions. It involves the capacity of a community to adapt and transform in response to changing circumstances while still maintaining its core functions and values. Building community resilience can involve a range of strategies and interventions, such as investing in infrastructure, improving social programs, and building social capital. Substantially, some key factors that can contribute to community resilience include strong social networks communities, economic diversity, infrastructure, effective governance and environmental sustainability.
- Job Creation: The fund aims to create new jobs and support businesses by providing financial support to member states that have been most affected by the pandemic. This includes supporting small and medium-sized enterprises (SMEs) and promoting job creation in key sectors. ob creation refers to the process of generating new employment opportunities in an economy. It involves the creation of new positions in existing businesses or industries, as well as the establishment of new businesses or industries that can provide employment opportunities. Job creation is an important component of economic growth and development, as it can help to reduce unemployment, increase incomes, and stimulate consumer spending. "Additionally, the job creation potential is estimated on a technology-wise basis as well as on a category-wise basis through the energy value chain during the energy transition to provide better insights on the types of jobs created"[20].
- Structural Reforms: they refer to policy measures aimed at changing the underlying structure of an economy or a specific sector, with the goal of promoting long-term growth and stability. These reforms often involve changes to regulations, laws, institutions, and incentives in order to improve the efficiency and productivity of markets, industries, and the economy as a whole. Structural reforms are often seen as necessary for promoting economic growth and competitiveness, as they can improve the efficiency of markets, reduce costs, and stimulate innovation and investment. However, they can also be politically difficult to implement, as they often involve redistributing resources and disrupting entrenched interests. As a result,

[20] Ram, M., Osorio-Aravena, J. C., Aghahosseini, A., Bogdanov, D., & Breyer, C. (2022). Job creation during a climate compliant global energy transition across the power, heat, transport, and desalination sectors by 2050. *Energy*, *238*, 121690.

successful structural reforms often require careful planning, stakeholder engagement, and effective communication.



Picture 7: The graph shows the distribution of NRP funds across the six missions.

2.2 Reforms and missions

This section will analyze the six missions of the PNRR. An attempt will be made to understand why the fund was created and what goals the individual missions are intended to pursue.

2.2.1 First mission: digitalization, innovation, competitiveness, culture and tourism

The First Mission of PNRR is to support the immediate response to the COVID-19 crisis and to promote a strong and sustainable recovery across the European Union (EU). "The First Mission aims to provide a boost to the relaunch of the competitiveness and productivity of the country system through the dissemination and absorption of the opportunities offered by the «digital revolution» for citizens, public administration and businesses"[21].

The Recovery Fund was established in 2020 with a total budget of €750 billion, and it is one of the largest and most ambitious recovery plans in the world. Thus, the Recovery Fund's First Mission is focused on how to deal the immediate economic and social impact of the pandemic. This includes

[21] Marco, B., Valentina, G., & Donato, I. (2022). The Mission 1 of nrp: Which Opportunities to Exploit and Which Barriers to Overcome?. *L'industria*, (2), 227-244.

providing support to the most affected sectors, such as healthcare, small and medium-sized enterprises (SMEs), and workers.

The Recovery Fund's First Mission is centered around the creation of the Recovery and Resilience Facility (RRF), which is the main instrument for providing support to EU Member States. The RRF has a total budget of €672.5 billion, and it will provide grants and loans to support reforms and investments that are essential for recovery and resilience. The RRF's funding is conditional on national recovery and resilience plans that are developed by each Member State. These plans must outline the reforms and investments that will be undertaken using RRF funding, and they must be aligned with the EU's strategic priorities. The national plans are subject to review by the European Commission, and they must be approved by the Council of the EU before funding can be released.

The Recovery Fund's First Mission is focused on three key areas: support to the most affected sectors, investments in key areas, and reforms to promote growth and resilience. Let's explore each of these areas in more detail.

First, the Recovery Fund will provide support to the most affected sectors, including healthcare, SMEs, and workers. This support will include grants and loans to help these sectors recover from the pandemic, as well as measures to protect jobs and promote social cohesion.

Second, the Recovery Fund will invest in key areas that are critical for promoting long-term growth and sustainability. These areas include digitalization, climate change, and social cohesion. For example, the Recovery Fund will support investments in digital infrastructure, renewable energy, and education and training. "Digitalization of economies significantly increases the level of their competitiveness in the international market and fundamentally changes business processes in the international business environment"[22].

Third, the Recovery Fund will support reforms that promote growth and resilience. This includes reforms to promote investment and entrepreneurship, as well as reforms to improve the functioning of the Single Market and to support the transition to a sustainable and inclusive economy.

We will now focus on the key areas of this first mission. One key area of investment for the Recovery Fund is digitalization. The COVID-19 pandemic has highlighted the importance of digital technologies for economic resilience and growth. The Recovery Fund will support investments in digital infrastructure, such as high-speed internet and 5G networks, as well as investments in digital skills and education. The Recovery Fund will also support investments in research and development (R&D) in key industries such as healthcare, energy, and transportation. R&D is essential for driving innovation and promoting long-term growth, and the Recovery Fund will provide funding to support

[22] Bezrukov, N., Huk, L., Chmil, H., Verbivska, L., Komchatnykh, O., & Kozlovskyi, Y. (2022). Digitalization as a trend of modern development of the world economy.

R&D activities in the EU. Another key area of investment for the Recovery Fund is climate change. The EU has set ambitious targets for reducing greenhouse gas emissions and promoting sustainable development. Last, but not least, will be support for the investments in renewable energy, energy efficiency, and sustainable transport, among other areas. So, the Recovery Fund will also support the transition to a circular economy, which aims to reduce waste and promote sustainable production and consumption.

Now, it will be to dedicate a special section on Culture and Tourism theme. The COVID-19 pandemic has had a profound impact on the culture and tourism sectors around the world. The measures taken to control the spread of the virus, including travel restrictions, border closures, and social distancing requirements, have resulted in significant disruptions to cultural events, tourism activities, and the businesses that support these sectors. In this section, we will discuss the impact of COVID-19 on culture and tourism, the measures taken to address the challenges, and the role of the Recovery Fund in supporting the recovery and transformation of these sectors.

The impact of COVID-19 on the culture and tourism sectors has been significant. Many cultural events and activities, including festivals, concerts, and exhibitions, have been canceled or postponed, resulting in significant financial losses for the organizers and the businesses that support these events. The tourism sector has also been heavily impacted, with many businesses facing closure, job losses, and financial hardship. The impact of COVID-19 on the culture and tourism sectors has been particularly severe in Europe, which is a major destination for international tourists and home to a vibrant cultural scene. "According to the European Travel Commission, international arrivals to Europe declined by 70% in 2020 compared to 2019. This has resulted in significant economic losses, with estimates suggesting that the tourism sector in Europe lost around €400 billion in revenue in 2020"[23]. To address the challenges faced by the culture and tourism sectors, governments and organizations around the world have implemented a range of measures. These measures include financial support for businesses and workers, the adoption of new health and safety protocols, the promotion of domestic tourism, and the development of new digital products and services.

The Recovery Fund play a critical role in supporting the recovery and transformation of the culture and tourism sectors in Europe. The fund provides financial support to member states to help them recover from the economic impact of the pandemic and to support the transformation of their economies. The culture and tourism provisions in the Recovery Fund are designed to support the recovery and transformation of these sectors by promoting innovation, digitalization, and sustainable practices. So, it can be said that the fund is used to support a range of measures, including the

[23] Bellandi, M., Giannini, V., & Iacobucci, D. (2022). La Missione 1 del pnrr: quali opportunità da cogliere e barriere da superare?. *L'industria*, *43*(2), 227-244.

preservation and promotion of cultural heritage, the support of tourism businesses, the promotion of innovation and digitalization, the diversification of the tourism and culture sectors, and the support of less developed regions.

2.2.2 Second mission: green revolution and ecological transition

"Climate change, depletion of natural resources, increasing air and water pollution, and a reduction in biodiversity are effects of rising material consumption on environmental quality"[24]. The Green Revolution is a movement aimed at achieving sustainable development goals by promoting environmentally friendly practices and technologies. Sustainable development refers to meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. It seeks to achieve this by addressing environmental challenges such as climate change, pollution, and biodiversity loss. It also aims to promote sustainable practices in various sectors such as agriculture, energy, and transportation, by promoting renewable energy and a circular economy. The goal of the Green Revolution is to create a more sustainable future for all. In this regard the Recovery Fund encourages member states to invest in environmentally friendly technologies and practices that promote sustainable development, which aligns with the objectives of the Green Revolution. The Green Revolution aims to address pollution by promoting sustainable practices and technologies that reduce pollution levels. For example, the use of electric vehicles and public transportation reduces air pollution caused by exhaust fumes from cars. Or biodiversity loss, caused by human activities such as deforestation and habitat destruction, is a major environmental challenge. "The Green Revolution aims to promote sustainable land use practices and conservation efforts to protect biodiversity. By restoring degraded ecosystems and protecting habitats, the Green Revolution seeks to maintain and enhance biodiversity. The Green Revolution addresses climate change, pollution, and biodiversity loss through the promotion of sustainable practices and technologies that reduce the negative impacts of human activities on the environment"[25].

To get to the goals set, for example, member states can use the funds to support the development of renewable energy infrastructure, such as wind and solar power. So, the fund encourages member states to invest in environmentally friendly practices and technologies that reduce the negative impacts of human activities on the environment.

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[24] Ali, S., Yan, Q., Razzaq, A., Khan, I., & Irfan, M. (2023). Modeling factors of biogas technology adoption: a roadmap towards environmental sustainability and green revolution. *Environmental Science and Pollution Research*, *30*(5), 11838-11860

[25] Andrijevic, M., Schleussner, C. F., Gidden, M. J., McCollum, D. L., & Rogelj, J. (2020). COVID-19 recovery funds dwarf clean energy investment needs. Science, 370(6514), 298-300.

The Green Revolution and the Recovery Fund also promote social and economic sustainability by promoting job creation and economic growth in sectors such as renewable energy, sustainable agriculture, and eco-tourism.

The intended interventions are intended to strengthen the instrument of supply chain and district contracts for the agri-food, forestry, fishing and aquaculture and horticultural sectors, through integrated investment programs throughout the country[26]. Specifically, the Recovery Fund aims to lift up the following sectors:

- Agri-food sector: this sector is a critical part of the economy and plays a significant role in ensuring food security and providing jobs in many countries around the world. The COVID-19 pandemic has impacted the sector, with disruptions in supply chains, labor shortages, and decreased demand for some products. To support the recovery of the agri-food sector, many governments have implemented measures such as financial aid, tax relief, and increased funding for research and innovation. One example is the European Union's Recovery and Resilience Facility, which includes funding for agriculture, rural development, and food security measures. The United States government also provided financial support to the sector through the Coronavirus Food Assistance Program and other initiatives. The recovery fund aims to provide immediate relief to farmers and agribusinesses affected by the pandemic, as well as to support the long-term resilience and sustainability of the sector. This can include measures such as investments in digital technologies, research and development, infrastructure, and supply chain optimization. Overall, the agri-food sector plays a critical role in supporting the economy and ensuring food security, and the recovery fund is an important tool to help the sector recover from the impacts of the COVID-19 pandemic.
- Fisheries and aquaculture sector, which has been severely impacted by the COVID-19 pandemic, with disruptions in global supply chains, reduced demand, and closures of processing and distribution facilities. “Fish do not play a role in the transfer of COVID-19 to humans in terms of epidemiology. However, false perceptions about fish and the spread of COVID-19 have contributed to a decrease in the consumption of fish in some cases”[27]. To address these challenges, many countries have implemented measures to support the sector, including the use of recovery funds. Recovery funds are financial resources that are provided by governments or international organizations to help businesses and industries recover from

[26] https://www.unicatt.it/uc/amministrazione-M2%20%20Rivoluzione%20verde%20e%20transizione%20ecologica.pdf

[27] Khan, M. A., Hossain, M. E., Rahman, M. T., & Dey, M. M. (2023). COVID-19's effects and adaptation strategies in fisheries and aquaculture sector: An empirical evidence from Bangladesh. *Aquaculture*, *562*, 738822.

economic shocks or crises. In the context of the fisheries and aquaculture sector, recovery funds may be used to provide financial assistance to fishers and aquaculture farmers, support the development of new marketing and distribution channels, and invest in research and development to improve the sustainability and productivity of the sector. An example of fund that have been established to support the fisheries and aquaculture sector include the European Maritime and Fisheries Fund, which provides funding for projects related to sustainable fisheries, aquaculture, and the protection of marine environments in the European Union.

- Forestry sector: in the context of the forestry sector, recovery funds may be used to provide financial assistance to forest owners and forest-dependent communities, support the development of new markets and value-added products, and invest in research and development to improve the sustainability and productivity of the sector.
- Floriculture and plant nursery: they are sectors are important industries that involve the cultivation, production, and distribution of plants and flowers for various purposes, including landscaping, decoration, and agriculture. These industries have also been impacted by the COVID-19 pandemic. Contextually, the Recovery Fund could provide the necessary resources for the recovery of the sector, which, however residual it may appear, plays a primary role in the sustainability of our planet.

In summary, the Green Revolution and the Recovery Fund share the common goal of achieving a more sustainable future by promoting environmentally friendly practices and technologies that promote sustainable development. Through their combined efforts, they aim to mitigate the negative impacts of human activities on the environment and create a more sustainable future for all.

2.2.3 Third mission: infrastructure for sustainable mobility

Infrastructure for sustainable mobility is essential for the transition towards a greener, more sustainable future. "It refers to the development of transportation systems that reduce the negative environmental impact of transportation and promote the use of low-carbon or zero-carbon modes of transportation, such as walking, cycling, public transit, and electric vehicles. In this regard the fund will be used to finance various projects, including those related to infrastructure for sustainable mobility"[28].

Investing in infrastructure for sustainable mobility is not only crucial for mitigating the environmental impact of transportation but also for creating jobs and promoting economic growth. The Recovery Fund can play a vital role in funding such projects, which will benefit both the environment and the economy. Examples of infrastructure for sustainable mobility that can be funded by the Recovery

[28] Piano Nazionale di Ripresa e Resilienza (PNRR),

Fund include the development of bike lanes, pedestrian-friendly streets, electric vehicle charging stations, and public transit systems. These projects will not only reduce carbon emissions but also create job opportunities in sectors such as construction, engineering, and transportation. “The four sectors and technologies that received the highest proportion of funding are: railway infrastructure, electric vehicles, buildings energy retrofits, and hydrogen”[29].

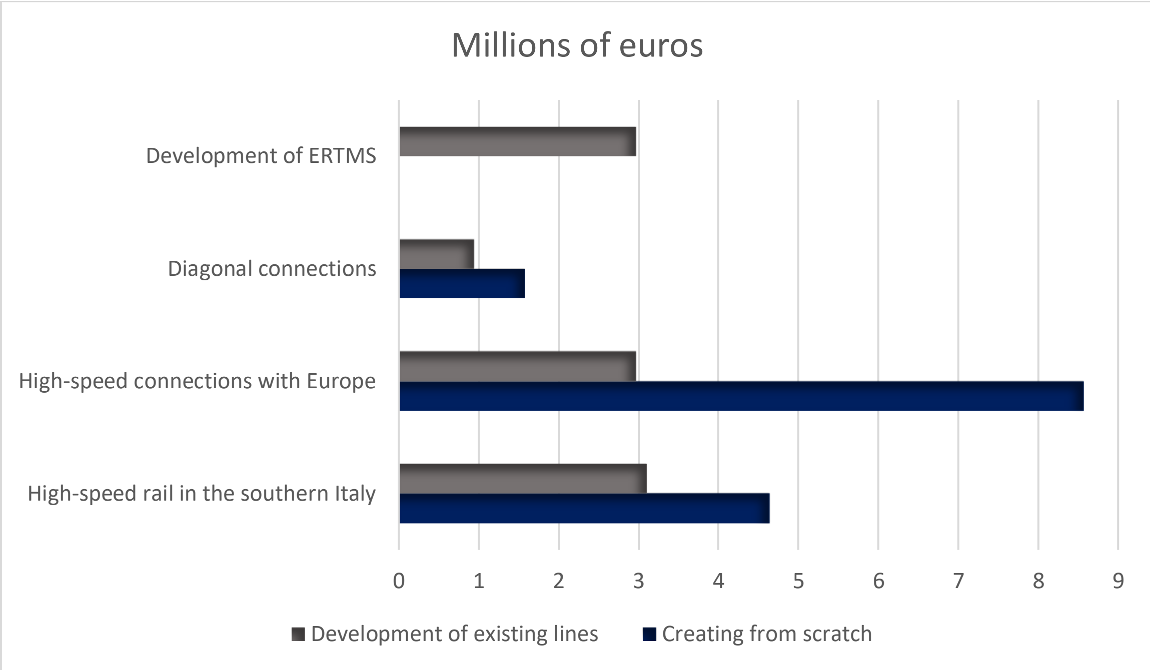
In addition to the environmental and economic benefits, infrastructure for sustainable mobility can also improve public health and social equity. Promoting walking, cycling, and public transit can increase physical activity, reduce air pollution, and improve access to affordable transportation for low-income communities. This, in turn, can contribute to reducing healthcare costs and improving the quality of life for all citizens. To ensure that the funds are used effectively, it is important to prioritize projects that have the most significant impact on sustainability and economic growth. This can be achieved by conducting thorough assessments and evaluations of proposed projects and ensuring that they align with the goals and priorities of the European Green Deal. Furthermore, it is essential to involve local communities and stakeholders in the planning and implementation of infrastructure for sustainable mobility projects. Engaging with local communities can help to identify their needs and concerns, ensure that projects are socially equitable and responsive to local needs, and promote greater public support and participation in the project.

The Recovery Fund will help to promote economic and social cohesion across the European Union and reduce disparities between regions. Additionally, it is important to ensure that the projects funded by the Recovery Fund are aligned with the EU's long-term sustainability goals, including the European Green Deal and the Paris Agreement. This will help to ensure that the investments made today will contribute to a sustainable and resilient future. To achieve this alignment, the EU has established a set of criteria for the selection of projects that are eligible for funding. These criteria include the contribution to climate objectives, the promotion of social and economic cohesion, the potential for innovation, and the ability to leverage private sector investments. Finally, it is important to monitor and evaluate the impact of infrastructure for sustainable mobility projects that are funded by the Recovery Fund. This will help to ensure that the projects are achieving their intended goals and that the investments made are providing a positive return on investment. This monitoring and evaluation can also provide valuable lessons for future investments in sustainable infrastructure.

In conclusion it can be stated that infrastructure for sustainable mobility is a critical component of the transition towards a greener, more sustainable future. The Recovery Fund provides a unique

[29] Geels, F. W., Pereira, G. I., & Pinkse, J. (2022). Moving beyond opportunity narratives in COVID-19 green recoveries: A comparative analysis of public investment plans in France, Germany, and the United Kingdom. *Energy Research & Social Science*, *84*, 102368.

opportunity to invest in this important infrastructure and support economic growth while also promoting environmental sustainability, public health, and social equity.



Picture 8: The graph shows the resource allocation of the third mission of the NRP.

2.2.4 Fourth mission: education and research

"The issue of childhood, support for the socio-educational growth of girls and boys, and the rhetoric about their rights are central to the development of any democratic country that aims for sustainability and the promotion of opportunities for the new generations to grow and achieve"[30]. Investing in education and research is essential for promoting long-term economic growth, social progress, and scientific and technological advancement. The PNRR can play an important role in supporting these goals by providing funding for education and research projects that help to develop new skills, drive innovation, and support the transition to a green and digital economy.

Education is a key driver of economic growth and social progress. Investing in education can help to improve workforce skills and productivity, reduce income inequality, and promote social mobility. The Recovery Fund can provide funding for initiatives that support access to education and training, such as expanding digital learning opportunities or increasing investment in vocational education and training programs. Research and innovation are also essential for driving economic growth and technological advancement. Investing in research can help to develop new technologies and solutions

[30] Berrito, A., & Gargiulo, G. (2022). Infanzia e povertà educativa nel PNRR: le distanze tra le politiche pubbliche e la ricerca scientifica nell'implementazione di interventi sociali. *Autonomie locali e servizi sociali*, *45*(2), 237-254.

that address global challenges such as climate change, energy security, and healthcare. To ensure that the funds are used effectively, it is important to prioritize projects that have the most significant impact on economic growth, social progress, and sustainability. This can be achieved by conducting thorough assessments and evaluations of proposed projects and ensuring that they align with the goals and priorities of the European Green Deal and the EU's Digital Strategy. Furthermore, it is important to involve key stakeholders in the planning and implementation of education and research projects. Engaging with businesses, universities, and research institutions can help to identify key areas of research and development, foster collaboration, and ensure that the investments made are responsive to the needs of the private sector and society.

“To maximize the impact of the Recovery Fund, it is also important to ensure that the funding is distributed fairly among member states and that all regions have access to funding. This will help to promote economic and social cohesion across the European Union and reduce disparities between regions”[31]. So, investing in education and research is essential for promoting long-term economic growth, social progress, and scientific and technological advancement.

Another important aspect of investing in education and research through the Recovery Fund is the potential to address the social and economic impacts of the COVID-19 pandemic. The pandemic has had significant effects on education systems and research institutions, with many facing budget cuts and reduced opportunities for collaboration and knowledge-sharing. Investing in education and research through the Recovery Fund can help to mitigate these impacts and support the recovery of these critical sectors. Furthermore, the Recovery Fund can provide an opportunity to invest in digital education and research infrastructure, which has become increasingly important in the wake of the pandemic. For example, funding could be used to support the development of digital platforms and tools for remote learning, or to support the development of new digital technologies for research and innovation. To ensure that the investments made through the Recovery Fund in education and research are effective, it is important to focus on building capacity and promoting collaboration across sectors and regions. This can include investing in networks and partnerships between universities, research institutions, and businesses, as well as supporting the development of new skills and competencies in emerging fields such as artificial intelligence and green technologies.

In addition to supporting education and research, the Recovery Fund can also provide funding for initiatives that promote social inclusion and address inequalities, such as improving access to healthcare and social services, supporting vulnerable groups, and promoting gender equality. The COVID-19 pandemic has exposed and exacerbated many pre-existing social and economic

[31] Malavasi, P. (2022). PNRR, la rilevanza formativa del rapporto tra istruzione, ricerca e mondo imprenditoriale: nel segno dell'inclusione e della coesione. *PNRR, la rilevanza formativa del rapporto tra istruzione, ricerca e mondo imprenditoriale: nel segno dell'inclusione e della coesione*, 287-297.

inequalities, highlighting the need for targeted investments. It is here that the Recovery Fund can provide an opportunity to invest in initiatives that address these challenges, such as expanding access to healthcare and social services in underserved areas, supporting disadvantaged youth through education and training programs, or promoting gender equality through initiatives such as parental leave policies or programs to support women entrepreneurs. To ensure that these investments are effective, it is important to involve key stakeholders in the planning and implementation of these initiatives. This can include engaging with civil society organizations, local communities, and marginalized groups to identify their needs and priorities, and ensuring that the investments made are responsive to their needs. The whole can be achieved by conducting thorough assessments and evaluations of proposed projects and ensuring that they align with the goals and priorities of the European Pillar of Social Rights and other relevant EU policies.

By doing so, the Recovery Fund can help to build a more inclusive, equitable, and resilient Europe for all its citizens.

2.2.5 Fifth mission: inclusion and cohesion

The fifth mission deals with issues of inclusion and social cohesion. It plays an important role in achieving the NRP's cross-cutting objectives, i.e., those goals that run through the entire Recovery Fund: it deals with issues such as combating gender discrimination, supporting women's empowerment, and increasing youth employment prospects. “A number of experiments have documented differences in decisions that lead to disparate outcomes between women and men in the workplace”[32]. There is growing evidence that modernization of the country's economic system must be based on policies to support employment, especially youth employment. Workers need to be trained and retrained according to new needs, both economic and environmental. To stem the low investment in skills and the resulting slowdown in the transition to a knowledge-based economy, investment planning concerning retraining and lifelong learning activities has been carried out. The latter refers to an intentional individual process aimed at acquiring roles and skills and involving relatively stable change over time. The plan has the ultimate goal of increasing the competitiveness of Italian SMEs and microenterprises. The question that major Western governments are asking is: how to increase the mobility of workers and enable them to meet future labor market challenges? A partial answer may lie in training and improving digital, technical and scientific skills, skills where Italian workers are most lacking. In addition, there are plans to introduce a comprehensive reform of

[32] Chang, E. H., & Milkman, K. L. (2020). Improving decisions that affect gender equality in the workplace. *Organizational Dynamics*, *49*(1), 100709.

the active policy sector and youth training through dual apprenticeship (combining training and work) and universal civil service. Efforts are being made to increase the number of young people eligible for civil service through improving the quality of programs and projects.

Specific support for women's entrepreneurship will also be introduced. All of this has the ultimate goal of fostering women's economic independence and gender equality. Despite important efforts in recent years, social and family support policies still need to be significantly strengthened. Social cohesion policies must be included within this systemic planning that aims to overcome the significant territorial gaps that exist, with the goal of improving social equity, intergenerational solidarity and work-life balance. Hence the Plan's decision to allocate significant resources to social infrastructure functional to the implementation of policies to support families, children, the elderly and people with severe disabilities. Through the Recovery Fund, it is intended to recognize the social value of care work. The latter plays a key role for two kinds of reasons: it lightens the burdens of care traditionally managed in the family sphere by women, and it stimulates their increased participation in the labor market. Moreover, the increase in personal services also leads to the strengthening of sectors with higher female employment. It should be noted, however, that some policies aimed at increasing social inclusion and cohesion are already in place. Resources from the Recovery Fund will complement those of the National Operational Program (NOP), which have already been allocated for measures such as the single and universal child allowance.

Other interventions could concern the redevelopment of existing properties (there are more than 2 million abandoned properties in Italy) intended for people with severe disabilities or by elderly people who are not self-sufficient, or still intended for the redevelopment of the most vulnerable urban fabrics (suburbs and inland areas of the country). Inclusion policies, with priority given to segments of the population living in conditions of social marginality, are also supported with interventions to strengthen public housing, temporary housing (such as temporary shelters for people who are homeless or in economic difficulty) and social housing designed to provide housing at reduced rents, for example, for students or single-income families. In defining and implementing the projects with social and territorial value of this mission, metropolitan areas and municipalities that experience great social hardship on their territory will play a key role. Involving local authorities assumes a decisive character in ensuring the full financing of the services provided.

“Public action will be able to draw on the contribution of the Third Sector. Fundamental will be the synergies between social enterprises and administrations, to enable a more in-depth view of hardships and needs that can respond to new marginality and provide more innovative services, in a mutual exchange of skills and experiences that will enrich both the Public Administration and the Third

Sector"[33]. The mission is made explicit in three components that respond to the Commission's recommendations and will be accompanied by a series of reforms that support and complement the implementation of investments:

- Employment policies;
- Social infrastructure, families, communities and the third sector;
- Special interventions for territorial cohesion.

Let us dwell on the first component. It aims to accompany the transformation of the labor market through tools that improve the employability of workers. Employability refers to the attributes of a person that make that person capable of obtaining and maintaining employment.

The strategic objective of this component is to increase the employment rate by facilitating employment transitions and equipping people with appropriate training, reducing the mismatch between the demand and supply of skills, increasing the quantity and quality of training programs for the unemployed and young people, in a context of also investing in continuing training for the employed. To this end, active labor policies are reviewed, starting with outplacement allowance, leading to the establishment of a national program ("Guaranteed Employability of Workers" - GOL), which provides a single hiring system for the unemployed and people in employment transition. So, there is an attempt to redefine, through active policies, the tools for taking on the unemployed. It is intended to build personalized paths of skills upgrading and job accompaniment. At the same time, the "National New Skills Plan" will be adopted, through the establishment of training standards for the unemployed surveyed by the employment centers and to the strengthening of the vocational training system, promoting a territorial network of education, training, employment services also through public-private partnerships (Reform "Active labor policies and training"). Whereas, for employees, the Recovery Fund provides funds in order to enable companies to reschedule working hours and promote training activities on the basis of specific collective agreements with labor organizations.

In total, these interventions benefit from complementary resources of 1.65 billion from PON projects and 24.65 billion from Budget allocations.

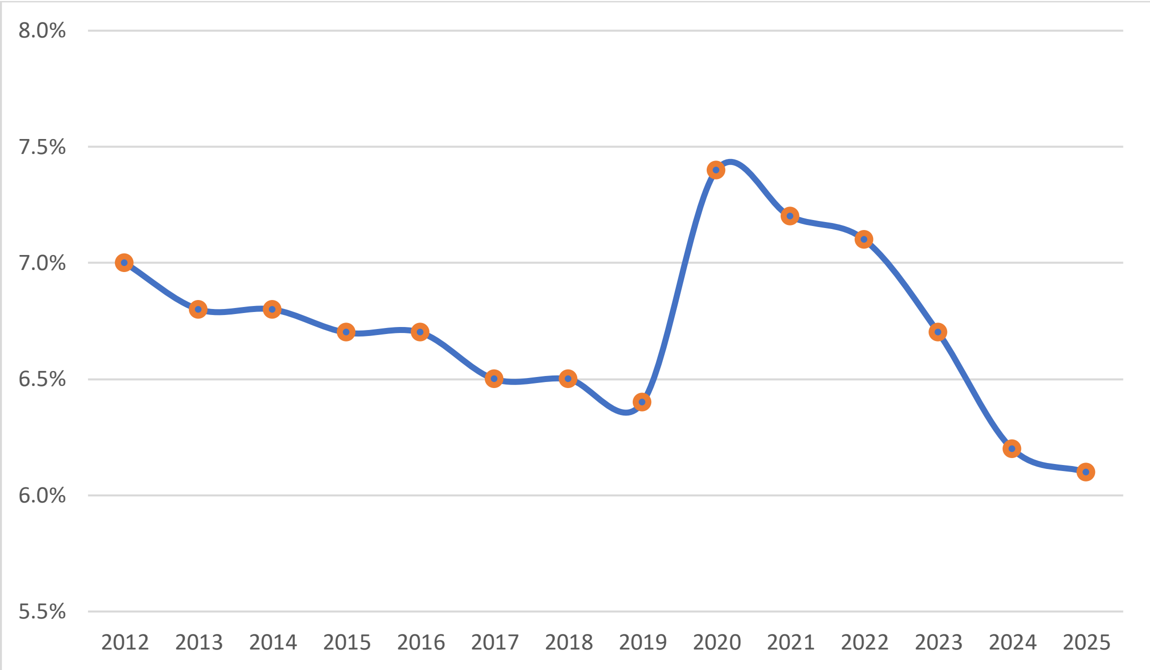
2.2.6 Sixth mission: health

"Primary Health Care is essential health care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation and at a cost that the

[33] Oxoby, R. (2009). Understanding social inclusion, social cohesion, and social capital. *International Journal of social economics*, *36*(12), 1133-1152.

community and country can afford. It forms an integral part both of the country's health system of which it is the nucleus and of the overall social and economic development of the community"[34].

The PNRR's sixth and final mission deals with the theme of health. The Covid-19 pandemic confirmed the universal value of health, its nature as a fundamental public good, and the macroeconomic relevance of public health services. The National Health Service (hereafter SSN) has satisfactory health outcomes: Italy is the first country by life expectancy in Europe, and the second in the world after Japan.



Picture 9: The graph shows the impact of public health spending on GDP. The trend is toward a decrease in public health spending.

However, the pandemic has made some critical structural issues even more evident, which may be exacerbated in the future by increased demand for care resulting from ongoing demographic, epidemiological, and social trends. "Clear territorial disparities in service delivery between south and north are present, especially in terms of field care and prevention"[35]. The pandemic has made it clear how important it is to be able to rely on appropriate leveraging of the latest technologies, high digital, professional and managerial skills, and new processes for service delivery and health care. The Recovery Fund aims to address all these critical issues in a synergistic way. Most of the resources will be allocated to infrastructure and technologies aimed at promoting research and innovation.

This mission has two components:

[34] World Health Organization. (1978). *Primary health care: A joint report*. World Health Organization.

[35] Moschese, D., Giacomelli, A., Beltrami, M., Pozza, G., Mileto, D., Reato, S., ... & Antinori, S. (2022). Hospitalisation for monkeypox in Milan, Italy. Travel Medicine and Infectious Disease, 49, 102417.

- The establishment of intermediate facilities and telemedicine for territorial health care. Interventions under this component aim to strengthen the services provided in the territory through the strengthening and creation of territorial facilities and garrisons (such as the case of Community and Community Hospitals), the strengthening of home care, the development of telemedicine, and more effective integration with all social and health services;
- The enhancement of innovation, research and digitization of the National Health Service. Measures included in this component will enable the renewal and modernization of existing technological and digital facilities

"The pandemic emergency has clearly highlighted the need to strengthen the capacity of the NHS to deliver adequate services on the ground"[36]. Not only does the aging process of the Italian population continue, but a significant and growing share of it, about 40 percent, is afflicted by chronic diseases. To address this situation, which seems irreversible (at least in the medium term), funds will be allocated through the Recovery Fund for community houses, i.e., homes that can be managed by specialized health care professionals, but which also provide for the active participation of the patients themselves and their families in day-to-day management. This fosters the creation of a supportive and collaborative community that can offer patients a more welcoming and reassuring environment than traditional health care facilities.

The investment calls for the activation of 1,288 Community Houses by mid-2026, which can use both existing and new facilities. The total investment cost is estimated at 2 billion euros.

2.3 Implementation and monitoring

The Plan acts in a time horizon ending in 2026. At a general level, the implementation phase of the NRP is structured to ensure:

- The implementation of specific interventions and necessary reforms, which are provided, within their respective competencies, to the individual central governments concerned, as well as to the regions and local authorities;
- Centralized coordination for monitoring and controlling the implementation of the Plan. To this end, a special structure will be established at the Ministry of Economy and Finance to serve as the contact point with the European Commission for the NRP;
- The establishment of the Steering Committee for the NRP, with the task of ensuring the monitoring of the progress of this Plan, strengthening cooperation with the economic, social

[36] Barrett, R., & Brown, P. J. (2008). Stigma in the time of influenza: social and institutional responses to pandemic emergencies. The Journal of infectious diseases, 197(Supplement_1), S34-S37.

and territorial partnership, and proposing the activation of substitution powers and regulations for regulatory changes necessary for the implementation of NRP measures.

To ensure the effective implementation and monitoring of the NRP, a number of tools and procedures have been adopted. First, an Interministerial Committee for Recovery and Resilience was created to coordinate the implementation of the NRP and monitor the progress of the planned measures. The Committee is composed of representatives of the ministries involved and other institutional and technical actors and is chaired by the Prime Minister. In addition, a special technical support structure, the Technical Secretariat for Recovery and Resilience, has been established to assist the Interministerial Committee in the development and implementation of policies under the NRP.

Regarding the monitoring of the implementation of the NRP, several tools and procedures are provided. Firstly, the NRP provides for the definition of outcome and impact indicators, which make it possible to assess the actual achievement of the planned objectives. The indicators are divided into six thematic macro-areas (innovation, sustainability, social inclusion, infrastructure, digitalization and education), and are monitored periodically through quarterly reports.

In addition, a monitoring and evaluation system for the NRP has been established, which provides for the preparation of periodic reports on the implementation of the Plan and the evolution of the indicators. The reports are prepared by the Technical Secretariat for Recovery and Resilience, based on data provided by the relevant ministries and other institutions involved in the implementation of the PNRR. Finally, it should be pointed out that the NRP also provides a mechanism for stakeholder participation and consultation to ensure transparency and sharing of the policies under the Plan. To this end, various forms of involvement are provided, including technical tables and public consultations.

“The "Cabina di Regia," established at the Presidency of the Council of Ministers, is responsible for monitoring the progress of the Plan and the status of its implementation. In view of the specificity of the financial instrument and in line with the recommendations of the European Commission”[37], the NRP provides for additional checks to the ordinary and existing administrative control established by national legislation for the use of allocated financial resources and which remains fully confirmed. In fact, the entire verification "system" of the PNRR is inspired by the control systems of the European structural funds and is oriented to prevent, detect and counter serious irregularities such as fraud, cases of corruption and conflicts of interest as well as to avert potential cases of double financing. The control activities are the responsibility of the central coordination of the NRP, but also of the central administrations responsible for the measures (self-monitoring) are, in particular, focused on

[37] Sciortino, A. (2021). PNRR E RIFLESSI SULLA FORMA DI GOVERNO ITALIANA. UN RITORNO ALL'INDIRIZZO POLITICO NORMATIVO?. Federalismi. it, (18), 235-261.

the actual achievement of intermediate goals and targets, in accordance with the requirements of the reporting arrangements to the European Commission, but also on the regularity of procedures and expenditures based on risk assessment and proportionate to the identified risks.

In the context of the implementation of the NRP, audit assumes a key role in ensuring the proper management of public funds and the realization of the objectives set forth in the Plan. The audit of the NRP is entrusted to the Court of Auditors, which has the task of verifying the proper implementation of the policies set out in the Plan, as well as assessing the actual realization of the planned objectives. To this end, the Court of Auditors has prepared a multi-year audit program, which provides for periodic audits based on the monitoring reports and data provided by the institutions involved in the implementation of the PNRR. In addition, the Court of Auditors also has the task of verifying the regularity of the selection procedures of companies participating in the calls for funding provided by the PNRR, as well as assessing the appropriateness of the costs incurred in the implementation of funded projects. Finally, it should be pointed out that the audit of the NRP is not limited only to the assessment of the proper management of public funds, but also assumes an important role in promoting transparency and stakeholder participation.

In order to ensure the simplification of the processes of management, control, monitoring and reporting of funded projects, and, at the same time, adhere to the principles of information, publicity and transparency prescribed by European and national legislation, the PNRR will use the information system "ReGiS" (General Register of Support Interventions), which is an IT tool that is used for the management and monitoring of public funding for rural development interventions. The system makes it possible to register and manage applications for funding, as well as to monitor the implementation of funded interventions.

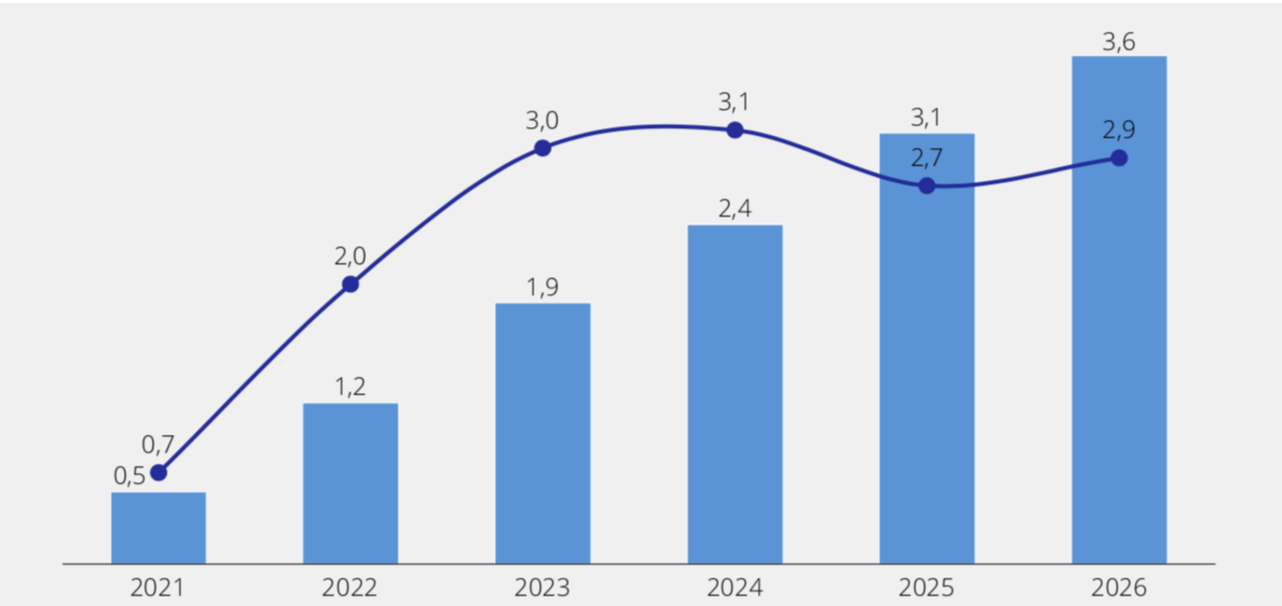
2.4 Macroeconomic impact assessment

“Evaluating the macroeconomic impact of public funds is an important activity for understanding the effect of these funds on the economy as a whole”[38]. In the context of NRP implementation, the macroeconomic impact assessment of funds is a key tool for checking the effectiveness of the Plan and assessing its ability to promote economic growth and societal welfare. The assessment of the macroeconomic impact of the funds can be carried out through the analysis of the effects of public policies on the economic system as a whole, and on its ability to influence GDP growth, the level of employment, inflation and other economic indicators. In this context, the assessment of the macroeconomic impact of NRP funds can be carried out using econometric models, which make it

[38] Maranzano, P., Noera, M., & Romano, R. (2021). The European industrial challenge and the Italian NRRP. PSL Quarterly Review, 74(298).

possible to evaluate the effect of public policies on key economic indicators. In addition, "the assessment of the macroeconomic impact of the funds can also be carried out by analyzing the long-term effects of public policies on the economy and society"[39]. It is important to emphasize that the macroeconomic impact assessment of funds must be carried out in a rigorous and transparent manner to ensure the objectivity and reliability of the results obtained. In this context, the involvement of qualified experts and independent monitoring bodies is crucial to ensure the proper assessment of the macroeconomic impact of public funds and to ensure maximum transparency and stakeholder participation.

It is important to add that the assessment of the macroeconomic impact of public funds, and thus of the NRP, can be carried out on several dimensions. For example, the effects on the economy as a whole, public and private investment, business competitiveness, environmental sustainability, reduction of social inequalities, employment and vocational training, innovation and scientific research, territorial and social cohesion, etc. can be assessed. In addition, the assessment of the macroeconomic impact of funds can be carried out on different territorial scales, such as regional, national or European. In this way, it is possible to assess the effect of public policies in different geographical areas and economic contexts.



Picture 10: The graph shows the GDP impact of the NRP. The bars represent a model based on endogenous growth useful for assessing the impact of investment, while the curve explicates an input-output model that allows for sectoral and regional simulations.

Finally, it is important to note that the assessment of the macroeconomic impact of public funds is only one part of the overall assessment of the PNRR. In fact, in addition to the evaluation of the

[39] Mimmi, L. M. (2023). Italy in Front of the Challenge of Infrastructure Maintenance: Existing Issues and Promising Responses. *Public Works Management & Policy*, 1087724X231164648.

macroeconomic impact, it is also necessary to carry out the evaluation of the effectiveness of the interventions envisaged by the Plan, their consistency with national and European development strategies, their implementability and feasibility, and their financial sustainability.

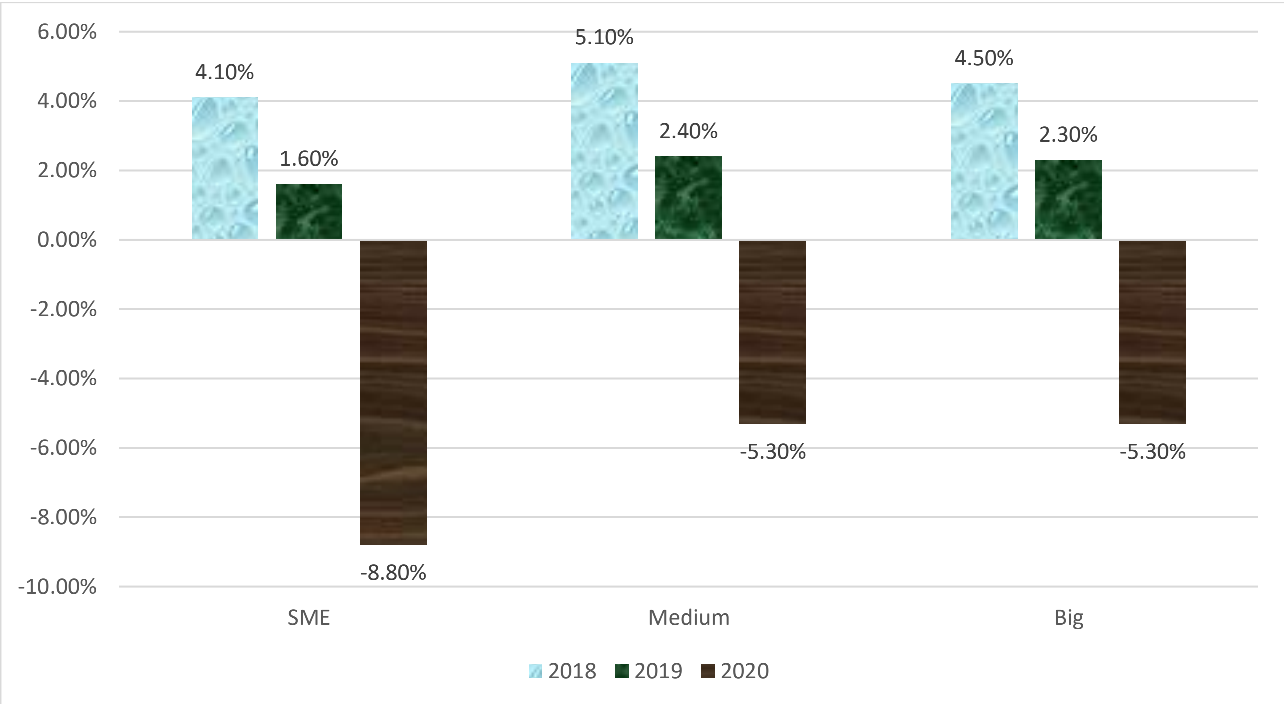
In conclusion, the evaluation of the macroeconomic impact of public funds is a key tool for assessing the effectiveness and sustainability of the NRP, but it must be integrated with other forms of evaluation to ensure a complete and objective assessment of the Plan.

THIRD CHAPTER

3. Impact of Recovery Fund on Italian economy

3.1 Covid and Ukraine conflict impact

Covid-19 has had a significant impact on the Italian economy. According to an article in Treccani, "Italy is one of the countries that is paying the hardest consequences of the pandemic in humanitarian and economic terms. The article points out that the rate of infection per million inhabitants has exceeded 1,800 cases and that the economic impact of the pandemic has been very severe, with GDP shrinking by 9% in 2020"[40]. Covid-19 has led to the closure of many businesses in Italy. About 73 thousand businesses, accounting for 4 percent of employment, have reported being closed due to the pandemic. The following graph shows how much Covid has affected small and medium-sized enterprises:



Picture 11: The graph shows the difference in turnover of the three major categories of enterprises in Italy: SMEs, medium-sized and large. In it, 2018, 2019 and 2020 are taken into account to make the impact of Covid-19 on them visually clear.

Small and medium-sized enterprises (hereafter SMEs) are a pillar of the Italian economy. They account for roughly 95 percent of Italian businesses and employ more than two-thirds of the country's workforce. However, the pandemic has hit this type of enterprise very hard. Many SMEs have been forced to close due to restrictions imposed by the government to contain the spread of the virus. Their closure technically resulted from the absence of large cash stocks, which at a time of closure, made

[40] L'impatto del virus sull'economia italiana e le sue fragilità | Società, ATLANTE | Treccani, il portale del sapere

it impossible to meet obligations with creditors and suppliers. Thus, the current situation of businesses in Italy is affected by economic and political conditions in the country and the world as a whole.

The fiscal policy response to the pandemic was important, with the introduction of temporary and expansionary measures. Net borrowing rose to 9.5 percent of GDP from 1.6 percent in 2019. In just one year there was a jump in public debt from 135 percent to 155 percent of GDP, while savings as a ratio of gross national disposable income remained unchanged. A reduction in the general government current account balance in favor of an increase in private sector saving was inevitable, due in part to the precautionary accumulation of liquidity by non-financial corporations, but mainly due to a contraction in consumption, even for those households that did not see their disposable income decline. The consequences of the above phenomenon were clearly visible in de but the use of existing social safety nets and the emergency regime introduced during the crisis helped to mitigate them considerably. The sharp decline in hours worked was associated with a much smaller decline in the number of people employed. Job losses were concentrated among the self-employed and those on fixed-term contracts, especially in the service sector, particularly penalizing young people and women. The health emergency could also have an impact on population demographic trends in the coming decades, affecting both birth rates and migration flows. Price trends have mainly reflected weak global and domestic demand. The decline in consumer price inflation (-0.1 percent) was due to lower energy prices and the impact on the domestic component of the recession and wage stagnation triggered by the health emergency. “New waves of infection continued to weaken economic activity in the first quarter of 2021; GDP declined by 0.4 percent, increasing in industry and decreasing in services”[41]. As of 2022, recovery has begun. Rising vaccination rates and a marked improvement in the global economy boosted expectations of a robust recovery in the second half of the year. However, the prospects are still subject to risks, also given the ongoing war. Much will depend on the success of the National Recovery and Resilience Plan. Fiscal policy continues to be expansive this year as well to deal with the energy emergency caused by the Russian-Ukrainian war. Suffice it to say that the funds for this year's budget were mainly concentrated on subsidies to be paid to families and businesses in difficulty. The speed of convergence towards pre-crisis levels will also depend on whether the reforms and investments envisaged by the PNRR translate into effective productivity and growth gains (a highly debated topic in recent months).

Overall, this year's performance has demonstrated a reduced resilience of the economy. The premises were good, but the outbreak of war changed expectations.

[41] Angeloni, S. (2021). L’impatto del Covid-19 sul turismo in Italia: passato, presente e futuro. Impresa Progetto, 1, 1-23.

As was the case during the global financial crisis and the sovereign debt crisis, businesses made substantial cuts in their investments due to uncertainty. However, according to surveys conducted by the Bank of Italy, unlike in previous recessions, a large number of businesses appear ready to resume investing once the situation improves, also thanks to very favorable financing conditions. In the most recent surveys, firms' judgment on the demand for their products is less pessimistic; however, most report an even lower level of activity than pre-2019.

“The combination of pandemic and war has weighed on business demographics, translating into a sharp drop in the creation of new businesses, associated with a significant decrease in the opportunities for new jobs, as well as in the number of exits from the market, temporarily limited by the public support and blockage on liquidation procedures”[42]. Not all is negative though. This set of situations has led to an accelerated digital transformation of the production system: the use of smart working and the use of new digital technologies has increased considerably (especially in the tertiary sector), and half of the companies expect to continue using them in the future. It is not excluded that the double crisis could have interrupted the changes to some production processes. Looking ahead, the full implementation of the investments envisaged in the NRP and the related reforms should, however, boost the transition process towards a digitized and more sustainable economy.

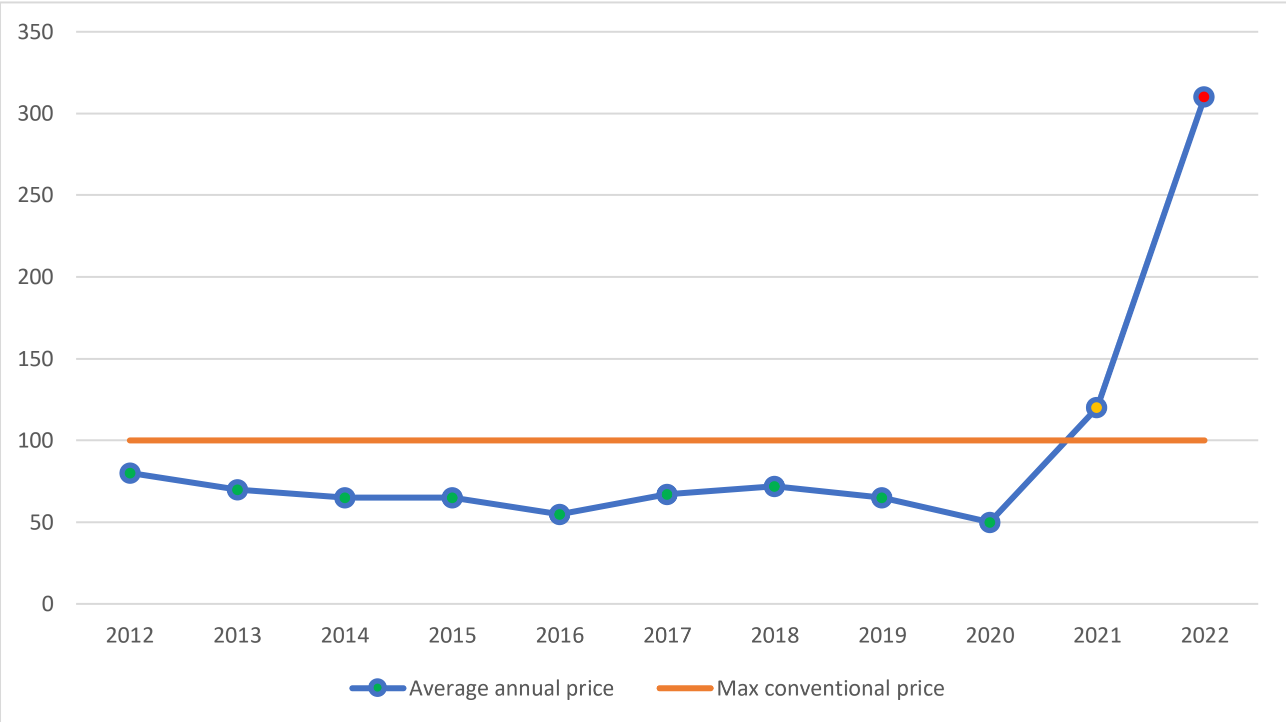
Instead, it can be said that the impact of the pandemic on the financial wealth of families was very diversified: the people most affected by the measures introduced to contain the contagion had to draw on their savings to cope with the drop in income; those less affected have instead increased their holdings as their savings have increased due to the decrease in non-essential needs. The pandemic crisis has dealt a severe blow to the labor market, but the decline in the number of employed persons has been much smaller than that of the number of hours worked, which has reached its lowest level in four decades. Although more than half a million people have been made redundant, the government has introduced various measures to support the income of the most affected families, from accommodative monetary policy to debt moratoriums. The drop in incomes obviously had an impact on economic activities, hitting the profitability of companies very hard. The increase in leverage was very uneven. While it was offset by the increase in cash holdings for firms as a whole, it was much more pronounced in sectors hit hard by the pandemic. Looking ahead, public support to the productive sector must aim at encouraging the relaunch of investments and facilitating the use of debt restructuring instruments.

In order to counter the exceptionality and nature of the impact of the pandemic, various social security measures and incentives have been adopted to stimulate job demand. Macroeconomic problems have

[42] Maital, S., & Barzani, E. (2020). The global economic impact of COVID-19: A summary of research. Samuel Neaman Institute for National Policy Research, 2020, 1-12.

exposed the shortcomings of legacy instruments. Job losses differed across categories of workers: fixed-term work decreased markedly, as did self-employment; the service sector also recorded losses, especially in tourism. The reduction in employment opportunities has been particularly marked for women, whose presence in the most affected sectors is above average, and young people (often with permanent contracts). Restrictions on mobility and fewer job opportunities during the recession have prompted more and more people to stop looking for work.

Another aspect to analyze is the inflationary one. "The emergencies have resulted in a significant increase in inflation"[43]. Among the contributing factors a role of primary importance is certainly played by the War in Ukraine, which led to an increase in the prices of raw materials, dictated by an increase in the cost of energy. Basically, it can be said that the pandemic crisis was transmitted to their companies and product prices mainly through the contraction in demand, while the energy crisis was perceived much more due to the increase in costs.



Picture 12: This graph highlights the exponential increase in energy as a result of the Russian-Ukrainian conflict.

Speaking generally of the Italian economy, it can be stated that, as in the other countries of the euro area, Italian exports were affected by the marked contraction in world trade, the temporary stops in production and the appreciation of the euro. The collapse in sales was dictated by fear, and not by economic and financial reasons (the tourism sector should be mentioned, as it has been among the sectors most affected by the pandemic, with revenues declining by almost 90% in spring 2020 and

[43] Van Ruijven, B., & Van Vuuren, D. P. (2009). Oil and natural gas prices and greenhouse gas emission mitigation. Energy Policy, 37(11), 4797-4808.

winter 2021). This is why, unlike the loss observed during the collapse of trade during the global financial crisis, Italy's share in world trade in goods has remained almost unchanged, reflecting the increased competitive capacity of our exporting firms. The lower spending on energy products, again initially, helped to keep the current account surplus high, offsetting the decline in tourism revenues and the lower surplus of non-energy goods. Surprisingly we could conclude by saying that thanks to the continuous current account surpluses recorded in recent years, Italy's net international investment position turned positive again for the first time in over thirty years.

3.2 Italian economy and Recovery Fund

The Italian economy would continue to face significant challenges without the support of the EU Recovery Fund. Italy's economy was already struggling prior to the COVID-19 pandemic, with a high level of public debt, slow economic growth, and high unemployment. The COVID-19 pandemic has exacerbated these problems, leading to a sharp decline in economic activity, job losses, and a significant increase in government debt. “In fact, the outbreak of the pandemic certainly provided an the impromptu opportunity to recover, reinterpret and put systematized parallel and seemingly disconnected paths that had been decades had been stirring within the Union. A "moment" of change”[44]. The EU Recovery Fund, which provides Italy with €209 billion in grants and loans, is intended to help Italy address these challenges by investing in areas such as digitalization, green energy, and infrastructure. Without the support of the Recovery Fund, Italy would likely face a more difficult path to recovery, with limited resources to invest in these critical areas. This could lead to a prolonged period of economic stagnation and high unemployment and could also exacerbate social and political tensions within the country. It is important to note, however, that the Recovery Fund is only one part of Italy's economic recovery strategy. Italy will also need to implement structural reforms, including measures to improve the efficiency of public administration, reduce bureaucracy, and promote entrepreneurship and innovation, in order to ensure long-term economic growth and stability. The EU Recovery Fund is expected to have a positive impact on Italy's GDP over the coming years. The Italian government plans to use the funds to invest in areas that will support long-term economic growth and improve the country's competitiveness, such as digitalization, green energy, and infrastructure.

The Italian government estimates that the Recovery Fund could add up to 3.6 percentage points to Italy's GDP by 2026. This would represent a significant boost to the country's economy, which has struggled to grow in recent years. However, it is important to note that the impact of the Recovery

[44] Vernata, A. (2022). La Costituzione e l’Europa alla prova del Recovery plan. Politica del diritto, 53(2), 225-254.

Fund will depend on the effectiveness of the investments made and the ability of the Italian government to implement structural reforms. "The ability of the Italian government to implement structural reforms has been a longstanding challenge for the country, and it will continue to be a key factor in the success of the EU Recovery Fund in Italy. Italy has a complex political landscape, with frequent changes of government and coalition politics"[45]. This can make it difficult to implement and sustain reforms, as different parties and interest groups may have conflicting views and priorities.
In addition, there is often resistance to reform from vested interests, such as labor unions or powerful economic sectors. This can make it challenging to push through reforms that may be necessary for long-term economic growth and stability. However, there have been some positive developments in recent years. The government, led by Prime Minister Mario Draghi, has been seen as more technocratic and less influenced by political pressures than previous administrations. This has allowed for more decisive action, such as the implementation of economic measures in response to the COVID-19 pandemic. Moreover, the government has demonstrated a commitment to implementing structural reforms as part of the Recovery Fund strategy, such as improving the efficiency of public administration, reducing bureaucracy, and promoting entrepreneurship and innovation.
Ultimately, the success of the Italian government in implementing these reforms will depend on a variety of factors, including political will, the ability to build consensus and negotiate with stakeholders, and the effectiveness of communication and implementation strategies. In addition to the direct impact on GDP, the Recovery Fund is also expected to have positive spillover effects on the wider Italian economy. For example, investments in infrastructure could improve transportation and logistics, making it easier for businesses to operate and compete. Investments in green energy could reduce Italy's dependence on fossil fuels, potentially lowering energy costs for households and businesses. Overall, the EU Recovery Fund represents a significant opportunity for Italy to address longstanding economic challenges and support long-term growth. Long-term growth in Italy will require sustained investment in key areas, as well as the implementation of structural reforms to address longstanding economic challenges. One important area for investment is innovation and technology. Italy has a strong tradition of innovation, particularly in sectors such as fashion, design, and engineering. However, the country has struggled to keep pace with global competitors in areas such as digitalization and artificial intelligence. Investing in these areas, through measures such as tax incentives and public-private partnerships, could help to boost productivity and competitiveness in the long term. Investment in infrastructure is also critical. Italy's infrastructure, including roads, bridges, and ports, has been criticized for being outdated and inefficient. Improving infrastructure

[45] Falavigna, G., & Ippoliti, R. (2021). Reform policy to increase the judicial efficiency in Italy: The opportunity offered by EU post-Covid funds. Journal of Policy Modeling, 43(5), 923-943.

could not only boost economic activity but also help to attract foreign investment and support regional development. Finally, the implementation of structural reforms will be critical for long-term growth. These could include measures to improve the efficiency of public administration, reduce bureaucracy, and simplify regulations to make it easier for businesses to operate. Reforms in the labor market, such as increased flexibility in employment contracts and training programs for workers, could also help to boost productivity and competitiveness. Overall, long-term growth in Italy will depend on sustained investment in key areas, as well as the successful implementation of structural reforms. The EU Recovery Fund presents an opportunity for Italy to make progress in these areas, but it will be up to the Italian government to follow through on its commitments and build a solid foundation for future economic growth.

3.3 The most important sectors

This section will analyze three of the most important sectors for the Italian economy, highlighting how the Recovery Fund has disrupted their markets. “The public authority thus continues to play, directly or indirectly, an extremely important role. In particular, it is required to outline the medium- to long-term planning framework, implement the public investments that cannot be supported privately and stimulate forms of partnership public-private partnerships in order to involve private capital in the financing operations of infrastructure and services"[46].

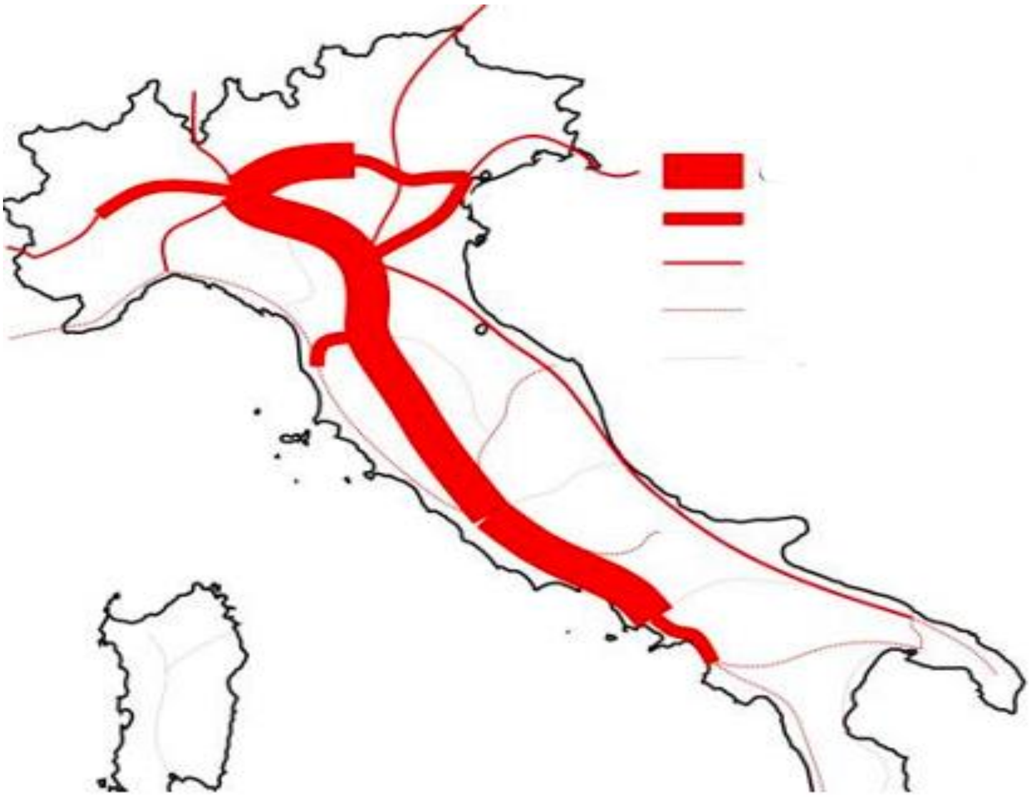
3.3.1 Infrastructure sector

As mentioned in the previous chapter, the PNRR aims to modernize Italy's infrastructure by improving its quality, efficiency and sustainability. Among the main areas of intervention of the PNRR in the infrastructure sector are:

- Transport: The PNRR envisages an investment of more than 34 billion euros to improve the rail network, modernize airports and enhance sustainable mobility, with the aim of reducing the environmental impact of transport and encouraging the mobility of people and goods. Among the main initiatives planned by the PNRR in the transport sector are several projects to be implemented, such as upgrading the rail network and modernizing airports. The PNRR envisages an investment of more than 22 billion euros to improve Italy's rail network by upgrading existing lines, completing ongoing major infrastructure projects and building new high-speed lines. In particular, connections between Italian cities and between Italy and Europe will be enhanced, with the aim of encouraging sustainable mobility and reducing the

[46] Danielis, R. (2012). I trasporti in Italia: mercati e politiche (No. 1201).

environmental impact of transport. In the figure below we can see how urgent this type of intervention is.



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Picture 13: The graph, through the different line widths, shows the number of daily trains runs.

"As for the modernization of airports, this is to be achieved through an investment of more than 7 billion euros, improving the efficiency and safety of airport services, reducing waiting times and improving the passenger experience"[47]. In addition, interventions will be carried out to reduce the environmental impact of airports through the adoption of environmentally sustainable technologies. The goal is to achieve Sustainable Mobility Enhancement by which sustainable mobility will be fostered through the promotion of public transport, the creation of bicycle lanes, the diffusion of electric vehicles, and the implementation of urban redevelopment interventions. In addition, interventions will be carried out to improve the accessibility and safety of roads and road infrastructure. All of this must, of course, be related to the digitization of transport. I n this case, the NRP envisages an investment of more than 1 billion euros to promote the digitization of the transport sector, through the creation of digital platforms and services for mobility, the adoption of technologies for traffic monitoring and

[47] Ruggieri, G., & Camatti, L. (2022). Pnnr e le economie del turismo in Italia: disparità inter ed infra regionali e politiche di ripresa e resilienza. In Aspetti territoriali del PNRR e l'impatto del Piano sulle disparità tra le regioni e al loro interno (Vol. 2, pp. 1-15). Donzelli Editore.

road safety, and the implementation of artificial intelligence and big data analytics solutions to improve transport efficiency;

- Energy: "The NRP governs an investment of more than 32 billion euros to strengthen energy security, develop renewable sources and improve the energy efficiency of buildings and infrastructure"[48]. To improve energy efficiency, the NRP envisages an investment of more than 10 billion euros to improve the energy efficiency of buildings, industries and transport through energy upgrades, the adoption of innovative technologies and the implementation of efficient energy management policies. Another goal to be achieved is the enhancement of renewable energy sources. Here the NRP envisages an investment of more than 29 billion euros to boost the use of renewable sources, with the goal of achieving a share of at least 30 percent of energy produced from renewable sources by 2030. In particular, work will be carried out on the development of solar and photovoltaic plants, the promotion of offshore wind energy, the construction of biomass plants, and the enhancement of hydroelectric potential. The aforementioned objectives must be accompanied by a smart energy grid, based on the use of digital technologies and advanced monitoring systems, capable of fostering the integration of renewable sources and ensuring greater stability and reliability of the energy system;
- Digitization: An investment of more than 23 billion euros is planned for this area to promote the digitization of the country, improving connectivity and broadband, developing the digitization of businesses and public administration, and supporting technological innovation;
- Environment and territory: an area for which more than 10 billion euros will be allocated to protect the territory and environment, improving waste management, protecting the coastline and areas of high hydrogeological risk, and enhancing the country's natural and cultural resources.

The NRP represents a great opportunity for Italy's infrastructure sector, as the planned investments will enable the country's infrastructure network to be upgraded and modernized, improving the quality of life for citizens, stimulating economic growth, and promoting the transition to a more sustainable and resilient economy.

3.3.2 Real estate sector

The real estate sector is another important area of intervention in the PNRR, which envisages an investment of more than 18 billion euros for the rehabilitation of the building stock, urban

[48] Giannola, A. (2022). Climate and energy transition, sustainability, mobility: role of the South in the Eu context for sustainable development and decarbonisation. Rivista giuridica del Mezzogiorno, 36(3), 773-775.

regeneration and the promotion of sustainable construction. "The recession triggered by the Covid-19 epidemic significantly increases the share of Italian corporations that would experience liquidity needs and capital deficits"[49]. Among the main initiatives envisaged by the NRP in the real estate sector are:

- Energy rehabilitation of buildings: Energy upgrading of buildings is an important goal of the NRP, which includes an investment of more than 10 billion euros to promote energy efficiency interventions in existing buildings. The main objective of these interventions is to reduce the energy consumption of buildings, improve energy efficiency, and contribute to the reduction of greenhouse gas emissions, thus promoting the transition to a low-carbon economy. Regarding the types of interventions that can be incentivized by the NRP in the area of energy upgrading of buildings, it is possible to distinguish between thermal insulation of facades, roofs and exterior walls, replacement of heating and cooling systems with low environmental impact solutions, installation of solar thermal and photovoltaic panels for renewable energy production, and installation of home automation and energy consumption monitoring systems. In addition, the NRP envisages the establishment of a system of tax incentives for the energy upgrading of buildings, with the aim of incentivizing owners to carry out energy efficiency upgrades, including through the introduction of tax breaks for the deduction of expenses incurred for such upgrades. Energy upgrading of buildings has numerous benefits, including reducing energy costs for households and businesses, improving living comfort, creating jobs in the construction and renewable energy sectors, reducing air pollution and greenhouse gas emissions, and promoting the decarbonization of the economy;
- Urban regeneration: Urban regeneration is another important objective of the NRP, which envisages an investment of more than 10 billion euros to promote interventions to upgrade cities, with the aim of improving people's quality of life, enhancing the cultural and environmental heritage, and promoting the economic development of local communities. The main interventions envisaged by the NRP for urban regeneration include the redevelopment of urban suburbs, the redevelopment of public spaces, the creation of new green areas and urban parks, the renovation and rehabilitation of historic and culturally valuable buildings, the redevelopment of residential neighborhoods, the promotion of sustainable mobility, the creation of new cultural and tourism infrastructure, and the promotion of circular economy and green economy initiatives;

[49] De Socio, A. N. T. O. N. I. O., Narizzano, S. I. M. O. N. E., Orlando, T. O. M. M. A. S. O., Parlapiano, F. A. B. I. O., Rodano, G. I. A. C. O. M. O., Sette, E. N. R. I. C. O., & Viggiano, G. I. A. N. L. U. C. A. (2020). Gli effetti della pandemia sul fabbisogno di liquidità, sul bilancio e sulla rischiosità delle imprese. Bank of Italy, Covid-19 Note, (13).

- Sustainable construction: The NRP envisages an investment of more than 3 billion euros for the promotion of sustainable construction, with the aim of incentivizing the construction of buildings with low environmental impact, high energy efficiency, and equipped with innovative technologies for energy and water management. Construction of buildings made of wood and natural materials, the use of advanced technologies for wastewater management, and the reduction of water waste will be promoted.

In general, the investments envisaged by the NRP in the real estate sector represent a great opportunity to promote the energy upgrading of buildings, urban regeneration, and the promotion of sustainable construction, helping to reduce greenhouse gas emissions, improve the quality of life of local communities, and foster economic growth and job creation.

Staying with the theme of real estate, but shifting the subject, the following parenthesis is in order. "The COVID-19 pandemic has had a significant impact on the housing market and house prices in several countries"[50]. In some cases, the pandemic has led to an increase in house prices, while in other cases it has led to a decrease or stabilization of prices. In general, the impact of the pandemic on house prices depends on several factors, including supply and demand in the housing market, government policies to support the economy and the housing sector, and the socioeconomic conditions of local communities. In some countries, the pandemic has led to increased demand for housing, especially in suburban and rural areas, due to the growing trend of remote work and the search for larger, more comfortable spaces for families. This has led to higher house prices in some areas, especially in areas near large cities. In other countries, however, the pandemic has had the opposite effect, leading to a decrease in demand and house prices, especially in large cities where economic restrictions and uncertainties have led to reduced mobility and job opportunities. In addition, governments in several countries adopted policies and incentives to support the economy and the housing sector during the pandemic, such as through financial aid programs, suspension of mortgage payments, and low interest rates. These policies helped stabilize house prices in some countries. In any case, it is important to consider that the housing market and house prices are affected by multiple factors, including economic trends and political stability, and that the impact of the COVID-19 pandemic on house prices may continue to manifest in the coming years.

3.3.3 Consulting sector

Consulting, on the other hand, refers to the practice of providing professional advice and assistance to clients in a wide range of areas. In this context, consulting can play an important role in the NRP

[50] Balemi, N., Füss, R., & Weigand, A. (2021). COVID-19's impact on real estate markets: review and outlook. Financial Markets and Portfolio Management, 1-19.

as it can help organizations and enterprises identify investment opportunities and develop effective projects to obtain funding from the PNRR. In particular, consulting professionals can assist enterprises in analyzing requirements, assessing risks and opportunities, designing projects, and preparing the necessary documentation to apply for funding. In addition, consulting can also help public authorities responsible for implementing the PNRR in developing investment strategies and identifying priority projects to achieve the best possible results from the plan.

In relation to the PNRR, the Big Four can play an important role in advising organizations seeking to benefit from the plan's funding. In particular, consulting firms can assist organizations in identifying funding opportunities and designing effective projects that meet the requirements of the PNRR. The Big Four can also offer technical assistance in the implementation and monitoring phases of PNRR-funded projects, helping organizations ensure that their projects are executed effectively and meet the requirements of the plan. In addition, consulting firms can offer data analysis and impact assessment services to help organizations monitor and evaluate the results of their projects.

However, it should be noted that the implication of the Big Four in the PNRR is not without criticism. Some have raised concerns about possible conflict of interest, as the same consulting firms may also be the main recipients of PNRR funding. In addition, some organizations may be forced to rely on the services of the Big Four because of their limited size and resources, giving consulting firms a competitive advantage on accessing PNRR funding. In summary, the Big Four may offer valuable consulting services to organizations seeking to benefit from the PNRR, but it is important to carefully monitor their involvement to ensure that there is a proper balance between funding opportunities and independence and transparency in consulting.

To gain a concrete understanding of the impact the PNRR has had in the consulting world, the analysis will focus on one of these four companies-Deloitte. The firm has played an active role in advising organizations wishing to benefit from the plan's funding. The firm has published several reports on the funding opportunities offered by the PNRR and the areas that could benefit most from funding.

As a consulting firm, Deloitte did not benefit directly from PNRR funding, as the plan provides public funding for specific organizations and projects. However, Deloitte was able to benefit indirectly from PNRR funding through providing consulting services to organizations seeking to access funding from the plan. The firm has been able to benefit from the economic activity generated by the PNRR because it has expertise and capacity in many areas that could benefit from the plan's funding. For example, Deloitte has a strong presence in the energy, infrastructure, and digital transformation sectors, all of which could benefit from PNRR funding.

It should be noted that, like any consulting firm, Deloitte has an economic interest in providing consulting services to organizations seeking to access PNRR funding. However, it is important to ensure that the company's involvement in the consultancy does not create conflicts of interest or compromise the independence and transparency of the consultancy. In addition, it is important to closely monitor the use of PNRR funding to ensure that it is used effectively and transparently, without excessive profits for the consulting firms involved.

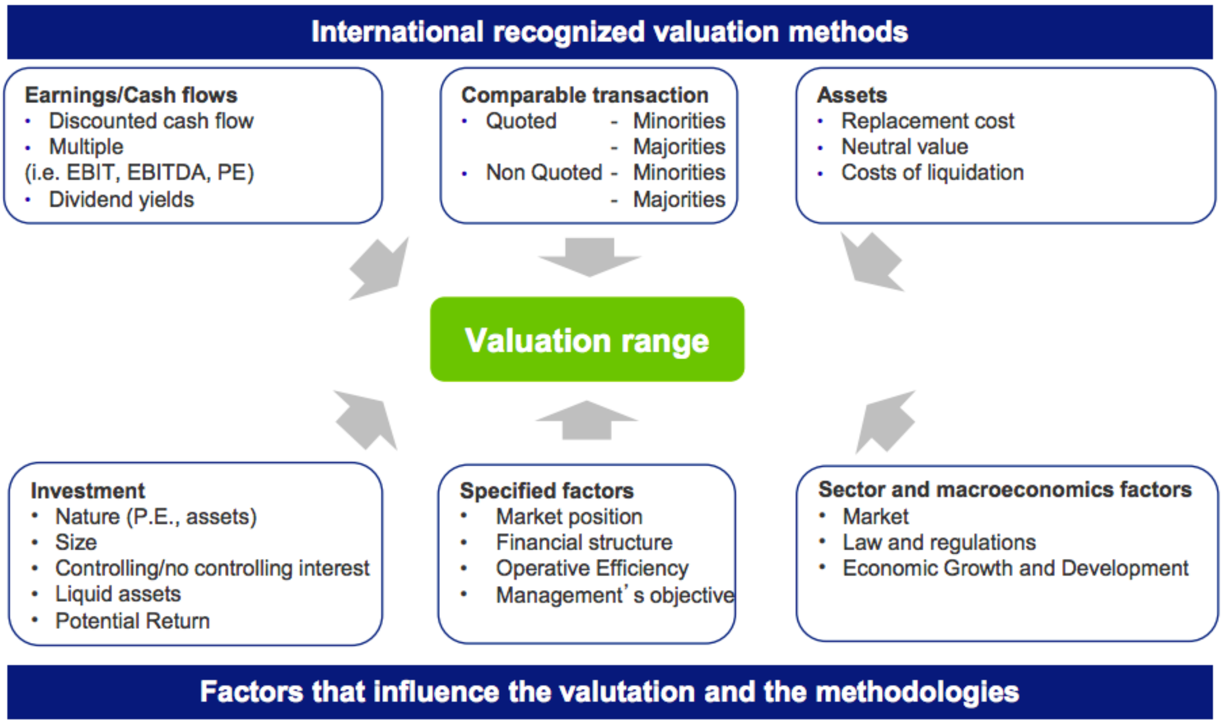
FOURTH CHAPTER

4. ENI Case study

This final chapter will discuss a case study related to ENI. The intent is to demonstrate how much the Recovery Fund influenced ENI company.

4.1 Introduction

In modern businesses, effective financial management is about maximizing value, not just profits. The owners of a business expect to obtain certain benefits from the amount of capital invested in it, since the business is nothing more than a particular form of investment. The greater the benefits, the greater the increase in the value of the enterprise. Although an owner's problems are closely related to his personal utility problems, it is now inevitable that his problems are also related to the value of the firm. The value of the company is increasingly linked to what happens around it. Specifically, the firm is more influenced by environmental factors. In the collective imagination, a "green" company is associated with a company in good health. But is that actually the case? Unfortunately there is still no scientific evidence and in the evaluation methods (shown in the image) that the ecological transition will increase corporate profits. Below is report a table that shows international recognized valuation methods (McGraw Hill, 2014):



Picture 14: The picture shows and overview of basic methods of evaluation

This chapter objective is to demonstrate that the Recovery Fund may influence the business evaluation process through the provision of new financing and market opportunities, but also through the identification of new risk factors.

4.2 Literature review

The paper talked about the Recovery Fund, its amount, its missions and why it was done. The third chapter also tried to understand the economic impact that Covid-19 and the war in Ukraine had. Now, the goal of the paper is to understand the impact that the Recovery Fund will have on the Italian economy. The Recovery Fund was welcomed in Italy with great enthusiasm, as a turning point which, if used well, could put Italy back on a path of virtuous growth. In the public debate we are witnessing about the impact of the Recovery Fund, the emphasis is on the one hand on the grandeur of the figures involved, on the other on the importance of spending well. (Stirati 2021) The importance of the Recovery Fund lies in the fact that Italy is one of the major beneficiaries (27.8% of total funds). The fund is a fundamental tool to accompany the country in major transformations. The Plan does not consist in a simple allocation of financial liquidity, but is characterized by the precise intention of giving rise to a transformation under the banner of three connotations: it is called to be both environmental, digital and social transformation (Buzzacchi 2022). Precisely for these reasons, Italian companies are called to implement internal transformations that will require huge investments. Investments that will be facilitated thanks to the Recovery Fund, which, for example, has allowed the financing of the Fund, managed by SIMEST, which has been endowed with 1.2 billion euros, of which 400 million is non-repayable. The Fund's resources have been allocated to support its international competitiveness by financing its digital and ecological transition (Finera 2021). The Funds will not only concern small and medium-sized enterprises, but will also be available to large Italian multinationals. Suffice it to say that ENEL and ENI are betting on renewable energies. In particular, ENEL has stated that there will be more wind and more photovoltaics, while ENI, through a hearing in the Chamber of Deputies, declared that its intent is to reduce CO_2 emissions through the construction of a CO_2 storage center in Ravenna and the production of blue hydrogen. (Cart 2020). ENI wants to guarantee customers energy security and reduce emissions, secure gas supplies to premium markets through a global portfolio and accelerate the path towards absolute zero emissions. The plan is to increase investments in new energy to 30% of the total by 2025, and to 60% by 2030. (Torrini 2022)

Relying on the impetus of international energy players, such as ENI, guarantees the country dynamism and momentum: it will be important to ensure that private interests and general political direction match as much as possible, so as to maximize the effectiveness of the investments made (Donolato 2022). Investing in renewable energy could be convenient for the following reasons:

- Energy transition: Investment in renewable energy allows ENI to actively participate in the global energy transition towards a low-carbon system. With the growing interest in environmental sustainability and the reduction of greenhouse gas emissions, renewable energies offer a clean and sustainable alternative to fossil fuels. (de Vincenzo, D. 2022, Fazioli R. 2021 and Buttarazzi, M 2020).
- Diversification of the energy portfolio: Investing in renewable energies would allow ENI to diversify its energy portfolio and reduce its dependence on fossil fuels. This can reduce exposure to risks related to the volatility of oil and natural gas prices, as well as environmental restrictions and increasingly stringent regulations (Calza, F. 2006 and HU, F. P. Y. 2022).
- Market Opportunity: The renewable energy sector represents a growing market, with significant potential for expansion and profit. Investing in renewable energies can allow ENI to seize new business opportunities, participating in the production of clean energy and in offering sustainable solutions for consumers (Verdolini, E., & Vona, F. 2022).
- Social and environmental responsibility: The investment in renewable energy reflects ENI's commitment to environmental sustainability and social responsibility. Companies are increasingly aware of the importance of adopting sustainable and environmentally friendly business practices in order to meet the expectations of consumers, investors and society as a whole. (Meyerhoff, N. 2022).
- Reputational risks: Companies in the energy sector are often subject to criticism for their environmental impact. Investing in renewable energy can help ENI mitigate the reputational risks associated with the production of fossil fuels and demonstrate a concrete commitment to sustainability and the fight against climate change. (Fattori, M. 2022 and Cavorsi, D. 2023).
- Government Incentives: In many countries, governments offer financial incentives and tax breaks to promote investment in renewable energy. By exploiting these incentives, ENI could benefit from a favorable environment and improve the profitability of its investments in the clean energy sector (Fan, R., Wang, Y., Chen, F., Du, K., & Wang, Y. 2022).

Basically, in recent decades, global interest in renewable energy sources has grown significantly due to environmental concerns and climate change. Against this backdrop, many traditional energy companies are trying to adapt to a rapidly changing world by diversifying their energy portfolios to include cleaner sources. ENI's strategy towards Net Zero is supported by an industrial transformation plan that winds through the distinct and synergistic paths of the two General Managements: Natural Resources and Energy Evolution. Eni's strategy aims to satisfy each of the essential pillars of the energy trilemma, achieving significant reductions in GHG emissions in parallel with energy security and affordability (ENI for 2022 - A Just Transition).

Below are two tables, one linked to the risks of the ecological transition, the other to the opportunities:

Transition risks	
Uncertainty on market development for new products Changing consumer preferences Loss of profits and cash flow Impacts on shareholders'return	Low carbon scenario
New regulatory imposing a potential increase in costs New regulatory imposing a potential reduction in demand Proceedings relating to climate change	Regulatory and legal issues
Reduction in hydrocarbon demand Profitability and specific risks of transition technologies	Technological developments
Changing consumer preferences Deterioration of the sector's image Impact on share price Dropping attractivities for retail savers	Reputation

Opportunities	
Opening up of new market opportunities Development of renewable and low carbon energy Growing demand for hydrogen Diversification of raw materials for biorefineries	Low carbon scenario
Development of renewables and low carbon energy Diversification of raw materials for biorefineries Energy efficiency interventions	Regulatory and legal issues
Development of renewables and low carbon energy Partnerships for the development of technological solution	Technological developments
Development of renewables and low carbon energy Positive impact on stakeholder perception Distinctive positioning in climate benchmark Partnerships for decarbonization	Reputation

However, it can be argued that the risks outweigh the opportunities when it comes to long-term sustainability. Indeed, the ecological transition aims to reduce the environmental impact and create a more sustainable economy. Tackling climate change and conserving natural resources are crucial to ensuring a prosperous future for future generations. The opportunities offered by the ecological transition allow us to pursue a long-term sustainable economic and social model. (Dal Maso, D., & Fiorentini, G. 2013). Furthermore, the ecological transition pushes towards the adoption of advanced technologies and innovative solutions. This stimulates innovation and fosters the competitiveness of businesses and economies. Investment in research and development of clean technologies creates new business opportunities, promoting economic growth and employment. (Ronchi, E. 2021). The development would lead to a long-term cost reduction. For example, the use of renewable energy can reduce reliance on fossil fuels, which are subject to price volatility. Furthermore, the adoption of sustainable practices can improve energy efficiency and reduce operating costs of businesses. (Carta, C. 2022). Furthermore, it should not be forgotten that the ecological transition can lead to a series of benefits for people's health and well-being. Reducing air pollution and promoting sustainable lifestyles help improve air quality, reduce health risks and create healthier environments. This translates into a better quality of life for people and greater sustainability of communities. (Angrilli, M., & Coppola, E. 2021).

Precisely for these reasons, countries and companies that are at the forefront of the ecological transition can obtain strategic and leadership advantages at a global level. Being able to offer clean technologies, sustainable products and services can open up new markets, attract investment and improve your international reputation.

4.3 Methodology

In this chapter the methodological approach used for the research will be explained. Based on the data published by ENI in the Annual and transition report of foreign private issuers, we will try to understand how ENI is moving in the ecological transition process and how much the Recovery Fund has accelerated this process.

First of all, the role of the Energy Evolution Business Group was studied, given its importance in terms of research into renewable energies. The subsidiaries of the group have been identified, to understand what they do in detail and which of them is more committed to the issue of ecological transition. After that, the question that arose was the following, even if it may seem obvious to many: why should ENI be so committed to the ecological transition process? At this point all the climate agreements signed between the different states and the Recovery Fund were mentioned. Focusing on the latter, attention was paid to the importance of the loans that the Fund will grant to "virtuous" companies in the field of environmental sustainability and energy transition and, to follow up on what has just been said, the ENI's investments in the photovoltaic sector. Subsequently, the issue of fossil fuels related to the issue of company profits arose. In fact, a large part of profits still depend on non-renewable sources. To overcome this problem, the financial data of the last three financial statements have been reported, with the aim of highlighting a change in ENI's strategy. Finally, based on the analysis of the data, an attempt was made to reach a valid conclusion in support of the thesis made.

4.4 Data analysis

In this paragraph, the statistical data will be shown in support of the literature review and the methodology explained above. The data analysis was mainly based on the annual reports (specifically for 2022) that ENI makes to its investors. This report obviously mentions ENI's Energy Evolution Business Group, which is strongly committed to the evolution of the sectors of electricity generation, transformation and marketing. It aims at a transition from fossil fuels to renewable sources, such as bio, blue and green energy. The group is focused on growing the production of electricity from renewable sources and biomethane. Furthermore, it coordinates the evolution of the company's refining system and chemical business towards a more sustainable perspective and promotes the development of increasingly decarbonized products in ENI's retail sector, in order to meet the needs of mobility, domestic consumption and small businesses. The Business Group includes the results of the refining and marketing activities, the chemical business managed by Versalis SpA and its subsidiaries, as well as Eni Plenitude SpA, a benefit company that integrates generation from renewable sources, gas and energy retail electricity for business customers, electric vehicle charging and energy services in a unified business model. Furthermore, the Business Group also includes the results of the production of electricity from thermoelectric plants and the environmental reclamation and requalification activities carried out by Eni Rewind, a subsidiary of ENI. The attention of the Business Group is due to the potential adoption of new laws and regulations, as well as environmental damage to Eni's structures, which could lead to reductions, modifications or terminations of operations, with consequent negative impacts on operating results, flow of Eni's cash flow, liquidity, business prospects, financial condition and shareholder returns, including dividends, share repurchase investments and Eni's share price. In particular, risks related to climate change arise from increased global efforts to address this phenomenon, which could lead to the adoption of stricter regulations to reduce carbon emissions. This could in turn reduce the demand for Eni's products in the medium to long term. In the context of the European Union, the adoption of the new EU greenhouse gas emission reduction target for 2030 (-55% compared to 1990) has led to a revision of the main objectives and of the provisions envisaged by the current Community legislation. To this end, the European Commission presented the "Fit for 55 Package" on 14 July 2021, which proposes a series of legislative measures, including a revision of the energy efficiency target (at least 36-39%) and the renewable energy target (at least 40%). In the wake of this, the 2015 COP 21 Paris Agreement prompted governments to plan the transition to a low-carbon economy to contain temperature rise to acceptable levels and address the risks of climate change. The release of carbon dioxide and other greenhouse gases has been recognized as the main cause of climate change, with potentially catastrophic consequences for the environment and society. The company is strongly committed to the renewable energy sector, particularly solar and wind energy, with the aim of developing, building and operating renewable energy production plants. To achieve these objectives, ENI aims to organically develop a diversified and balanced asset portfolio, complemented by selective asset acquisitions and strategic partnerships at national and international level. Precisely because of the context just mentioned, ENI has increased investments in the photovoltaic sector almost exponentially from the beginning of 2019 to today. For greater clarity, please see the table below:

ENI s investments in the photovoltaic sector:

	2021	2020	2019
Italy	844	466	112
Outside of Italy	1.354	671	223
Total	2.198	1.137	335

Milions of euros

Massive growth in electricity generation from wind and solar sources is expected to meet the decarbonisation targets set by various governments and institutions such as the European Union, the United States and the United Kingdom in the electricity sector, gradually replacing generation of gas energy. It is clear that the COVID-19 pandemic has accelerated the evolution towards a low-carbon economy, with governments and the EU investing resources to stimulate economic recovery and support the energy transition towards cleaner sources. Although these efforts could negatively affect the demand for ENI's products, given that there is a growing focus on renewable energy and a reduction in the use of fossil fuels. Precisely because of this danger, ENI is investing in decarbonised products and clean energy sources. However, the Group's financial results and prospects still largely depend on the Exploration & Production sector. If the demand for hydrocarbons declines rapidly due to international regulations to reduce greenhouse gas emissions, this could have a significant and negative impact on ENI's operations and business prospects. This is where the role of the Recovery Fund comes into play, which could play a significant role in the process of accelerating its renewal. The fund's resources could be used to finance the company's energy transition and sustainable development projects.

ENI has already embarked on a transformational path towards greater sustainability, with the aim of becoming an integrated energy company that focuses not only on fossil fuels, but also on renewable energy sources and other clean technologies. The Recovery Fund could provide ENI with the financial means necessary to accelerate this process and make the investments required to develop and implement innovative projects in the field of renewable energy, circular economy, decarbonisation and sustainable mobility. Chief Executive Officer De Scalzi said the Recovery Fund could be a good opportunity, especially for the transition. It is no coincidence that there are several projects connected to CCS (Carbon Capture and Storage) and others in the development of retail, marketing, biorefineries, etc. The Fund will make it possible to accelerate the ecological transition especially in Italy, seeking to increase the transition in biorefineries, waste to fuel and CCS.

Eni expects an increase in operating and compliance expenses in the near term due to the probable adoption of carbon tax mechanisms. Governments have already introduced carbon pricing schemes, which have proven effective in reducing greenhouse gas emissions at the lowest overall cost to society. Currently, about half of the direct greenhouse gas emissions produced by Eni are subject to national or supranational Carbon Pricing Mechanisms, such as the European Union Emissions Trading System (EU ETS), which requires the purchase of emission allowances on the free market in the event that the emissions exceed the limit of allowances assigned free of charge. In 2022, Eni had to purchase around 16.73 million tonnes of CO2 emission allowances on the market, for a cost of approximately 950 million euro (in 2021, the purchase amounted to 12.42 million tonnes for a total cost of 660 million euros).

Considering the likelihood of new regulations in this sector and the expectation of a reduction of free allowances in the EU ETS and the increasingly widespread adoption of similar schemes by governments, ENI is aware of the risk of an increase in emissions subject to carbon pricing and other forms of climate regulation in the future, which would impose additional compliance obligations and costs beyond simply emitting carbon dioxide into the atmosphere. The company is already mobilizing because significantly higher capital expenditure and operating expenses may be required in the future if the company is unable to reduce the carbon footprint of its operations.

It should also be considered that in the long term, the demand for hydrocarbons could be significantly reduced due to the widespread adoption of electric vehicles, the development of green hydrogen and massive investments in the renewable energy sector, supported by government fiscal policies and the development of technologies for the production of clean raw materials, fuels and energy. The Recovery Fund offers financial incentives and subsidies for the purchase of low-emission vehicles, such as electric and hydrogen vehicles. This encourages consumers to opt for more sustainable mobility solutions, reducing the price gap with traditional vehicles and promoting the adoption of low-emission technologies. Precisely for this reason, the role of hydrocarbons in meeting most of the global energy demand could be replaced by the emergence of new products, technologies and changes in consumer preferences. The automotive industry is investing huge resources to upgrade assembly lines in order to increase the production of electric vehicles and improve the performance and cost of electric vehicles, narrowing the gap with internal combustion engine vehicles. This sector has attracted a significant flow of capital and financing, fueling the growth of new players in the EV market who are introducing smart models to win consumer preference and market share. Such developments are accelerating strategic change for established automakers. According to market projections, sales of electric vehicles will surpass those of internal combustion engine vehicles by 2030, supported by proposals to ban the sale of new internal combustion engine vehicles by states and local governments. For this reason, the network of charging points for electric vehicles will be expanded, aiming to reach around 30,000 points by 2026. This trend could have a long-term impact on the demand for gasoline, which is a major driver of global oil demand raw. Without considering the emergence of other potentially revolutionary technologies for the production of energy and clean fuels, such as the use of hydrogen as an energy vector or the use of renewable raw materials to produce substitutes for petroleum products. The production of green hydrogen will further reduce the demand for hydrocarbons.

In summary, Eni is facing the challenges of the transition to a low-carbon economy through its commitment to the renewable energy sector, the reduction of greenhouse gas emissions and adaptation to new regulations. The company expects compliance and operational expenses to increase in the near term due to the adoption of carbon pricing mechanisms and other climate regulations. In the long term, Eni is committed to further reducing dependence on hydrocarbons and investing in renewable energy, taking into account changes in the automotive sector and emerging trends in global energy consumption.

To reinforce the considerations just made, the financial data extrapolated from the last three approved financial statements are reported:

	2022	2021	2020
Net Profit (loss)	**13.961**	**5.840**	**(8.628)**
Adjustments to reconcile net profit to net cash provided by operating activities			
(Amortization and depreciation)	4.369	8.568	12.641
(Net gains on disposal of assets)	(524)	(102)	(9)
(Dividend, interest, taxes and other changes)	8.611	5.334	3.251
Change in working capital related to operations	(1.279)	(3.146)	(18)
Dividend received by equity investments	1.545	857	509
Taxes paid	(8.488)	(3.726)	(2.049)
Interest (paid) received	(735)	(764)	(875)
Net cash provided by operating activities	**17.460**	**12.861**	**4.822**
Capex	(8.056)	(5.234)	(4.644)
Acquisition of investments and businesses	(3.311)	(2.738)	(392)
Disposals of consolidated subsidiaries, business	1.202	404	28
Other cash inflow (outflow) related to financial and reserves	2.361	289	(735)
Net cash inflow (outflow) related to financial activities	786	(4.743)	1.156
Changes in short and long-term finance debt	(2.569)	(244)	3.115
Repayment of lease liabilities	(994)	(939)	(869)
Dividends paid and changes in non-controlling interest	(4.841)	(2.780)	(1.968)
Net issue (repayment) of perpetual hybrid bond	(138)	1.924	2.975
Effect of changes in consolidation and exchange diff.	16	52	(69)
Net increase (decrease) in cash and cash equivalent	**1.916**	**(1.148)**	**3.419**
Cash and cash equivalent at the beginning of the year	8.265	9.413	5.994
Cash and cash equivalent at year end	10.181	8.265	9.413

Milions of euros

In 2022, an outflow of 1,279 million euros was recorded in the company's working capital. This situation was mainly influenced by three main factors.

First, there was an increase in the carrying amount of inventories of oil, natural gas and refined products. Furthermore, a replenishment of natural gas stocks was carried out in view of the upcoming winter season. Second, there has been a change in the fair value of commodity derivatives, due to changes in supply and demand conditions. Changes in the conditions of supply and demand for commodities influenced prices and, therefore, fair value. All this was caused by a supply and demand imbalance due to the war in Ukraine and by the push of the Recovery Fund towards the energy transition.

During the year, disbursements for acquisitions amounted to 3,311 million euros, to which approximately 400 million of estimated net financial debt must be added. These investments include the acquisition of 20% of the Dogger Bank C offshore wind project in the North Sea, a 100% stake in SKGR, a company that owns a portfolio of photovoltaic plants in Greece, as well as renewable capacity in the United States. Furthermore, a 3% stake was acquired in the North Field East LNG project in Qatar and 100% of PLT Energia, engaged in the renewables sector and investments were also made in the FLNG Tango Nave liquefaction project in Congo and in a in the nuclear energy sector.

Now please see the Key consolidated financial data:

	2022	2021	2020
Sales from operation	132.512	76.575	43.987
Operating profit (loss)	**17.510**	**12.341**	**(3.275)**
Adjusted operating profit (Non-GAAP measure)	20.386	9.664	1.898
Net profit (loss) attributable to Eni	**13.887**	**5.821**	**(8.635)**
Adjusted net profit (Non-GAAP measure)	13.301	4.330	(758)
Net cash provided by operating activities	**17.460**	**12.861**	**4.822**
Capex	8.056	5.234	4.644
Acquisition	3.311	2.738	392
Disposal of assets, consolidated subsidiaries and businesses	1.202	404	28
Shareholders' equity including non-controlling interest	55.230	44.519	37.493
Finance debt (including lease liabilities)	31.868	33.131	31.704
Net borrowings excluding lease liabilities	7.026	8.987	11.568
Net profit (loss) attributable to Eni diluted (€ per share)	**3.95**	**1.60**	**(2.42)**
Dividend per share (€ per share)	**0.88**	**0.86**	**0.36**

Milions of euros

The trading environment in 2022 was characterized by significant complexity and volatility due to market imbalances in the energy sector at the beginning of the year. These imbalances were the result of the post-pandemic recovery, which generated pent-up demand for hydrocarbons and other commodities, and the inability of supply to respond promptly due to financial constraints by international oil companies, production of the OPEC+ alliance and the production difficulties of the members of the cartel.

These market conditions, which have already affected commodity prices, have been further exacerbated by Russia's military aggression on Ukraine. This event prompted an increase in energy commodity prices due to Russia's crucial role in the energy sector and Europe's significant dependence on its hydrocarbon supplies at the time. While higher commodity prices benefited the Company and supported the performance of the exploration and production (E&P) sector, the exceptional volatility observed in the European and global energy markets created significant financial risks for the company. These risks could have significantly negatively affected the overall performance of the Group and its financial stability if adequate risk management strategies had not been implemented. The Company's performance during 2022 was very positive thanks to the optimization of costs and margins in all business lines, especially that of renewable energies, the favorable context of raw material prices, the active management of market risk and the availability of refining capacity and natural gas supplies. It is important to note that in the first quarter of 2023, commodity market prices performed less favorably than assumed for the full year, which could adversely affect earnings and cash flow. In the upcoming 2023-2026 four-year plan, we expect increased cash generation and returns in the E&P segment, leveraging profitable manufacturing growth, capital discipline, rapid project time-to-market, and tight control of operating expenses and of working capital. Mounting inflationary pressures driven by rising commodity prices, skilled labor shortages, supply chain bottlenecks and reduced availability of industry-specific equipment could pose risks to the profitability outlook. In order to achieve the yield and cash flow generation targets, development projects will be carefully selected, based on pricing assumptions and minimum internal rate of return requirements. A phased approach will be taken in project development in order to reduce financial exposure and execution risk. While planning to respect the time and budget envisaged for the projects, it should be borne in mind that many of them are complex, both in terms of the size and breadth of operations, and in terms of their location in environmentally sensitive areas or external conditions, including offshore operations. Here, Plenitude will play a fundamental role, the Eni subsidiary responsible for retail sales in the sector of natural gas, electricity from renewable sources and the network of charging points for electric vehicles. It will exploit the synergies between these businesses to improve its profitability in the future. An acceleration of the development of installed capacity for the production of renewable energy is foreseen, with the aim of exceeding 7 GW of installed capacity by the end of the plan. A selective expansion of the customer base is expected, with the aim of reaching 11 million customers by 2026, in order to increase profitability through the offer of an increasing share of renewable energy and biomethane, the expansion of the offer with new non-commodity products and services and continuous innovation in marketing processes, including the use of digitization to acquire new customers, reduce service costs and efficiently manage working capital.

Conclusion

The paper wanted to demonstrate the importance of the Recovery Fund and its impact on Italian companies. In an economy in decline due to COVID-19 and the war in Ukraine, the Recovery Fund seems to be the only lifeline for the member states of the European Union, increasingly crushed by the three giants (the United States, China and Russia). The missions (and submissions) all aim at a single important goal: the development of a sustainable and self-sufficient economy. Over the past three years, it been observed a confirmation rather than a revelation that numerous emerging economies are experiencing rapid development, subsequently closing the gap with our own economic progress. The only way out for Europe from this situation seems to be the adoption of policies that allow medium-long term planning for a sustainable economy. The strength of the old continent has always been to develop forward-looking ideas for its future. The developed thesis addressed these issues, first in a more general way, talking about the Recovery Fund, and then in detail, going to define what the National Recovery and Resilience Plan is, the areas of application and the different territorial realities. It is no coincidence that it wanted to highlight the gap between the north and south of the country, explaining the reason for the different financial allocations. Among the objectives of the Recovery Fund there is also that of territorial cohesion, and it is known that Italy is one of the most divided states from this point of view. A nation can only be large if all its regions grow harmoniously (as happened after the war).

And it is precisely in this framework that the research for the paper took place. The intent was to demonstrate that the Recovery Fund is having, and will have, a gigantic impact on our businesses, large and small. To make its importance understood, ENI was taken as a case study, a famous Italian multinational that operates in a sector considered strategic both for its peculiarities and for the whole discourse related to sustainability. The data analyzed show a significant acceleration in investments in renewable energies (e.g., photovoltaic), linked both to regulatory interventions and to funds from the Recovery Fund.

It will not be easy to achieve all the objectives of the Recovery Fund, and the risk of not being able to spend the money made available is not low. It is imperative not to undermine the significance of this endeavor, as the future of not only Italy but the entirety of Europe hinges upon this project. The establishment of the Recovery Fund stands as the sole avenue through which the Italian economy can regain stability and potentially engender a renewed “economic miracle”.

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