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Italy's recovery plan: priorities and implications

Key take aways

- The pandemic impact on Italy's fragile and heavily indebted economy has been a tough one
- Response from the EU has been strong, and has led to the creation of the NGEU project, the first time the EU has committed to an issuance of common debt
- The PNRR (Italy's plan on how to use the grants and loans coming from the EU) is a detailed plan aimed at fostering growth by investing in the most sensitive parts of the Italian economy
- Effects of the investments are estimated to be significant, but questions remain on the overall debt levels

01 Introduction and economic background

The global coronavirus pandemic hit the Italian economy hard, with the country experiencing a marked decline in GDP (-8.9% in 2020, according to ISTAT).[1] Household consumption fell by -10.7% in 2020 despite temporary government employment support measures, limiting the decrease in income to -2.6%. Unemployment remains a fear for consumers and, with the economic reopening and unblocking of layoffs in many sectors, the unemployment rate has recently gone back above 10%, well above the Eurozone average of around 7.5%.[2]

The impact of coronavirus elicited a strong reaction from individual European national governments. Expansionary fiscal policies have led to large deficits (for the Eurozone 7.2% of GDP in 2020; for Italy 9.5%).[2] Primary balances (i.e. the overall balance net of interest expenses) have turned negative and the increase in debt/GDP levels (for the Eurozone from 85% in 2019 to over 100% in 2020)[2] was exacerbated by a fall in GDP.

The European Union (EU) lined up alongside national governments, responding first with a three-pillar strategy in April 2020, focusing on a guarantee fund for the loans of small and medium-sized enterprises, supporting governments' plans to hold down unemployment (with a SURE fund of EUR100bn) and then giving member states access to credit lines of up to 2% of GDP without macroeconomic conditions to support health systems and the treatment and prevention of coronavirus.[1]

The EU then reached the final agreement in June 2020 on the so-called Next Generation EU (NGEU) plan, totalling ~EUR800bn and largely made up of loans to countries (~EUR380bn) and grants (~EUR330bn). Resources for this will be raised through the issuance of common European debt.[2]

Italy is due to receive EUR191bn of this. Italy's National Recovery and Resilience Plan (PNRR) was approved by the European Commission at the end of June 2021. Adding government resources and other EU resources to the NGEU resources gives a total of EUR232bn which will be used between 2021 and 2026.[3]

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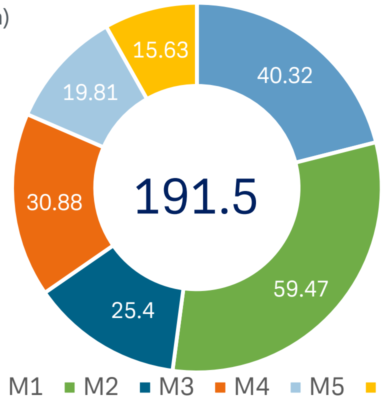
Figure 1: Next Generation EU breakdown

Recovery and Resilience Facility (RRF)	EUR723.8 billion
of which, loans	EUR385.8 billion
of which, grants	EUR338.0 billion
ReactEU	EUR50.6 billion
Horizon Europe	EUR5.4 billion
InvestEU	EUR6.1 billion
Rural Development	EUR8.1 billion
Just Transition Funds (JTF)	EUR10.9 billion
RescEU	EUR2 billion
Total	**EUR806.9 billion**

Source: European Commission. Data as of April 2021.

Figure 2: Total costs of the six plan "missions"

EUR (in billion)



Footnote: M1: Digitalisation, Innovation, Competitiveness, Culture and Tourism
M2: Green Revolution and the transition to a more ecological future
M3: Sustainable mobility infrastructure network
M4: Education and Research
M5: Inclusion
M6: Healthcare
Source: Italian Government, PNRR. Data as of June 2021.

02 The plan's six "missions"

The Italian PNRR is divided into six "missions" that embrace the themes of environmental transition and climate, digitalization, innovation and competitiveness, culture and tourism, education and research, transport infrastructure and sustainability, inclusion and cohesion and health.

Such national plans are above all reform plans that are aimed at improving legislation and increasing efficiency, equity and stability and the competitiveness of a country.

For Italy, the main reforms run across several main areas:

- **Reform of the public administration and justice apparatus.** Italian public administration has staffing levels below the OECD average, low generational turnover and low and falling investment in training. Reform projects therefore are aimed at providing an adequate generational turnover and improving skills with a focus on digitalization and streamlining and improving procedures. First reforms are planned for later this year. Justice in Italy is characterised by autonomy, independence and professionalism, but there are questions as to its speed. Reform here therefore aims to boost efficiency and thus economic competitiveness – as well as protecting weaker social groups. The first reforms are planned for 2021 and will continue in specific areas until 2023.
- **Simplification and competition.** Too many and too complex laws can hinder and hold back economic initiative. Regulatory and administrative simplification goes hand in hand with improved regulation. At its cornerstone is the principle of digital by default and clarity and comprehensibility of regulation. Simplifying public contracts, particularly pertaining to procurement, is important for the transposition of European directives, the streamlining of legislation and procedures and better control. Simpler laws may also reduce delays and inefficient utilization of resources. The first reforms are planned for 2021. Reforms aimed at improving competition should then allow greater market opening, fewer barriers to entry and a strengthening of antitrust functions.
- **Tax reform.** This should help mitigate the effects of the crisis and contribute to economic and social cohesion. Starting from a principle of fairness and progressiveness of taxation, a potential reform of personal income tax would enable the structure of taxation to be simplified and rationalized.

Figure 3: Mission 1: Digitalization, Innovation, Competitiveness, Culture and Tourism

Topics and resources
EUR (in billion)

40.32
Total

M1C1 – Digitalization, Innovation and Security in Public Administration	9.75
M1C2 – Digitalization, Innovation and Competitiveness in the production system	23.89
M1C3 – Tourism and Culture 4.0	6.68

Source: Italian Government, PNRR. Data as of June 2021.

Two considerations are central here: Italy's laggardly progress on digitalization (compared to most European countries) and the country's decline in productivity over the last twenty years. Through reform, digitalization and better accessibility, the aim is to improve public services and invest in technology, research and development for the production system.

Key components are the technological development of SMEs, better ultra-speed broadband coverage and the relaunching of the culture and tourism sectors.

Figure 4: Mission 2: Green Revolution and the transition to a more ecological future

Topics and resources
EUR (in billion)

M2C1 – Circular Economy and Sustainable Agriculture	5.27
M2C2 – Renewable Energy, Hydrogen, Networks and Sustainable Mobility	23.78
M2C3 – Power efficiency, and building requalification	15.36
M2C4 – Environmental and Water Resources protection	15.06
Total	59.47

Source: Italian Government, PNRR. Data as of June 2021.

Quick action is needed in this area. Environmental measures, in addition to focusing on the electricity sector (22% of CO_2 emissions), aim to make buildings more efficient (over 60% are older than 45 years) and eliminate sources of water and land pollution by improving water infrastructure.

The circular economy is at the centre of the agenda. Waste management projects are not only aimed at separate collection (65% by 2035) but also at developing recycling technologies with challenging objectives (55% recycling for electronic equipment, 85% for paper and cardboard, 65% for plastic waste, 100% for the textile sector). The new strategy will be adopted by June 2022.

On renewable energy, the aim is to develop renewable sources and energy communities, as well as strengthening network infrastructures and smart grids and developing hydrogen. Attention is also focused on more sustainable local transport and on the technological supply chain linked to this transition. Renewable energy should comprise 30% of final consumption by 2030. Hydrogen development may help in the decarbonization process, especially in some difficult areas (such as the production of chemicals or oil refining, but also steel, cement, glass and paper). But the use of hydrogen may eventually be further expanded to sectors such as rail transport (especially in non-electrified areas), or long-range transport.

The plan also provides for the support of all research and development initiatives along the value chain linked to support technologies (such as batteries, or new plants) and of the organisations (such as private equity or venture capital) that finance these initiatives.

Figure 5: Mission 3: Sustainable mobility infrastructure network

Topics and resources
EUR (in billion)

M3C1 – Investment in railway infrastructures	24.77
M3C2 – Intermodality and integrated logistics	0.63
Total	25.40

Source: Italian Government, PNRR. Data as of June 2021.

The plan linked to this mission lasts until 2026 and includes a series of interventions that also embrace the objectives linked to the European Green Deal.

The number of cars in Italy (relative to population) is well above the European average. Railway track length is below average and as a result 90% of passenger traffic is via road (accounting for 23% of carbon emissions), while 54% of goods transport goes by road. The World Bank ranks Italy's infrastructure quality at 58 out of the 137 countries which it surveys.[4]

Railway upgrades are planned both for the high-speed routes for the European corridors but also for the north-south routes, as well as initiatives at the regional and local transport levels.

Following the simplification decree of 2020 there will be transfer of ownership of works from local to state level, or to concession holders who have greater design capacity.

Figure 6: Mission 4: Education and Research

Topics and resources
EUR (in billion)

M4C1 – Strengthening of educational offer: from kindergarten to universities	19.44
M4C2 – From academic research to business	11.44
Total	30.88

Source: Italian Government, PNRR. Data as of June 2021.

Education problems include a lack of infrastructure, limited kindergarten places (for only 25.5% of the age group, against the European target of 33%), high school dropout rates, and low STEM (science, technology, mathematic) subject take-up relative to the OECD average. Such problems are combined with low spending on research and development (R&D).

The aim is to address this in two ways – through intervening to improve education infrastructure and quality, and to reform research structures. Measures will include the strengthening of technical institutes, provision of scholarships to access university education, selection and training of teachers and better use of technologies in teaching – as well as intervention on STEM disciplines.

To promote R&D, long-term plans are envisaged for technological and scientific sectors (e.g. quantum computing, biopharma, agritech) with the aim of bringing research closer to business and with ad hoc loans for the creation of innovative start-ups with investments of EUR700mn.

Initial measures have already been launched by the government.

Figure 7: Mission 5: Inclusion

Topics and resources EUR (in billion)

19.81
Total

M5C1: Labour policy	6.66
M5C2: Social Infrastructures, families, communities and service sector	11.17
M5C3 – Social interventions for territorial cohesion	1.98

Source: Italian Government, PNRR. Data as of June 2021.

The mission looks at work and supporting policies, building on Mission 4 (Education and Research) to build skills to cope with future needs and challenges.

Improved job search measures, such as the strengthening of employment centres, should contribute to greater labour force flexibility and decrease gender equality. The plan is for a National Program for Employability Guarantee (so-called GOL) and a National Plan for New Skills, also financed with the use of React-EU funds of EUR1bn.

The plan also wants to address social housing and urban redevelopment, particularly in municipalities with more than 15,000 inhabitants. The use of EIB structural funds is also envisaged for metropolitan cities.

Italian per capita health expenditure is generally in line with the European average but the COVID-19 crisis has highlighted problems with inequality and ineffective integration between services.

New technologies (including digitalization) should help deliver health services, taking into account the aging of the population and chronic disease among the elderly.

Remaining parts of the delivery network will be in place by mid-2026 and will follow the reorganization of the IRCCS (Scientific Institute for Research, Hospitalization and Healthcare) which will take place by decree by the end of 2022.

The following table shows how the resources are distributed under the Next Generation EU plan for Italy.

Figure 8: Mission 6: Healthcare

Topics and resources EUR (in billion)

15.63
Total

M6C1 – Proximity networks, telemedicine, and territorial healthcare aids	7.00
M6C2 – Innovation, research and digitalization in the healthcare sector	8.63

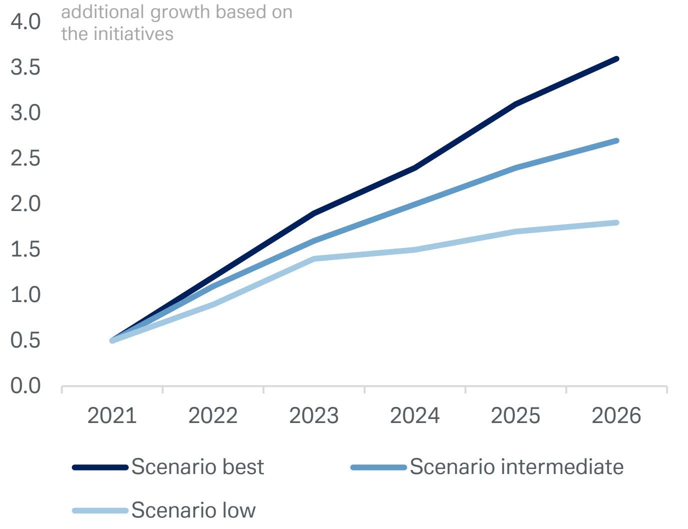
Source: Italian Government, PNRR. Data as of June 2021.

Figure 9: Distribution of spending under the Next Generation EU plan

	M1	M2	M3	M4	M5	M6
Forestry products, operations of cutting and transport of logs and related services	-	3.4%	-	-	-	-
IT, electronic and optic products	13.9%	4.0%	22.6%	7.7%	-	44.8%
Other transportation systems,	-	13.7%	30.7%	-	-	-
construction works and civil building works	21.5%	38.9%	46.7%	21.1%	45.1%	30.4%
Computer programming, advisory and related services, information systems	11.6%	-	-	-	-	6.6%
Scientific R&D services	4.5%	0.3%	-	28.9%	-	9.2%
Labour services	-	-	-	-	15.2%	-
Public administration and defense services, social insurance services	7.1%	-	-	-	1.1%	-
Educational services	0.8%	-	-	25.7%	15.0%	9.0%
Healthcare services	-	-	-	-	-	-
Home and non-home medical and social services	-	-	-	-	5.4%	-
Reduction of contribution gap	-	-	-	-	18.3%	-
Incentives and tax credits for enterprises	40.6%	23.3%	-	11.5%	-	-
Tax transfers to families	-	16.4%	-	5.2%	-	-
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

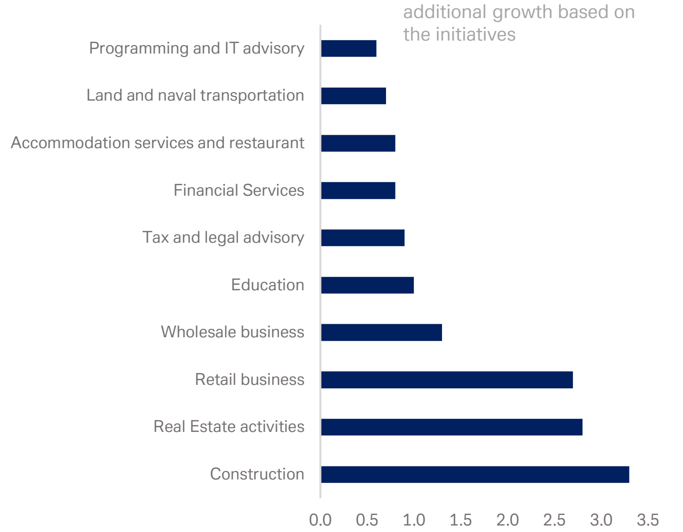
Source: Italian Government, PNRR. Data as of June 2021.

Figure 10: Forecasts of recovery plan's supplementary economic impact



Source: Italian Government, PNRR. Data as of June 2021.

Figure 11: Supplementary sectoral impact of recovery plan



Source: Italian Government, PNRR. Data as of June 2021.

03 The economic impact of planned spending

Italian GDP grew by +0.1% in Q1 2021, with growth picking up to +2.7 % (preliminary ISTAT data)[5] in Q2, above expectations and the Eurozone aggregate (+2%). Manufacturing PMI indicators have reached their highest level in the second quarter of 2021 since this measure was launched in 1997.[5]

The PNRR provides forecasts, based on European criteria, of how much the plan will affect the country's growth. Under an intermediate scenario, it will have a positive impact on GDP growth of 0.5% in 2021 rises to 2.7% in 2026.[6]

At a sectoral level, these forecasts underline the importance of infrastructure and real estate sectors.

The International Monetary Fund (IMF) and the ECB have raised their GDP growth forecasts for 2021 and 2022, bringing them to +4.9% and +4.2% respectively for 2021. We forecast Italian GDP growth of 6% in 2021 and 4.7% in 2022.

Consumer spending should contribute to economic recovery, in particular in 2021. However, over the longer term, a higher saving rate than pre-Covid is possible due to remaining uncertainties.

04 Investment implications

The focus on digitalization, the environment, healthcare and real estate should further support these sectors. Development and requalification in a more sustainable way of different types of infrastructure (not only the traditional areas but also the smart infrastructure) should give a positive shock to the sector. Themes related to smart mobility and green economy will also profit from the new direction the Government is taking from the R&D point of view which could create more fertile ground for tech and green start-ups.

The justice and public administration reforms, together with the focus on education, will be key steps towards increasing Italy's competitiveness and creating an efficient environment for entrepreneurs and a more supporting platform for innovative and green projects.

A positive impact on the GDP growth should also contribute to better control of public finances and in particular to achieve targets of debt levels/GDP to ensure market stability and further growth.

Bibliography

1. Italian Government, Piano Nazionale di Ripresa e Resilienza, June 2021
2. Bank of Italy, Relazione annuale, May 31, 2021
3. European Commission, Recovery Plan for Europe, https://ec.europa.eu/info/strategy/recovery-plan-europe_en#figures
4. World Bank Group, Italy Country Snapshot, August 2021
5. Istat, Nota mensile dell'economia italiana, n. 7 / July 2021
6. Bank of Italy, Bollettino Economico, n. 3 / July 2021

Glossary

The European Central Bank (ECB) is the central bank for the Eurozone.

EUR is the currency code for the euro, the currency of the Eurozone.

The Federal Reserve (Fed) is the central bank of the United States. Its Federal Open Market Committee (FOMC) meets to determine interest rate policy.

Gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific time period.

The International Monetary Fund (IMF) was founded in 1944, includes 189 countries and works to promote international monetary cooperation, exchange rate stability and economic development more broadly.

Institute for Research, Hospitalization and Healthcare (IRCCS) is Scientific Institute for Research, Hospitalization and Healthcare in Italy.

The Italian National Institute of Statistics (ISTAT) is specialized agency for official statistics in Italy.

The Organisation for Economic Co-operation and Development (OECD) has 35 member countries and has the objective of encouraging economic progress and world trade.

The Next Generation EU (NGEU) fund is a European Union recovery package to support member states hit by the COVID-19 pandemic.

Purchasing manager indices (PMI) provide an indicator of the economic health of the manufacturing sector and are based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment. The composite PMI includes both manufacturing and services sectors. They can be published by public sector or private agencies (e.g. Caixin, Nikkei).

National Recovery and Resilience Plan (PNRR) is Italy's investment and reform plan for recovery from the Covid-19 emergency.

SMEs are small and medium-sized enterprises.

Support to mitigate Unemployment Risks in an Emergency (SURE) is available for European Union members that need financial support to fight the negative economic and social consequences of the coronavirus outbreak.

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