Edited by
Floriana Cerniglia, Francesco Saraceno,
and Andrew Watt

THE GREAT RESET

2021 European Public Investment Outlook

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Introduction

Floriana Cerniglia, Francesco Saraceno, and Andrew Watt

Recent weather-related catastrophes have underlined the urgent need to stem climate change. Together with the massive economic and social impact COVID-19 has had on our lives, they have forced the issue of public investment to the centre of the public policy debate. The dire condition of public capital in most advanced economies was exemplified by the widespread unpreparedness of healthcare systems in facing the pandemic. That is why most commentators (amongst whom the editors of this volume) welcomed the fact that from the beginning, while doing whatever it took to minimise the health and economic effects of the pandemic, European countries quickly moved towards ensuring a robust post-COVID recovery, in the hope of avoiding mistakes made ten years earlier.

The Next Generation EU (NGEU) programme, nested in the EU budget, was agreed upon—after some difficult negotiations—relatively quickly, and is centred on the creation of a Recovery and Resilience Facility (RRF) aimed at financing investment for economic recovery. As we write these lines, most national recovery plans have been approved by the Commission and the Council and the first instalments of grants are being disbursed. This is not the place to discuss the novelty of the programme, or whether it truly constitutes a Hamiltonian moment, a founding act for a Federal Europe (on this, see Saraceno 2021 and Watzka and Watt 2020). What matters for our purposes is the fact that NGEU is a massive effort towards financing public investment across Europe, especially in countries currently facing fiscal constraints, and creating the incentives, through reforms and complementary infrastructure projects, for a renewed boost of private investment.

Of course, the comeback of public investment in the policy debate is not related solely to the pandemic. The Global Financial and Economic Crisis of 2008—and in Europe the disastrous experience of the subsequent euro crisis—challenged three decades of consensus in macroeconomics centred on a limited role for macroeconomic policy and, within that limited role, a strong emphasis on monetary policy (Saraceno 2017a). The financial crisis, the liquidity trap, and the zero lower bound forced governments to resort to providing their economies with massive support, *de facto* taking fiscal policy off the backburner. That, in turn, revived the debate on the effectiveness of fiscal policy. The whole "rethinking macroeconomics" discussion revolved around the

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size of fiscal multipliers (e.g., Gechert and Rannenberg 2014), the return of the policy mix, and the long-term impact of macroeconomic policy (Fatàs and Summers 2018). Public investment was at the centre of this debate. On the one hand the crisis put in the spotlight the degree of degradation of public capital, including in the highly productive advanced economies (DIW 2013), while on the other hand, the importance of public investment as a stabilisation tool, its impact on potential growth, and the crowding-in effects on private investment gradually became the new consensus in the theoretical and empirical literature (Le Garrec and Touzé 2020). The most visible result of this renewed interest in public investment is the famous IMF World Economic Outlook chapter on public investment (IMF 2014), which highlights that the high productivity of public investment in a situation of depleted public capital stock, together with all-time low levels of interest rates, has turned public investment into a "free lunch".

European policymakers, entangled in their obsession for fiscal discipline which permeates the Maastricht architecture, have until recently been largely impervious to the rethinking macroeconomics debate raging in academia and the international policy institutions. The old consensus was the background, justifying the combo "austerity plus reforms" that led to the self-inflicted second recession in 2012–13 and a decade of soft, disappointing growth. Some policymakers did pay lip service to the need for public investment to sustain recovery (one example being the widely quoted Jackson Hole speech by then ECB President Mario Draghi in 2014), but this necessity was carefully framed within the need for fiscal discipline as a priority for governments, and the respect of the very same fiscal rules that had yielded procyclical fiscal policies and curtailed public investment. Thus, it is not surprising that the Juncker Plan, the 2014 post-crisis EU flagship investment programme, supposedly a pillar for economic recovery and sold to the EU citizens as a boost to public investment, was in fact little more than an (underfunded) public-private partnership.

The first edition of *A European Public Investment Outlook* (Cerniglia and Saraceno 2020) and the project to transform this publication into a permanent observatory on public investment in EU countries was born out of frustration regarding the state of the public investment debate in Europe. By gathering high-ranking academics and policy institutions to discuss the role of public capital in boosting potential growth, we aimed to show that, provided European policymakers managed to shrug off their old mindset, a public investment push would be not only feasible, but also highly desirable. In fact, the first part of the 2020 *Outlook* showed that, despite the lip service given to the need for public investment, following the sovereign debt crisis it had become the first casualty of austerity policies in the Eurozone (including in its largest economies).

The first edition, published in 2020, was mainly written before the COVID-19 pandemic. Nevertheless, the authors of the *Outlook* collectively (and in a decentralised manner!) took the stance of considering public investment in a broad sense as any addition to the stock of material and immaterial public capital. Alongside classical, bricks-and-mortar infrastructure investment, the authors highlighted the need to invest in social capital, education, health, social cohesion, and R&D.

The policy reaction to the COVID crisis hinted that the frustration with the European debate might be becoming less justified. While many of the old reflexes are still present, the swift response to the pandemics, and more importantly the relatively quick agreement on the Next Generation EU investment plan, suggest that European policymakers might have learnt from the mismanagement of the sovereign debt crisis.

A major difference to the 2020 *European Investment Outlook*—and indeed to any past discussion of public investment in EU member states—comes in the form of the Recovery and Resilience Facility: national fiscal policy is no longer the overwhelmingly predominant driver of public investment across all EU member states. While in the past, EU funding via the structural funds has been an important element of public capital spending in some countries during certain periods, for the first time, by means of the RRF, the EU is financing public investment in macroeconomically relevant orders of magnitude (even considering that they are spread over a multiannual timeframe) across member states.

The total volume of spending that will eventually take place under the RRF is still subject to uncertainty. The facility is divided more or less equally into a grant and a loan component. While all member states will tap their grant allocation, it is not yet clear to what extent they will take up the offer of EU loans (among the largest economies, so far only Italy did); they can decide to do so at a later date. That said, the total potential volume of the RRF is €672.5 bn, of which €312 bn consists of grants and up to €360 bn of loans. This is by far the biggest item in the overall Next Generation EU package which totals €750 bn, measured in 2018 prices; this represents 5.4% of 2019 GDP.

The required funds are raised by the EU Commission on financial markets. The bonds have been in strong demand from investors. This is rightly considered a major step forward in the EU integration process. This will be the case, in particular, if it proves possible to expand the EU's own resources—as all the EU institutions have, in principle, agreed should happen—so that the debt service will be made out of EU rather than national resources. The debt service schedule will run from 2028–58.

In spring 2021, member states had to submit recovery and resilience plans to the European Commission detailing their spending plans. These had to be in line with country-specific recommendations addressed to them in the course of the European Semester process. In addition, there is a requirement for 37% of the project expenditure to be targeted at climate-protection measures and 20% related to digitalisation. Following Commission approval, the Council greenlights the disbursement of funds to individual member states. Initially 13% of each country's allocation was available to kickstart recovery; these resources were transferred to member countries in August 2021. The remaining funding is made available in stages, depending on the achievement of agreed milestones. Disbursement is planned to be completed by 2026.

The RRF has a strongly redistributive component, favouring countries with below-average per capita GDP—thus working similarly to the cohesion funds—but also those whose economies were hit hardest by the pandemic; there is therefore also a

strong stabilisation component and a fair amount of risk-sharing, a real novelty in EU policymaking. Consequently, the contribution of the RRF expenditures to total public spending varies considerably between member states. The national chapters in this *Outlook*—for France, Germany, Italy, Poland, and Spain—provide detailed accounts of the national plans and the priorities the different countries have set.

A recent analysis by the French Treasury (Bénassy-Quéré 2021) compares national discretionary stimulus measures with expected allocations under the RRF. In countries such as Greece and Italy or Croatia and Romania, RRF spending dwarfs the national stimulus measures. For Nordic countries or Austria, on the other hand, the macroeconomic significance of RRF spending is limited. In terms of public investment, though, RRF spending, which is more medium-term in nature, will be more important than this comparison suggests, as national stimulus measures were often focused on short-term income support. Precisely assessing the investment content of RRFs is difficult—and arguably somewhat arbitrary given that, as noted earlier, the definition of public investment is a matter of debate—but is expected to be high; see the first chapter in this report.[1]

An early study of the impact of the RRF, looking only at the grants component and assuming that all measures took the form of public investment, estimated a significant impact to annual GDP, of the order of 0.3 pp in each year of the programme (Watzka and Watt 2020). This average concealed a substantial spread across countries, with the hardest-hit member states benefiting from a considerable boost to output and employment; in Greece, for example, the boost was more than 1% of GDP per year. A more recent study by the European Commission (Pfeiffer, Varga, and in't Veld 2021) focuses on the spillover effects between countries. (It also goes beyond the RRF to consider other spending programmes within the overall Next Generation EU package.) A country-by-country assessment neglects the fact that countries also benefit from the support given to neighbouring countries with which they have close trading relations. The authors estimate that this spillover effect adds, on average, one third to the impact of RRF spending. This proportion is higher in countries where the direct impact is lower. In the main scenario, EU GDP after three years is 1.5% higher than without the NGEU programme.

This European Investment Outlook, like the first edition of 2020, is organised in two main parts. Part One assesses the state of public investment in Europe as a whole (Chapter 1) and in a specific group of countries: France (Chapter 2), Germany (Chapter 3), Italy (Chapter 4), Poland (Chapter 5), and Spain (Chapter 6). The common thread of these chapters is to update the data presented in the prior edition, and provide a description of the policy response to the COVID-19 crisis and of the respective economic recovery plans as part of NGEU.

1 The RRF has, alongside spending measures, a structural reform component which may prove important for raising potential output in some countries but is not assessed in this report.

Chapter 1 by A. Brasili, A. Kolev, D. Revoltella, and J. Schanz highlights that wide public investment gaps have opened in the European Union over the past couple of decades despite a recent uptick in 2019 and 2020. Increasingly ambitious targets for the digital and green transition have contributed to these gaps. The EU Commission estimates that an additional annual investment of about €350 bn is needed to meet the current 2030 climate and energy targets. In the EIB's Municipality Survey, two thirds of respondents see gaps in climate change mitigation and adaptation, 47% in digitalisation, and 46% in transport. The pandemic offers the opportunity to "rebuild better". Public investment is the focus of member states' Stability and Convergence Programmes and of the Recovery and Resilience Facility. Exceptionally low interest rates and the ECB government bond-buying programme make it easier to fund these expenditures. They create a window of opportunity in which governments, through wise investment, can gradually shift their debts onto sustainable paths. Governments should, however, recognise that these benign conditions are not the new normal and can quickly change. Hence the authors emphasise the urgency to make the best use of the EU funds to strengthen economic growth.

Chapter 2 by M. Plane and F. Saraceno traces the trend of public investment and public capital in France since the 1970s, summarising and updating the analysis of the chapter from the previous *Outlook*. Compared to other OECD countries, both the level of public capital and the quality of infrastructures in France are high. But the trend has not been favourable. Gross public investment has been on the decline for years, and net public investment has seen an even greater drop, becoming negative: the depreciation of public capital is not compensated by new investment. The net worth of public administrations is still positive but has suffered a significant fall and reached a worrying low point. Indeed, since 2005 public debt has grown faster than public capital. A recovery in public investments only began two years prior to the COVID-19 crisis, with an increase of nearly 14% between the end of 2017 and the end of 2019 (linked to the electoral cycle of municipal elections). A partial reverse in public took place after the municipal elections. Furthermore, the crisis linked to COVID-19 led to an unprecedented dip of nearly 10% in public investment during the first half of 2020 compared to the last half of 2019. Overall, public investment contracted by 4.1% in 2020. It is in this context that the French government unveiled, in September 2020, the contents of its recovery plan of €100 bn over two years, part of which (€40 bn) is financed with funds from the Next Generation EU programme. Like all other major EU countries (except for Italy), France chose only to access RRF grants. Out of the €100 bn, around €36.7 bn will be dedicated to public investment. This is quite considerable, but certainly inadequate to complete the modernisation and the greening of the French economy. Once the worst of the pandemic passes, the emphasis must return to national fiscal policy.

K. Rietzler and A. Watt, in **Chapter 3**, begin with the analysis of the German situation presented in last year's edition of Outlook and describe the role of public investment

and public capital stock since German reunification, demonstrating that public investment has been insufficient for more than a decade. The country needs massive public investment in a number of fields to modernise its infrastructure and ensure that Germany meets its own climate policy goals. This year's chapter looks at the most recent developments and presents an analysis of public investment across policy fields and activities at different levels of government. The authors focus on the massive stimulus package, which the German government launched in summer 2020—the so-called "Konjunktur- und Zukunftspaket" (stimulus and future package). They assess the investment content of the package and the progress made in its implementation. They summarise the German Recovery and Resilience Plan (Deutscher Aufbau und Resilienzplan, DARP) as part of the EU's NGEU programme, noting the substantial overlap with the domestic stimulus plan. Finally, recent simulations with the National Institute's Global Economic Model (NIGEM) are presented, which show that under the current financial conditions, a significant credit-financed public investment initiative is compatible with a reduction in the debt-to-GDP ratio. The authors conclude that, while nobody knows when the pandemic will finally end, the debate on post-crisis fiscal consolidation is in full swing in Germany and a key issue in the autumn election to the Bundestag. Some political positions in support of rapid budget consolidation are incompatible with the enhanced investment and more ambitious climate policies which Germany, and the whole of the EU, need.

In **Chapter 4**, F. Cerniglia and G. Barbieri take up the case of Italy, which, of all the EU countries, has suffered the most from the coronavirus pandemic, causing a contraction of its GDP unparalleled since WWII. The authors assess the measures taken by the Italian government to tackle the economic fallout caused by the pandemic. The year 2020 was a turning point for public investment in Italy, thanks to the widespread conviction that a robust socioeconomic structure, capable of resisting exogenous shocks such as those caused by the pandemic, could be constructed with a thorough and consistent policy, comprising tangible and intangible public investment. The authors have updated the data on public investments in Italy from the previous *Outlook* (Cerniglia and Rossi 2020). Public investments, which declined from 3.7% to 2.1% from 2009 to 2019, gained a slight momentum. In 2019 they went up to 2.3% of GDP. During 2020, notwithstanding the slowdown due to the pandemic in the first half of the year, public investment increased again and the investment-to-GDP ratio climbed to 2.7%. In the south of Italy investment expenditure still remains stagnant. The National Recovery and Resilence Plan (PNRR)—presented by the Italian government at the end of April 2021—is an ambitious plan (more than €200 bn, of which €191 bn is from the Recovery and Resilience Facility) and identifies six main missions (digitisation, innovation, competitiveness, culture and tourism, green revolution and ecological transition, infrastructure for sustainable mobility, education and research, social inclusion and cohesion, and health) and three transversal priorities: decreasing territorial, gender, and generational inequalities. Southern Italy is considered one of the

most economically depressed areas in the EU, and 40% of the PNRR's "territorialisable funds" (i.e., €82 bn) will be allocated to the south, which accounts for 34% of the national population and only 22% of Italy's GDP. Overall, there are encouraging signs of strengthening both the planning of public investment and redefining the regulatory framework, which has made public investment in Italy a slow, cumbersome, and ineffective process. However, one of the elements to which greater attention should be paid in the following months is the governance of the PNRR, as well as the decision-making process at all levels of government.

In **Chapter 5** A. Czerniak and S. Płóciennik analyse the Polish case. First, it must be emphasised that high GDP growth and accelerated structural changes in Poland's economy after joining the EU have been largely driven by public investment. Nearly three decades of constant and relatively high economic growth have made it possible for Poland to partially catch up with the level of development of the most advanced European economies. To continue this positive trend, Poland must fulfil several requirements including a stable demography, a higher degree of innovation, more efficient infrastructure, and a better supply of public goods, like healthcare. Remaining on the convergence path requires further increases in expenditure, especially for energy and digital transformations. The chapter analyses what prospects exist for increasing the scale of public investments and indicates the most promising areas of state activity. The chapter analyses the National Recovery Plan (Krajowy Plan Odbudowy, KPO), which foresees a public investment increase of around €87 bn. The authors point out some of the risks linked to the existing plan: a polarised political landscape and uncertainties linked to the implementation of some of the current reforms.

In **Chapter 6** on Spain, J. Villaverde and A. Maza update last year's data and focus on the key characteristics related to the evolution of public investments in Spain from 2000 to 2020. In 2020, due to a more relaxed and counter-cyclical policy stance from Brussels, the investment effort grew by 2.6%, and its 2020 level of investment is larger than the 2000–09 average. They also assess what Next Generation EU funds can imply for public investment for Spain. For the 2021–26 period, the EU has approved a disbursement of up to €140 bn, about half in direct transfers and the other half in loans. As pointed out in the Spanish RTRP (Recovery, Transformation, and Resilience Plan), the investment foreseen, with its cumulative nature, will make it possible to reach a public investment effort of around 4% of GDP; this will not only imply closing the gap with the EU average, but also means that net investments will be positive for the first time since 2011. According to the authors, the arrival of EU funds will provide a big push for the economy, helping it to become more modern, productive, resilient, and competitive.

The second part of the 2021 edition of *A European Public Investment Outlook* focuses on the challenges caused by the pandemic and the pillars of the Next Generation EU investment plan. The chapters on digitalisation (Chapter 10), energy and green transition (Chapters 11 and 12) and territorial cohesion (Chapter 13) mirror the NGEU

priorities (that in turn follow the workplan of the Von der Leyen Commission, which took office in December 2019). The chapters on healthcare (Chapter 8) and education (Chapter 9) contribute to the debate on the need for social capital, an aspect that the pandemic has cruelly highlighted. It is worth mentioning that the researchers working on the *Outlook* start from a broad definition (i.e., both tangible and intangible) of public capital: a chapter on social capital was already included in the first edition of *Outlook*, written before the pandemic.

The underlying theme of the entire study is the impact of public investment on GDP and on private investment. In this year's edition we decided to dedicate a specific chapter on multipliers (Chapter 7) written by L. Durand, R. Espinoza, W. Gbohoui, and M. Sy. This chapter confirms that public investment stands out as an instrument for boosting growth. Not only can it raise economic activity in the short-term, it can also increase the productive potential of the economy by expanding the capital stock and thus improving productivity. This is especially important for countries seeking to support their economies through crises while simultaneously boosting long-term growth and protecting their fiscal space (IMF 2020). This is the situation many advanced economies face as they kickstart their economies after having shut them down in an attempt to prevent the propagation of COVID-19.

Prior to Keynes, conventional wisdom believed that an increase in public investment would lead to an equivalent decrease in private investment so that the level of aggregate output would remain unchanged: this so-called Treasury view of crowding-out underpinned the idea that deficits should be reduced in order to trigger confidence and private investment.

However, the chapter shows that the Keynesian view, according to which public investment crowds-in private investment by boosting short-term growth and triggering positive expectations, has quite strong empirical support. A few examples of the literature are provided and the results of a meta-analysis are reported. The authors discuss some of the conditions that can lead to strong crowding-in. Moreover, they assess the EU structural funds and Recovery Fund and discuss, in light of the recent literature, whether the EU Recovery Fund is likely to crowd-in private investment and which private activity in the sectors will be most hit by the fallout of COVID-19.

P.-Y. Geoffard in **Chapter 8** discusses healthcare. In a broad sense, any healthcare intervention that improves patients' health may be qualified as an investment. Good health, a major component of individual welfare, could also increase labour supply, especially at an older age, and labour productivity. In this sense, health is a key component of human capital. However, the author points out that such an approach raises many issues. Not every good or service that improves welfare can be qualified as an investment. Many treatments can alleviate pain, and improve or restore the autonomy of the patient, without increasing their future productivity. The value of healthcare cannot be reduced to the effect it may have on future production. Hence, in this chapter the author focuses on a narrower definition of health investment as the

current expenditures that may improve future health. Such a definition encompasses disease prevention, human capital investment in healthcare and long-term care labour, and capital expenditure in healthcare.

The issue of investing in education is considered in **Chapter 9** by L. Fransen, R. Prodi, and E. Reviglio. One among the many heritages of the pandemic is the impact of digital distance learning and tele-education during COVID-19, along with the urgent need to transform current education and learning models, and to invest in physical and intangible infrastructure for the future based on new needs and growing digitalisation. These evolutions show up in recent data on capital expenditures in education in the EU, as well as in the likely change of the Stability and Growth Pact, especially regarding social investment and infrastructure. The new expansionary policy that is taking place within the EU will increase the supply of "safe assets", which includes financial instruments for social and green infrastructure. Another point of interest in this dynamic is the role of multi-lateral and national promotional banks and institutions in becoming new "market makers" by increasing "patient capital" going into the real economy. Finally, the InvestEU programme and Next Generation EU (NGEU) fund both have the potential to impact on investment in education.

Turning to the chapters that mirror the spending priorities established by NGEU, in **Chapter 10** D. Rückert, R. Veugelers, A. Virginie, and C. Weiss tackle the issue of digital technologies and digital transformation, as the COVID-19 crisis is likely to play a dual role in the adoption of digital technology. On the one hand, the crisis has led to a wider recognition of the importance of innovation and digital transformation. According to the 2020 results of the EIB Investment Survey (EIBIS), the majority of firms in the EU and the US expect COVID-19 to have a long-term impact on the use of digital technologies. On the other hand, many firms have experienced a fall in revenues and liquidity during the pandemic. This may force firms to focus on short-term survival strategies, leading them to delay or cancel investment projects. The chapter uses EIBIS data on more than 13,000 companies from the 27 EU countries, the UK, and the US. EIBIS monitors firms' use of various advanced digital technologies, allowing them to capture the digital adoption rates and assess the impact of digital transformation on different economies. In 2020, EIBIS also asked firms about their future digital perspectives. First, the authors identify four corporate digitalisation profiles based on firms' current use of digital technologies. A substantial share of non-digital firms do not consider investment in digital transformation as an urgent priority, even beyond the COVID-19 crisis. This share of "persistently non-digital" firms is larger in the EU than in the US, in particular small firms. Second, results show that dynamics along the digital divide matter for firm performance and employment. "Persistently non-digital" firms are less likely to create new jobs, and tend to pay lower wages and invest less in the training of employees. They are also less likely to invest in innovation activities. Finally, looking at the major obstacles to investment perceived by firms in the EU, the findings suggest that addressing barriers to skills and digital infrastructure should

also be a priority for policymakers. Similarly, addressing the regulatory burden and its associated uncertainties should be high on the digital policy agenda.

The EU has committed to reducing greenhouse gas emissions by at least 55% compared to 1990 by 2030, and being climate neutral by 2050. The 2030 reduction goal cannot be reached without a massive expansion of renewable energy generation in Europe, requiring annual investment of around €150 bn. This is the main concern of **Chapter 11** by C. Jaeger, D. Mangalagiu, and J. Teitge. The authors argue that the unprecedented EU response to the COVID-19 crisis could contribute to the indispensable stream of public investment by nearly €50 bn annually, and specifically to the investment flow needed for renewable capacity expansion. The authors discuss three challenges that need to be tackled. First, to reduce unemployment and counter the dangerous divergence in the Eurozone, Italy, Spain, and the other main recipients of EU funds, need, among other things, to prioritise the construction sector and digitalisation, rather than generating power from renewable energy. Second, the present EU support will decrease in two years and end in three, and countries will have to begin paying back in 2028, before they can generate a reasonable return. Finally, inevitable setbacks will require new solutions that go beyond the present plans. Therefore, an EU public investment flow for renewable generation needs to go beyond 2023. Effective demand in high-unemployment countries needs to be prioritised while renewable generation is expanded in countries with available national resources. Last but not least, a variety of European regions should be supported in the spirit of experimentalist governance rather than being forced into a "one size fits all" approach. With these three strategic components, the European Green Deal can be implemented as the historical mission that it was conceived as.

The EU goal to be climate neutral by 2050 includes a target 90% reduction in greenhouse gas emissions caused by transport (EC 2019). The transport sector alone accounts for around 25% of the global carbon (CO_2) emissions and more than half of the global demand for fossil fuels (IEA 2019). In **Chapter 12**, M. Holzner, K. Weber, M. U. Zahid, and M. Zangl discuss this theme, building on a previous study, and propose the construction of a European Silk Road, including a high-speed rail network extending almost 11,000 kilometres, with a northern route from Lisbon to Uralsk on the Russian-Kazakh border, and a southern route from Milan to Volgograd and Baku. The focus of the contribution in the *Outlook* is on an assessment of the emission reductions achievable with a line from Lyon to Moscow. Setting out their assumptions for various parameters, they determine the GHG emissions of constructing and operating an HSR network, and provide an estimation of how many tonnes of CO_2 could be saved as compared to road and air travel, over a life cycle of sixty years. The results suggest that, in addition to economic benefits, the CO_2 savings are very substantial.

As in the previous edition of the *Outlook*, a chapter has been dedicated to the EU's cohesion policy, given its decisive importance in the EU budget. G. Coco and R. Lagravinese show in **Chapter 13** that the EU is a significant contributor to public

investment in every member state, but not all cohesion expenditure translates into investment. The authors try to disentangle the investment component by looking at the policy themes for the 2014–20 programming period. On an EU scale, they find that 67% of programmed expenditure is investment in a statistical sense, while 7% is in human capital development. However, there are large differences among member states in the share of the investment component, probably explaining the heterogeneity in the estimated impact of cohesion policy among the member states. Moreover, they tackle the issue of the cohesion policy's ability to increase overall investment at the regional level. They compare investment at the NUTS2 regional level, normalised to regional output and to the national level of the same variable, by isolating a group of regions that have been the largest recipients of the cohesion fund over time. Here again they find significant heterogeneity in the results. While in some countries, underdeveloped regions have been able to raise investment (as defined above) beyond the national level, in others (notably Italy and Greece) this has not occurred. This could be considered as an indirect signal of a lack of additionality of cohesion policy in the public investment component. According to the authors, it is important that Eurostat develops a measure of public investment at a regional level to allow for a direct assessment of this issue.

The EU is not a federal state; therefore, it is not surprising that member states were at the forefront in combating the pandemic. For the same reason, the fastest way to channel European resources towards investment was to borrow jointly and to finance national investment plans through the Recovery and Resilience Facility. At the same time, investment in public goods with a strong cross-border component, such as healthcare or transportation networks, should naturally have a genuine European dimension (Creel et al. 2020). Among the priorities for the medium term, European policy makers should therefore think about possible ways to implement EU-wide investment projects. A European Debt Agency (Amato et al. 2021), establishing a permanent borrowing capacity, could be complemented by a European investment agency capable of designing and implementing European investment projects. Such an agency would need to be very carefully crafted to guarantee the accountability typical of fiscal policy by national governments. Some form of oversight by parliament and the Council in determining (or at least validating) investment projects would certainly make the procedures more cumbersome, but that seems unavoidable.

It is clear that, while waiting for a system to genuinely implement European public investment, European support for public investment via the RRF/NGEU can only be a complement to, and never a substitute for, effective and sustained national public investment. One of the consequences of Europe's fiscal framework—notwithstanding declared intentions to the contrary—has been to curtail public investment. In particular, countries coming up against one of the fiscal rules pertaining to (structural) deficits or debt levels have been forced to cut back on spending. In the short run the easiest option, economically and politically, is simply to not implement planned, new investment projects.

At the start of 2020 the EU Commission launched a process to evaluate and revise its fiscal rules, which in any case have been suspended until 2022 due to the pandemic. It is vital that, as part of the reforms, effective measures are put in place to protect and promote public investment. For this reason, many reform proposals include some form of "golden rule", i.e., the principle that, while (cyclically adjusted) current spending is balanced, governments may—indeed, should—borrow to finance productivity-enhancing public investment (e.g., Dullien et al. 2020; Creel et al. 2013; Saraceno 2017b). While there is currently considerable momentum behind such a stance in principle, the devil is very much in the detail. Critics fear that, given the difficulties in arriving at an economically satisfactory, easily operationalisable definition of public investment, a golden rule would open the floodgates to higher public borrowing. Most proposals, therefore, either have a quantitative upper ceiling (as a share of GDP), operate with a restrictive definition, or impose some form of "double-lock", i.e., prior EU-level approval of specific investment spending. This will certainly be a subject of intense political discourse in the coming months as the debate on economic governance reform heats up once again after, hopefully, economic conditions begin to normalise. Whatever solution is finally reached, protecting national public investment from being squeezed by injunctions from Europe's fiscal rules is vital if European countries are to sustain the public investment needed to dynamise their economies and face the challenges of climate change in particular.

Europe faces serious challenges in maintaining its position in the global economy, in the face of competitive pressures both from developed partners, such as the USA, and from other powers, some with authoritarian systems of government, of which China is clearly the most important. Major steps forward will be required if Europe is to attain the "strategic autonomy" in a variety of fields which is necessary to meet that challenge. Among these, the measures described in this *Outlook* which are needed to strengthen public investment at national and European levels are by no means the least important. In the new global scenario, completely different from the time in which the Maastricht order was designed, the European Union needs to redefine its mission, identifying with greater precision and selectivity the areas in which to concentrate its common activity in the face of the new global competition. All this is essential to avoid single European countries, including the major ones, from sliding into a condition of global weakness and even marginality in various sectors. Putting emphasis on planning and implementing large European public investment projects (or missions) is not just a matter of growth *tout court*; it instead means thinking in a new global geopolitical context and about the role of Europe in that context. Once the pandemic is over, we do not believe we can return to the *status quo ante*. To think this would mean underestimating both the depth of the transformation that the current crises have impressed on the world economy (including mainstream economic thought) and the impact of the new post-pandemic geopolitical configuration, marked by a radicalisation of the confrontation between the US and China.

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