

POLICY BRIEF

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THE MACROECONOMIC EFFECTS OF THE EU RECOVERY AND RESILIENCE FACILITY

A preliminary assessment

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Summary

This policy brief analyses the macroeconomic effects of the EU's Recovery and Resilience Facility (RRF). We present the basics of the RRF and then use the macroeconomic multi-country model NiGEM to analyse the facility's macroeconomic effects. The simulations show, first, that if the funds are in fact used to finance additional public investment (as intended), public capital stocks throughout the EU will increase markedly during the time of the RRF. Second, in some especially hard-hit southern European countries, the RRF would offset a significant share of the output lost during the pandemic. Third, as gains in GDP due to the RRF will be much stronger in (poorer) southern and eastern European countries, the RRF has the potential to reduce economic divergence. Finally, and in direct consequence of the increased GDP, the RRF will lead to lower public debt ratios; between 2.0 and 4.4 percentage points below baseline for southern European countries in 2023.

A coordinated European fiscal policy response

The economic and social crisis resulting from the Corona pandemic forced European policy makers to implement major policy measures to stabilise their economies. The ECB provided massive liquidity support through its Pandemic Emergency Purchase Programme, and several short-term fiscal

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support programmes were agreed.³ On 21 July 2020 the European Council agreed to an unprecedented medium-run recovery package known as Next Generation EU (NGEU). Under NGEU the European Commission is authorised to raise up to €750 billion on capital markets and disburse the funds in the form of loans (€360 billion) and grants (€390) to EU member states. The core of NGEU is the so-called Recovery and Resilience Facility (RRF) which is intended to finance public investment in the member states in order to support a resilient recovery, while at the same time promoting the EU's sustainability and digital priorities.

This policy brief analyses the macroeconomic effects of the RRF's grants component. We present the basics of the RRF and then use the macroeconomic multi-country model NiGEM to analyse the facility's macroeconomic effects. The simulations show, first, that if the funds are in fact used to finance additional public investment (as intended), public capital stocks throughout the EU will increase markedly during the time of the RRF. Second, in some especially hard-hit southern European countries, the RRF would offset a significant share of the output lost during the pandemic. Third, as gains in GDP due to the RRF will be much stronger in (poorer) southern and eastern European countries, the RRF has the potential to reduce economic divergence. Finally, and in direct consequence of the increased GDP, the RRF will lead to lower public debt ratios; between 2.0 and 4.4 percentage points below baseline for southern European countries in 2023.

Basics of the Recovery and Resilience Fund

When it became clear that the fiscal measures adopted in the spring would not be sufficient to shield European economies from the fallout of the economic crisis, the European Commission took a bold step in proposing NGEU (European Commission 2020). The key features for the purposes of this policy brief are as follows.

³ For an overview of EU economic policy responses to the coronavirus crisis see Watt (2020).

The member states agreed to raise the ceiling on the EU budget to 2% of GNI and on the back of this the European Commission was authorised to borrow €750 billion on capital markets. These funds can then be allocated to member states as grants and loans. Repayment of the EU bonds does not start until 2028 and is to be completed by 2058. Debt servicing is expected to be covered by future new EU “own resources” (such as a carbon border levy, a plastics or digital tax). Over the medium run considered here, therefore, the sums transferred to the member states as grants constitute an additional budgetary resource without a corresponding outflow or commitment. This is of course not the case with the sums made available as loans. The precise modalities of such loans (repayment periods, interest rates) are not known at this time. Consequently, the take-up of such loans is uncertain.⁴ For these reasons resources potentially available as loans are excluded from this analysis.

The political compromise reached in the European Council, after difficult negotiations – and which, it should be noted, is still not final – shifted the balance between loans and grants. It also had impacts on the expenditure side. The RRF remains by a substantial margin the largest element in the overall NGEU package, with €312bn in grants; we restrict ourselves to analysing its expected impacts. The European Commission has provided a breakdown by country for the expected (maximum) allocations committed in 2021-22 and an estimate for 2023.⁵ By contrast other programmes forming part of NGEU are much vaguer regarding both the spatial and the time dimension of their distribution. In some cases (e.g. neighbourhood policy) funds will be largely spent outside the EU. In this sense, too, we take a conservative approach, focusing on spending that can reasonably exactly be pinned down in terms of where and when it is spent.

⁴ Experience with the Commission’s SURE programme, which provides loans to support member state short-term working schemes suggests that countries with low spreads vis-à-vis Germany – with France as the marginal case – have no financial advantage in taking such loans.

⁵ The national allocations 2021-22 (70%) are calculated in terms of population (the inverse of) GDP per capita and a recent average of unemployment rates; the 30% for 2023 is calculated, instead of using unemployment, as a function of output losses in 2020 and 2021, which is why the allocations are currently only estimates.

Regarding the time dimension, the European Council compromise stipulates that funds allocated under the RRF are to be committed during the years 2021-23 and fully disbursed at the latest by the end of 2026. The distribution of actual spending over time is as yet unknown and likely to vary between countries. The exigencies of the crisis suggest that front-loading is desirable, and arguably political economy considerations point in the same direction. However, there are constraints in ramping up public investment in short order and thus likely a speed-quality trade-off.⁶ Lacking a clear rationale for an alternative, we adopt the simplest distribution in modelling terms: an equal disbursement in each of the 24 quarters from 2021-26. To the extent that it proves possible to front-load the measures, the impact on GDP and employment is therefore likely to be somewhat higher than estimated here.

As far as the types of spending by member states that can benefit from RRF support is concerned, attempts by the “frugals” to assert control through the European Council on member state spending priorities were largely thwarted. Member states will submit Recovery and Resilience Plans that are to be assessed by the European Commission. This process will be folded into the regular European Semester process of policy coordination. The reform and investment plans – currently under preparation – will need to show that they respect overall EU priorities while addressing specific priorities identified under the European Semester for each country. Ex ante, therefore, we cannot determine exactly what the member states will spend their RRF allocation on. For the purposes of the simulation we classify the grant allocated as an increase in public investment.⁷

Figure 1 summarises the RRF grants allocated to each member state as a share of its 2019 GDP, ranked by relative weight.⁸ Some relevant characteristics of the RRF grants emerge from the figure. The total volume

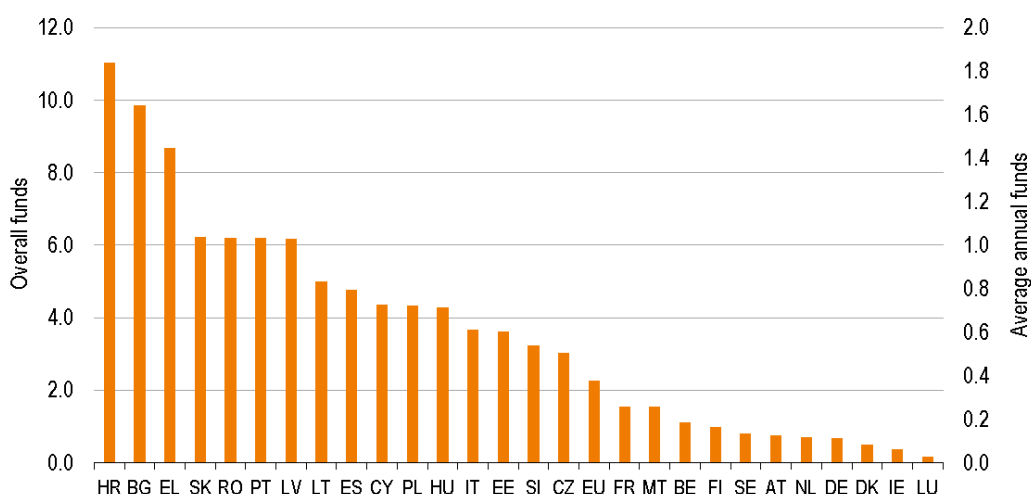
⁶ Indeed Corti et al. (2020) raise doubts whether some countries enjoying large allocations from the RRF can absorb large increases in public investment.

⁷ The additional RRF funds could also be used as a substitute for national funds to finance so-called “pork-barrel” spending (Münchau 2020). This is one reason why the RRF needs a good governance structure if it is to succeed (Wolff 2020).

⁸ See Table A1 in the appendix for a detailed overview of RRF grants in absolute and relative terms.

represents a substantial percentage of annual EU GDP, around 2.2%. Given that this spending is spread out over six years, it is, on its own, of limited macroeconomic relevance (less than 0.4% of EU GDP per annum). At the same time, stark differences in macroeconomic importance between countries emerge. For seven EU member states (Croatia, Bulgaria, Greece, Slovakia, Romania, Portugal, Latvia) the RRF grants are set to provide a boost of more than 1% of GDP every year for six years. For nine countries (Lithuania, Spain, Cyprus, Poland, Hungary, Italy, Estonia, Slovenia, Czechia) the impulse provided represents between 0.5% and 1% a year. For the remaining countries, the RRF grants are of rather marginal importance, representing only about 0.25% of GDP annually or less. All countries in the first two groups are in southern or eastern Europe. The latter group (except Malta) consists of “core” EU countries in northern-western Europe. This means that the RRF will have a strongly redistributive character, only partially related to the short-run economic damage wreaked by the Covid-19 pandemic. The allocation criteria chosen imply that the distribution is largely from richer to poorer states.

Figure 1: RRF grants as a share of 2019 GDP (left axis overall funds, right axis average annual funds when split equally over the years; in percent)



Source: European Commission; IMK calculations.



Macroeconomic modelling and results

To simulate the macroeconomic effects of the RRF grants we make use of the widely employed global macroeconometric model NiGEM.⁹ We exogenously increase public investment in all EU member states contained in NiGEM by the amounts shown in appendix table A1. More precisely, we assume all RFF grants foreseen to be committed during the period 2021-23 will be spent evenly during the period 2021-26. The additional public investment by the member states is financed via grants (transfers) from the EU which raises the funds from the capital markets, as outlined above.¹⁰ This is modelled in NiGEM by assuming additional windfall-revenues accruing to the member states government budgets of the same size as the public investments undertaken. Because we are interested in the short-run effects of the RRF on the recovery (until 2026), and because repayment of the EU's debt won't start before 2028 and is supposed to last until 2058, we do not model the financing side of the program in the simulation.¹¹ Our simulations are conducted taking current economic forecasts in NiGEM as a baseline. This means, importantly, that our simulations assume the currently strongly rising Covid-19-infection rates (second wave) do not lead to further national lockdowns, as in spring, and that the economic recovery will therefore proceed even in the absence of the RRF stimulus.

Strong effects on public capital stocks

The public investment financed through the RRF grants will increase public investment as a share in GDP in all EU countries (Figure 2). The effect of the RRF on the role of public investment in GDP is particularly strong in southern and eastern European countries. At the same time, in eastern

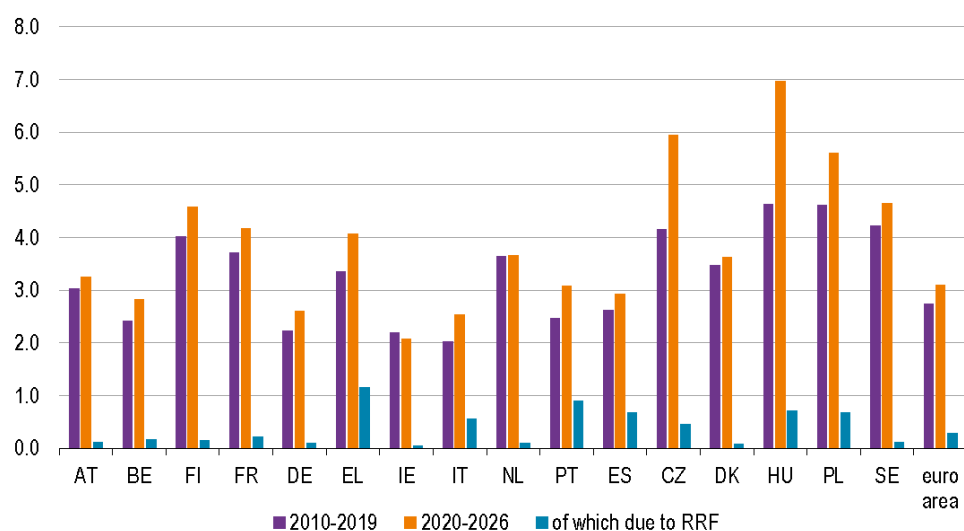
⁹ NiGEM is a multi-country model with neo-classical features. It contains full country models of 17 (of the 27) EU countries, of which 12 are euro area countries. A full list of EU countries included in NiGEM is shown in Table A2 in the appendix. We use version 3.20 of NiGEM, of which we changed the base file marginally to allow for later ECB interest rates more in line with financial market expectations. See <https://nimodel.niesr.ac.uk/>.

¹⁰ The debt issuance on world capital markets by the EU is assumed not to affect market interest rates in any noticeable ways.

¹¹ Under the assumption of adaptive expectations used in the NiGEM simulations, households will not consider any future tax increases in their consumption decision.

European countries the projected increase in public investment as a share of GDP exceeds the RRF allowance by substantial amounts. This is due to the still ongoing catching-up process of these economies and, in some cases, such as Hungary, due to other EU programmes. Given the limited importance of the RRF for northern European countries, the additional public investment forthcoming from the program does not have much of an impact on the projected growth of public investment as a share of GDP in those countries.

Figure 2: Public investment as share of GDP (in percent)



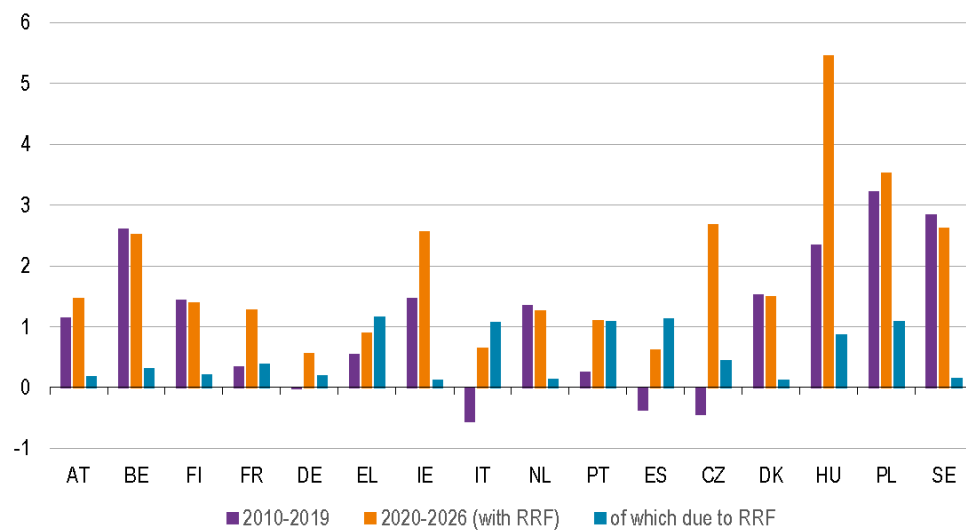
Source: IMK calculations based on NiGEM.



The RRF program will also have sizeable effects on public capital stocks in most member states of the EU (Figure 3). With the exceptions of Belgium, Finland, the Netherlands, Denmark and Sweden, all EU countries are predicted to have higher growth rates of their public capital stocks in 2020-2026 compared to the last decade, with much of the rise due to the effects of the RRF. The RRF will have particularly strong effects on the public capital stocks of southern and eastern European economies: Greece, Italy, Portugal and Spain, as well as Hungary and Poland are shown to benefit most in terms of higher growth rates of their public capital stocks due to the RRF.

Italy's public capital stock, to give an example, will on average have a one percentage point higher annual growth rate during 2020-26 than without the RRF. Indeed, in the absence of the RRF, Italy's public capital stock would continue to decline. The same holds for the public capital stock in Spain and Greece, while the growth of the Portuguese public capital stock will almost entirely be due to the RRF (Figure 3).

Figure 3: Average annual growth rate of public capital stock (in percent)



Source: IMK calculations based on NiGEM.



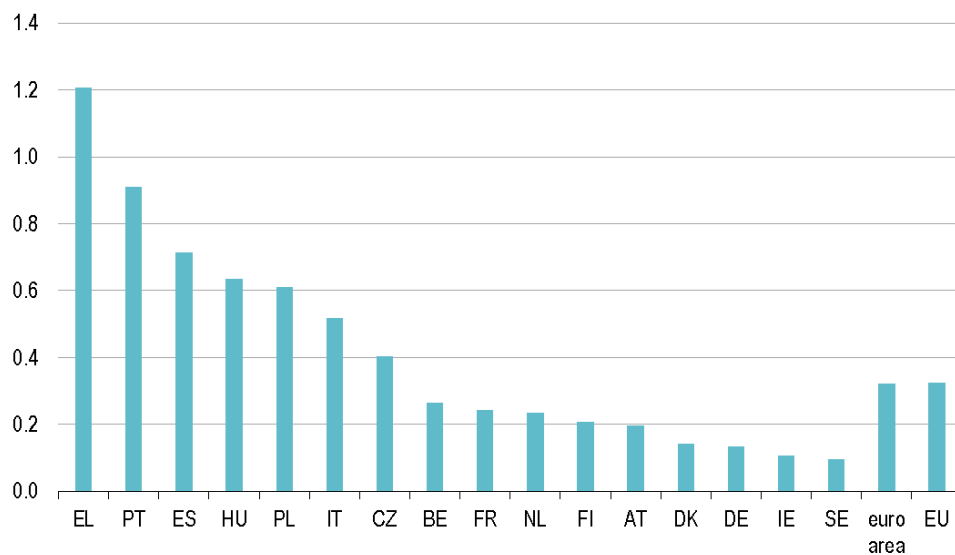
Sizeable effects on GDP

The additional public investments by the member states will have important effects on the pace of their economic recoveries from the Covid-19-pandemic. Figure 4 shows the average percentage deviations of GDP under the RRF scenario vis-à-vis the baseline forecast for the first three years, focusing now on the short-term recovery only. For the euro area and the EU overall, GDP will on average be 0.3% higher under the RRF scenario. Given the size of the additional public investment under the RRF, this implies a multiplier of around 0.8. Greek GDP, to take a country benefiting from a relatively large RRF grant, will be on average 1.2% higher if the RRF is implemented as announced. Given the size of the additional public investment in Greece under the RRF this implies a fiscal multiplier of

around 0.9 in the first three years of the program. This order of magnitude for the fiscal multiplier is also found for the other countries in the simulation.

However, there are various reasons to believe actual multipliers will almost certainly be higher than those found in the simulations. First, as the import content of public investment is relatively low, and in particular below the average number used in NiGEM, the true multiplier will be larger (Jorra et al. 2018, Behrend et al. 2019). Second, multipliers will be much higher if, in the current pandemic environment, the additional public investment succeeds in reducing uncertainty, crowds-in private investment and creates jobs (IMF 2020). Finally, medium- to long-term multipliers for public investment are generally considered to be larger than short-term multipliers (Ramey 2020). In that sense, Figure 4 can be interpreted as a lower bound for the longer-term effects of the RRF.

Figure 4: Average GDP effect in the first three years (2021-23) of RRF (percentage deviations from baseline)



Source: IMK calculations based on NiGEM.



On the other hand, the funds allocated by the RRF are assumed to be used for public investment (as opposed to public consumption and transfers). Given that the literature finds higher short-run multipliers for public investment than for public consumption, taxes or transfers (Gechert and

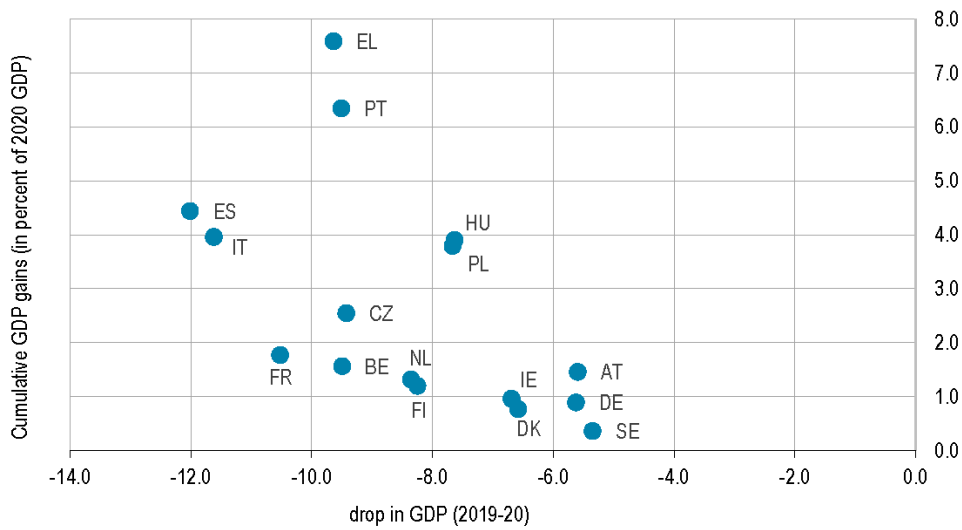
Rannenberg 2018), the GDP effects of the RRF could also turn out to be somewhat below those shown in Figure 4, if not all funds are in fact used for productive public investment.

Reducing economic divergence

A goal of the RRF is to address the danger for the sound economic development of the EU and the euro area emanating from increased divergence following the Covid-19 pandemic because of differences in the ability of countries to offset the negative shock. Some of the RRF's allocation criteria contain explicit reference to the damaging effect of the crisis, although, as shown above, relative income and unemployment rates predominate.

Our simulation results do indeed suggest that the RRF will counteract further pandemic-induced economic divergence. Figure 5 plots the cumulative GDP gains (vis-à-vis baseline) for the period 2020-26 against the drop in GDP in 2019/20. Economies which were not that heavily affected by the crisis (Austria, Denmark, Germany, Ireland and Sweden) gain far less in terms of additional GDP from the RRF than economies that were most heavily affected (Greece, Italy, Portugal and Spain). There are, however, also countries that were hit badly by the crisis and still do not gain as much in terms of additional GDP from the RRF (Czechia, Belgium, Finland, France, and the Netherlands). Equally Hungary and Poland (and some other eastern European countries not modelled in NiGEM) benefit due to the emphasis on income-level convergence in the programme. Overall, however, Figure 5 highlights the strong effects the RRF will have on economic developments in the EU and in the euro area in terms of preventing the fall-out from the Covid shock causing further divergence.

Figure 5: Cumulative GDP gains from RRF (vis-à-vis baseline 2020-26 and in percent of 2020 GDP) and the drop in GDP due to Covid-19 (in percent)



Source: IMK calculations based on NiGEM. See appendix for country codes.



Fiscal implications

Not surprisingly, the short- to medium-term implications of the RRF for fiscal balances and debt is found to be positive for all EU member states over the time horizon considered. All countries will see declining public debt ratios, with the southern European countries experiencing the largest drops. The Greek debt-to-GDP ratio is, for instance, found to be 4.4 percentage points below the baseline forecast in 2023. The Italian and Spanish public debt ratios will be around 2.5 percentage points below their baseline numbers and the Portuguese debt ratio will be around 2.0 percentage points lower.

A critical appraisal of the RRF

Our simulation results indicate that the EU's Recovery and Resilience Facility will go some way to support the overall economic recovery, with the strongest effects on the GDP of those member states whose economies were hit most severely by the Covid-19-pandemic. As such, the program will have important effects preventing further economic divergence in the

euro area and the EU. By issuing joint debt in significant quantities, the EU will also – for the first time in its history – provide fiscal stimulus that is at least taking some weight off the ECB’s burden in stabilising the euro area economy. The stabilising effects of the RRF on the overall economic developments of the euro area and the EU will indirectly also prove beneficial to countries like Germany, whose direct benefit is limited, through a more prosperous common market and hence a stabilization of important export markets.

As the RRF is largely meant to finance additional public investment, public capital stocks can be expected to increase under the program. Ongoing investment in public capital will in fact be crucial for a sustainable economic recovery, and also for addressing longer-term challenges, notably decarbonisation. Without the RRF the public capital stock would likely decline in in some southern European countries. Given the heavy negative developments of some public capital stocks in the last decade, partially due to austerity measures that were implemented throughout the EU, and given the importance of a modern and productive public capital stock for innovative economies, it is welcome that the EU is finally pursuing a more growth-friendly economic strategy.

A number of points should be borne in mind in interpreting these results. The contribution of the RRF would prove more substantial if the recovery is derailed by renewed widespread lockdowns, compared to the steady pace of recovery assumed as the baseline here. In any case it will be important for the EU and member states to swiftly agree on rapid and economically sound implementation of the member states’ reform plans. The more measures can be front-loaded and address existing structural inadequacies, the larger the effects will be in practice. For some countries with relatively large allocations, meeting the twin exigencies of rapid and efficient implementation could be challenging.

The RRF grants on which we focus here are only a part of the NGEU package; the overall NGEU impact will most likely be greater, but impossible to assess quantitatively at this stage. In addition, some countries with fiscal leeway, including Germany, are planning to raise public investment under their own steam. Both the additional European and the

national impetus will certainly be needed, as the average GDP effect from RRF grants alone, which we estimate to be of the order of 0.3% a year for the euro area and the EU overall, will not be sufficient on its own. From this point of view the European Council compromise which, in particular, shifted the Facility away from grants in favour of loans is regrettable.

Finally, despite the overall positive appraisal of the RRF highlighted by our results, the EU's fiscal recovery package should only be regarded as a first (major) step towards a much more sustainable macroeconomic policy mix and framework. A long-term strategy of investment in European (rather than national-level) infrastructure projects is needed (Creel et al. 2020), as are reforms of the economic governance framework (Watt and Watzka 2018, Behrend et al. 2019, Dullien et al. 2020, Watzka 2020).

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Appendix

Table A1: RRF grant allocations

The two columns on the left indicate the RRF grants billions of euros, for the whole period and annually. The two right-hand columns express these figures as a ratio of 2019 GDP (in percent).

		Total RRF grants	Annual RRF grants	RRF grants to GDP	Annual RRF grants to GDP
		Overall sum; in bn euro	Split equally across years; in bn euro	In % 2019 GDP	Split equally across years; in % 2019 GDP
Austria	AT	3,0	0,5	0,75	0,13
Belgium	BE	5,1	0,9	1,09	0,18
Bulgaria	BG	6,0	1,0	9,86	1,64
Croatia	HR	6,0	1,0	11,03	1,84
Cyprus	CY	1,0	0,2	4,34	0,72
Czechia	CZ	6,7	1,1	3,01	0,50
Denmark	DK	1,6	0,3	0,50	0,08
Estonia	EE	1,0	0,2	3,62	0,60
Finland	FI	2,3	0,4	0,97	0,16
France	FR	37,4	6,2	1,54	0,26
Germany	DE	22,7	3,8	0,66	0,11
Greece	EL	16,2	2,7	8,66	1,44
Hungary	HU	6,3	1,0	4,28	0,71
Ireland	IE	1,3	0,2	0,36	0,06
Italy	IT	65,5	10,9	3,66	0,61
Latvia	LV	1,9	0,3	6,15	1,02
Lithuania	LT	2,4	0,4	4,98	0,83
Luxembourg	LU	0,1	0,0	0,15	0,02
Malta	MT	0,2	0,0	1,52	0,25
Netherlands	NL	5,6	0,9	0,69	0,11
Poland	PL	23,1	3,8	4,33	0,72
Portugal	PT	13,2	2,2	6,18	1,03
Romania	RO	13,8	2,3	6,18	1,03
Slovenia	SI	1,6	0,3	3,22	0,54
Slovakia	SK	5,8	1,0	6,22	1,04
Spain	ES	59,2	9,9	4,75	0,79
Sweden	SE	3,7	0,6	0,78	0,13
EU27	EU	312,5	52,1	2,24	0,37

Source: European Commission; IMK calculations.



Table A2: EU countries included in the simulation

Table A2 shows all EU countries with full country models contained in NiGEM:

Country	EU country code
Austria	AT
Belgium	BE
Czechia	CZ
Denmark	DK
Estonia	EE
Finland	FI
France	FR
Germany	DE
Greece	EL
Hungary	HU
Ireland	IE
Italy	IT
Netherlands	NL
Poland	PL
Portugal	PT
Spain	ES
Sweden	SE

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