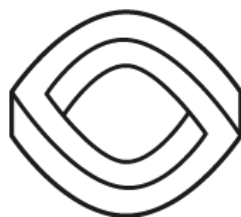


LABORATORIO LUISS
SUL MEZZOGIORNO



Towards a new MFF New priorities and their impact on Italy

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Abstract

This paper analyses the outlook for regional funding under the next Multiannual Financial Framework of the EU for which the Commission has proposed new criteria. The starting point is the so-called Berlin formula, developed from a blend of national and regional indicators. In reality, the allocation for any region depends not only on the state of the region, but also heavily on the income level of the member state in which this region is located.

The modifications to the Berlin formula proposed by the Commission would accentuate the importance of the national component, despite the fact that the EU cohesion policy is supposed to aim at lagging regions, not countries.

Growth in Italy has been below the EU average for some time. This means that the poorer Italian regions should be entitled to a higher amount of cohesion policy funding. However, the increase one could expect on this count is limited given the modifications to Berlin formula proposed by the Commission. The application of the new formula would lead to a somewhat lower allocation for Italy overall (especially for the Mezzogiorno) for two reasons: i) Italy is still a relatively prosperous member state, ii) There are caps to the increase of cohesion policy funding to which regions can be eligible even if their relative income position has worsened a lot.

Italian Universities and research institutes benefit less from EU funding than one would expect given the size of the Italian economy from competitive support for research and innovation programmes under Horizon 2020. This underperformance is not due to political decisions as the research funding of the EU is allocated strictly on scientific merit.

In the area of research and innovation there is as well a strong north-south divide within the country. Creating high quality research institutions in the south might be a more promising way to use cohesion policy funds than building roads or railways. It should receive more attention and funding from national and EU policymakers.

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EU budget over time: an overview

Introduction

The current Multiannual Financial Framework (MFF) will end in 2020. There is not a lot of time left to make substantial amendments to the proposal of the European Commission for the next MFF. It will have to be decided, at the latest, under the German Presidency in the second half of 2020 to avoid the controversial option of entering the provisional twelfths whereby the last year's budget is disbursed in equal instalments month by month.

It is already apparent that these negotiations will be at least as difficult as the previous ones. Representatives from the so-called 'Hanseatic league' of net contributors have already indicated that they are not willing to increase their net contribution to the EU budget, which would be necessary to plug the gap left by Brexit. The proposal published by the Finnish presidency in late 2019 represents one example of this.

Moreover, there will be competition for cohesion spending between the new member states, whose growth has propelled them above certain thresholds for cohesion funding, and those countries/regions from the south of the euro area which have fallen behind. In addition, the negotiations in the Council are moving in a direction that deviates substantially from the European Parliament's position, which has reached cross party agreement on the future of the EU budget and may refuse consent if the budget is not more ambitious.

This paper will provide first a longer-term overview of the main elements of the EU budget. It then presents in more detail the distribution of regional funds under the so-called Berlin formula and the way changes to this key for the distribution of Structural Funds proposed by the Commission would affect cohesion funding.

There are two ways to analyse the budget of the EU, which sometimes give a different picture because of the complicated process leading to actual spending. One can look at the funds which are allocated, in principle for 7 years; or one can look at the sums actually spent each year.

The starting point for the budget process of the EU is the MFF, which provides an indispensable legal framework, mandated by the Treaty. In principle, it provides an overall cap to spending (usually expressed as a percentage of EU GNI) for the next 7 years and indications of the overall spending by broad categories. However, actual spending is then determined by the annual budgets, which sometimes diverge substantially from the patterns laid down in the MFF, especially if circumstances have changed in the meantime, for example, due to delays in the implementation of the new legislation and thus delays in commitments, or when a crisis materialises that requires expenditure by the EU budget. This has been the case during the last MFF, when emergencies led to a re-direction of unspent funds for new needs, such as migration or transfers of future commitments to earlier years to reinforce youth employment programmes.

The variability of actual spending, relative to the one foreseen in the MFF is particularly pronounced for cohesion policy, i.e. the Structural Funds, the European Social Fund and Cohesion Fund. The reason for this is that disbursement under those funds requires the presentation and then implementation of detailed projects at the regional level. Planning, approval and then implementation take years.

Projects and disbursements from the EU budget then come in tranches. This implies that actual Cohesion spending is rather variable and always extends beyond the end of the MFF. Under the so-called N+2 or N+3 rule, funds can be disbursed up to two to three years after the formal end of the MFF, which is actually an improvement of the situation in multiannual frameworks before the rule was introduced, which offered no limit to the time for disbursements of committed amounts. Actual cohesion policy disbursements (payment commitments) fluctuate strongly due to the patterns of implementation, while annual commitment levels are rather linear.

Historically, payments have increased from about €25 billion per annum in the early 2000s (i.e. just before enlargement) to about a peak of close to €60 billion in 2012/13, but have since fallen back to below €30 billion in 2017. Preliminary data for 2018 indicate that cohesion spending has increased to about €55 billion as implementation of projects for the 2014-2020 period accelerated. These few figures illustrate the variability mentioned above. For longer comparisons one should go beyond the annual figures.

Of course, these absolute values need to be read taking into account that the EU has enlarged from 15 to (now) 28 members.

Another factor making it difficult to pinpoint how much the EU does for its weaker members and regions is that support for cohesion from the EU budget can take many forms. Cohesion policy is composed of a number of different funds, i.e. the Cohesion Fund (CF), the Structural Funds (SF), composed of the European Regional Development Fund (ERDF) and the European Social Fund (ESF). These are today clustered under one common regulation¹ together with the European Fund for Agriculture and Rural Development (EARDF) and the European Maritime and Fisheries Fund (EMFF) and form the European Structural and Investment Funds (ESIF), thereby streamlining the policy and making it more coherent. But in addition to ESIF funding, the Common Agricultural Policy and several centrally managed funds can also intervene in those regions. Those comprise for example the Horizon 2020 policy or the use of supported equity and debt instruments from the competitiveness policy or the European Fund for Strategic Investments (EFSI) and channelled through national financial institutions or the EIB.

This report, however, focuses solely on the Structural Funds (ERDF and ESF), which represent the main support instrument for regions lagging behind.

The evolution of EU budget

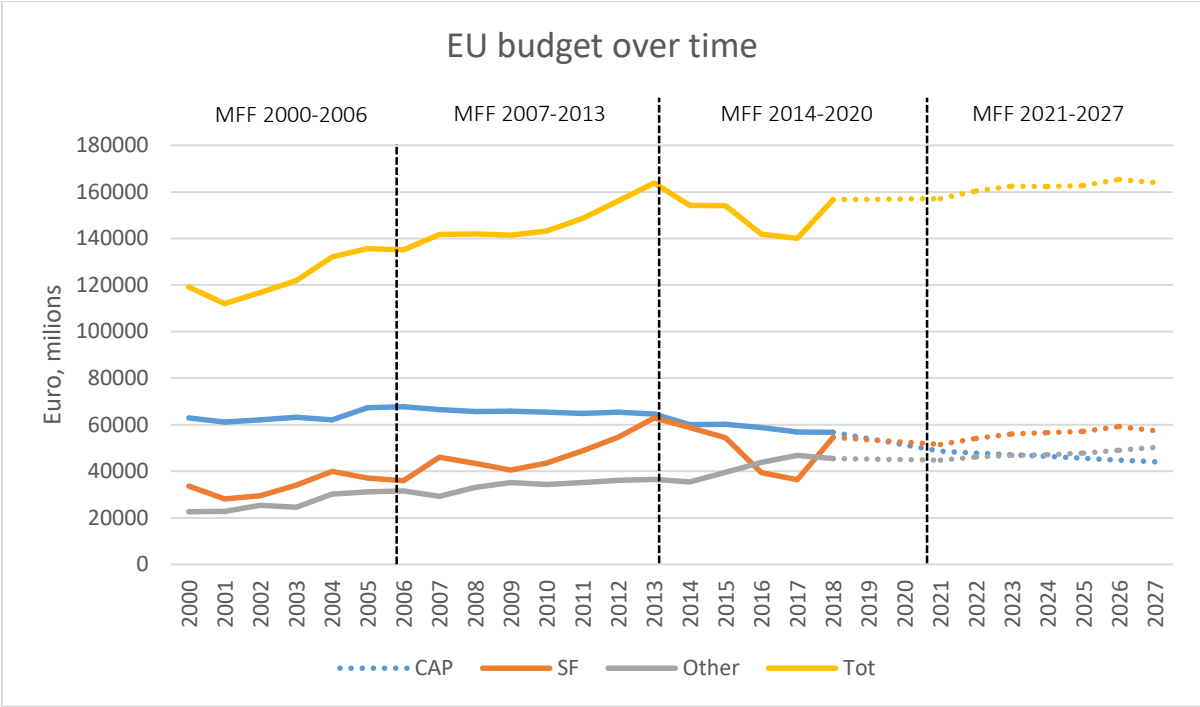
Figure 1 shows the evolution of the EU budget over the last 18 years and the projections for the coming 7 years. Values are expressed in 2018 prices in order to appreciate real variations.² The solid lines represent actual payments provided to member states via the EU budget, while dotted lines are projections based on the proposal for the next programming period submitted by the Commission in May 2018.³

¹ Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006

² 2% yearly inflation is assumed.

³ Commission proposal, May 2018.

Figure 1: EU budget over time⁴



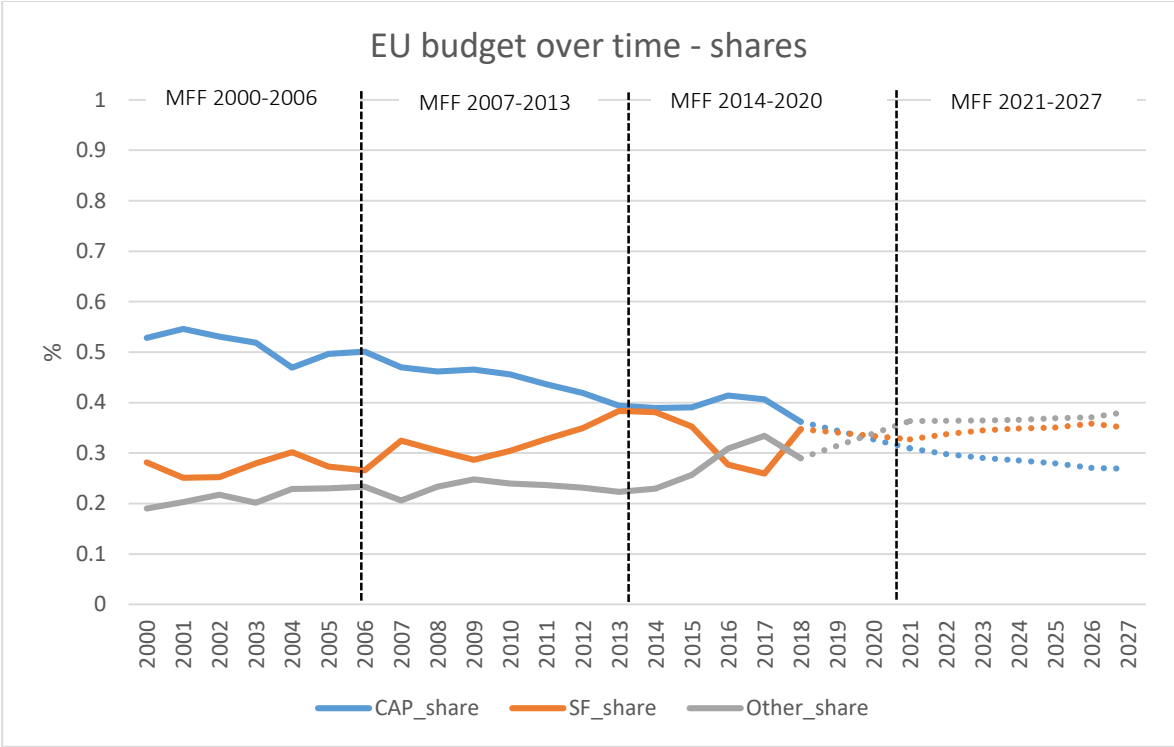
Source: European Commission and authors' elaboration.

The budget of the EU has been under pressure since the Santer Commission scandal in 1999. At that time the budget ceiling was fully utilised at 1.20% of GNI. The pressure to limit it to 1% was the result of a steep fall in confidence both in the ability of the EU to manage resources properly, because of the scandals surrounding the Commission itself and the high error rates and unaccounted sums in EU support uncovered by the European Court of Auditors. Since then the EU budget has hovered around an average of 1.1 % of GDP. Some increases were driven by enlargement, but the impact of enlargement was moderate due to how the level of agricultural support was phased in for the new member states. They benefit from relatively low subsidies as they were calculated using average yields for 2000-2003, which was a period of weak production. Agriculture subsidies smoothly declined in the last programming periods and a further drop is foreseen within the coming MFF. This is mainly due to the fact that payments have been fixed in nominal terms, leading over time to a reduction in real terms. Structural funds do not exhibit any clear trend and are expected to remain almost unchanged, although there have been substantial fluctuations around the trend over time. Finally, “other” programmes have experienced a sustained growth which is programmed to culminate by their overtaking CAP funds in the coming MFF.

Figure 2 provides an overall view in terms of the shares of actual EU spending disbursed (not the sums allocated under the MFF). It shows that the share of spending on agriculture has declined over recent decades from about 50% to 40% of the total whereas spending on Research and Development has increased from 4% to 8%. Cohesion spending has been more volatile. For the first ten years, i.e. between 2000 and 2010/11 it remained roughly constant at slightly above 30% of total EU spending. This was followed by a peak towards the end of the last MFF (2013), when cohesion spending reached 40% of the total, followed by a fall to below 30% in 2017. It remains to be seen whether cohesion spending will pick up towards the end of the current MFF (i.e. in 2019/2020). The 2014-20 MFF had foreseen that each year between 2014 and 2017 the appropriations for commitments should be higher for cohesion spending than for agriculture, which would lead to increasing payments over time. The preliminary data for 2018 might thus lead to a spike similar to 2012/3.

⁴ See Appendix for clustering in CAP, SF, Other details.

Figure 2: EU budget over time – shares



Source: European Commission and authors’ elaboration.

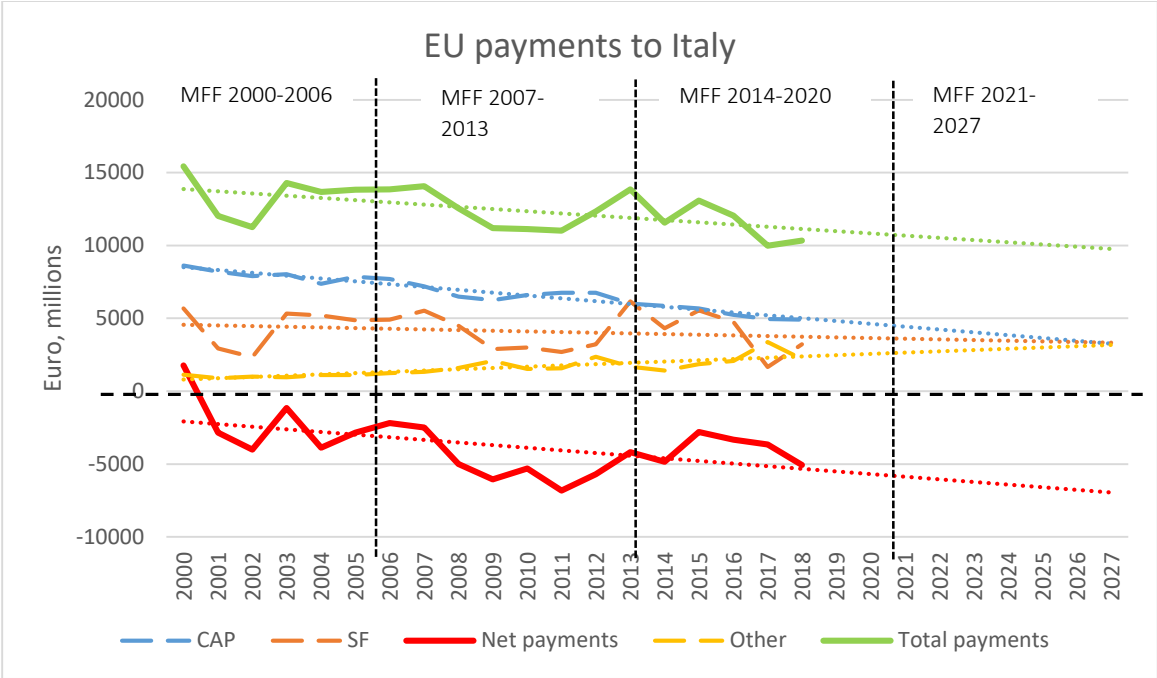
Overall, if one analyses actual spending as opposed to official plans, it appears that cohesion has de facto maintained a roughly constant share of total EU spending (a bit below one third). The decline in the share of agriculture has been matched by an increase in other spending. Research and Development spending has roughly doubled its share, but it remains, at below 10%, much smaller than cohesion spending.

The case of Italy

Figure 3 shows the evolution of the Italian situation vis-à-vis the EU budget. Net contributions from Italy to the EU budget have increased over time (red solid line), mirroring a decline in EU payments (green solid line). CAP transfers have followed a sustained and stable downward trend coherent with the EU-whole picture. At a first sight, Structural Funds payments appear to have been declining slightly over the last 18 years. However, it is important to stress that Figure 3 plots real payments while disregarding allocations, which have been increasing in real terms.⁵ Moreover, despite the extremely volatile trajectory followed EU disbursement related to Structural Funds, a clear cyclical component is identifiable, which exhibits a substantial drop in the first years of each programming period followed by a sharp recovery in the last part of the MFFs. It is interesting to notice that the expected decline lagged two years in the MFF 14-20, reflecting the introduction of the n+2 rule. The share of “other” programmes has increased over time. If these trends remain relatively undisturbed, a fairly even distribution of EU funds should occur across the main categories of analysis during the next programming period.

⁵ See Appendix, Table 9.

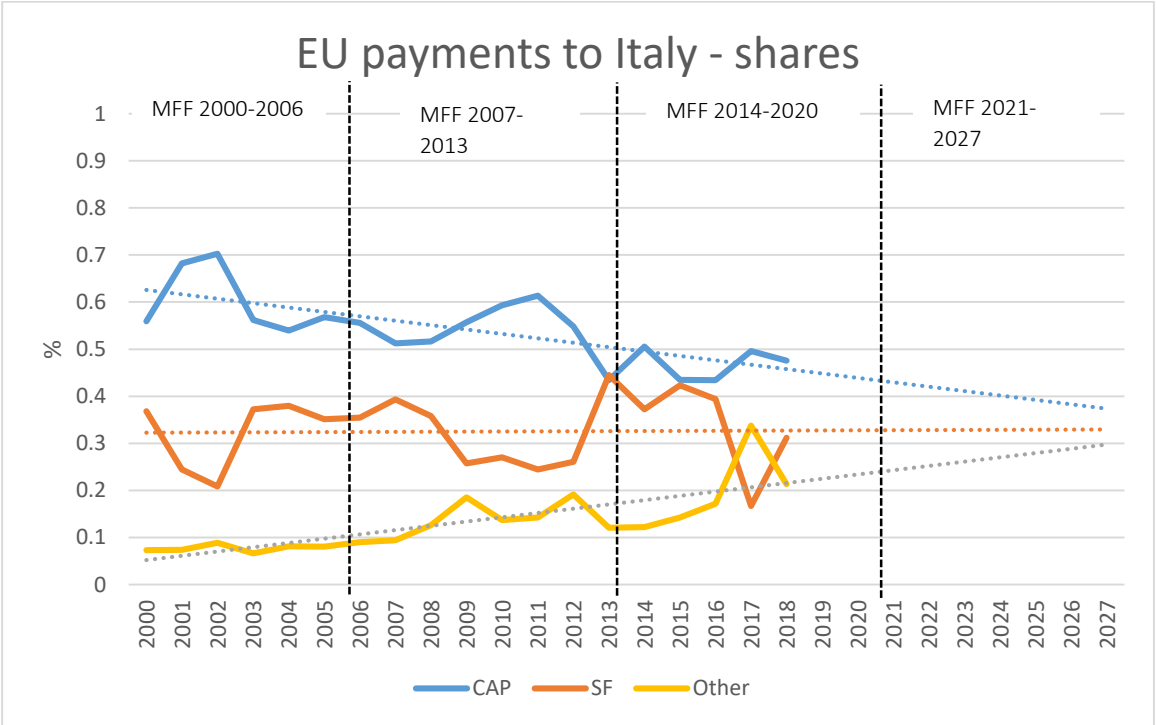
Figure 3: EU payments to Italy⁶



Source: European Commission and authors' elaboration.

As highlighted in Figure 4, the relative evolution of EU budget components in Italy roughly retraces the EU-wide trajectory. Although much smoother if compared to the EU average, there has been a drop in the share of CAP transfers and the cohesion policy funds also fell while the share of “other” programmes has increased.

Figure 4: EU payments to Italy – shares



Source: European Commission and authors' elaboration.

⁶ 2018 prices, 2% yearly inflation.

The rest of the paper will focus on the analysis of cohesion policy and especially on the R&D component of “other” programmes.

Cohesion policy

Cohesion policy is the European Union’s strategy to promote and support the “overall harmonious development” of its member states and regions. It, therefore, aims to foster a sustained convergence process. This policy objective is fixed in the Treaty and is generally accepted as a basic pillar of the EU.

Cohesion policy is financed through the 3 main funds already presented, the ERDF, the ESF+ (both representing what are called Structural Funds) and the CF. The ERDF and ESF+ are allocated on a regional and project basis, while financing under the Cohesion Fund is transferred directly to member states.⁷

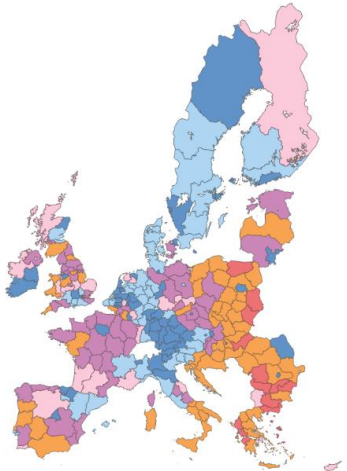
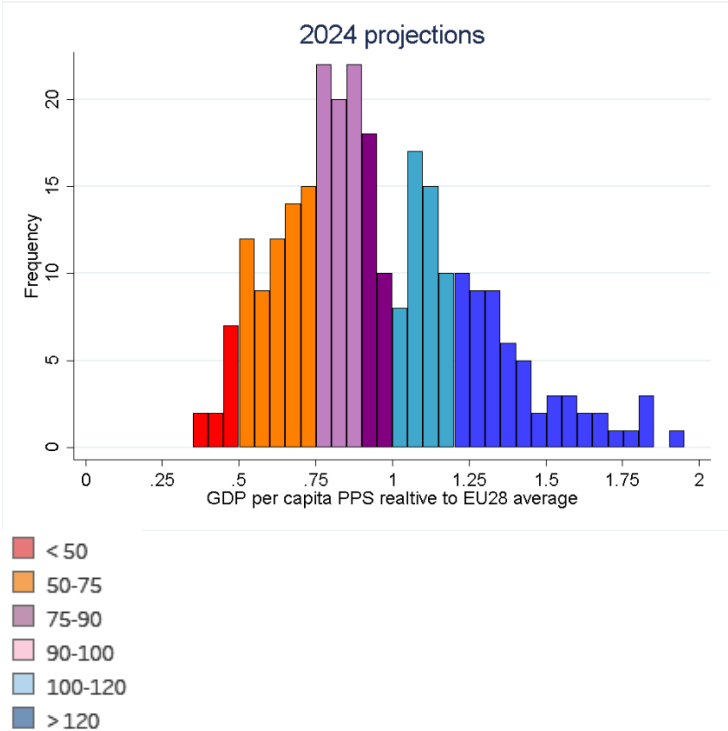
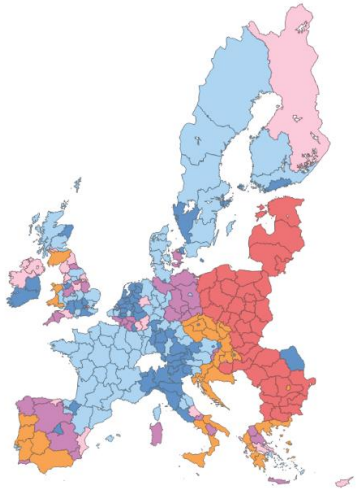
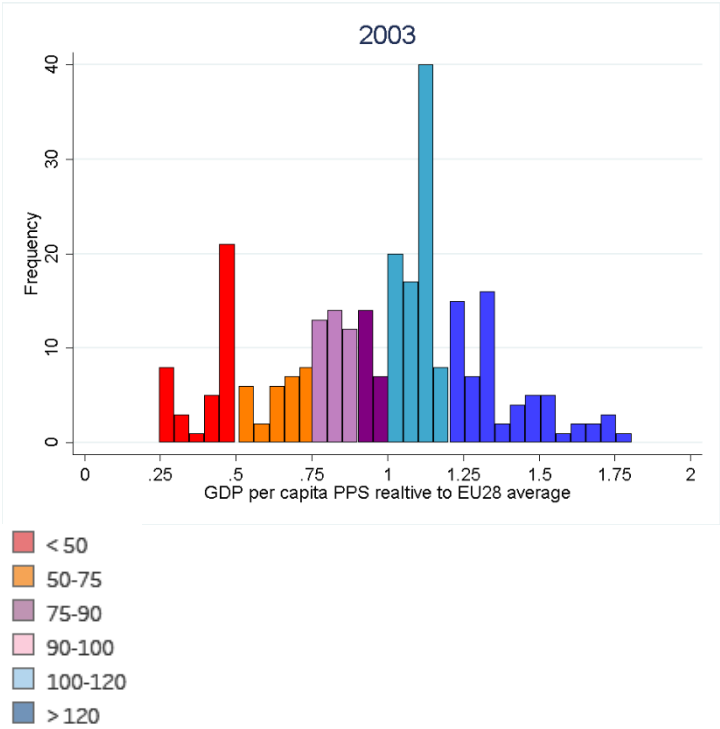
The main objective of the Structural Funds is to foster convergence among EU regions. Convergence in the EU has improved, albeit with different degrees of success in different parts of Europe. Most regions in the new member states show rapid convergence, whereas some in the south have been lagging behind. Given the importance in terms of share of investment in the new member states of Structural Funds, there are strong arguments to say they are playing an important role. It is more difficult to separate the role of the EU funds on convergence where national public and social expenditure is much bigger and the EU contribution less prominent. This is the case in Italian regions.

Looking at Figure 5, one finds a pattern of east-west convergence and north-south divergence. Regions in eastern Europe followed a robust catch-up path. But the maps also show an impoverishment in most southern regions, especially in Spain, Italy and Greece. What remains, for the time being, is a ‘bi-modal’ distribution: one finds a large number of regions between 75% and 90% and then above 105% of EU average GDP, but relatively few below but close to 100%. Another problem that has emerged and been exacerbated by the crisis, is an increased divergence also between economic centres within regions and the periphery.

The Commission proposal represents an attempt to address the novel challenges raised by this uneven progress in convergence.

⁷ We do not consider other funds that could be deemed structural, such as EAGGF (European Agricultural Guidance and Guarantee Fund) and FIG (Financial Instruments for Fisheries Guidance), EMFF (European Maritime and Fisheries Fund), EAFRD (European Agricultural fund for rural development), YEI (Youth Employment Initiative).

Figure 5: *The convergence process*⁸



Source: Eurostat and authors' elaboration.

⁸ Forecasts for 2024 are made assuming the economic growth rate of each region will be equal to the MS growth rate (source: WEO updated October 2019, GDP capita PPP). In order to ensure comparability over time, we assume no Brexit on these specific charts.

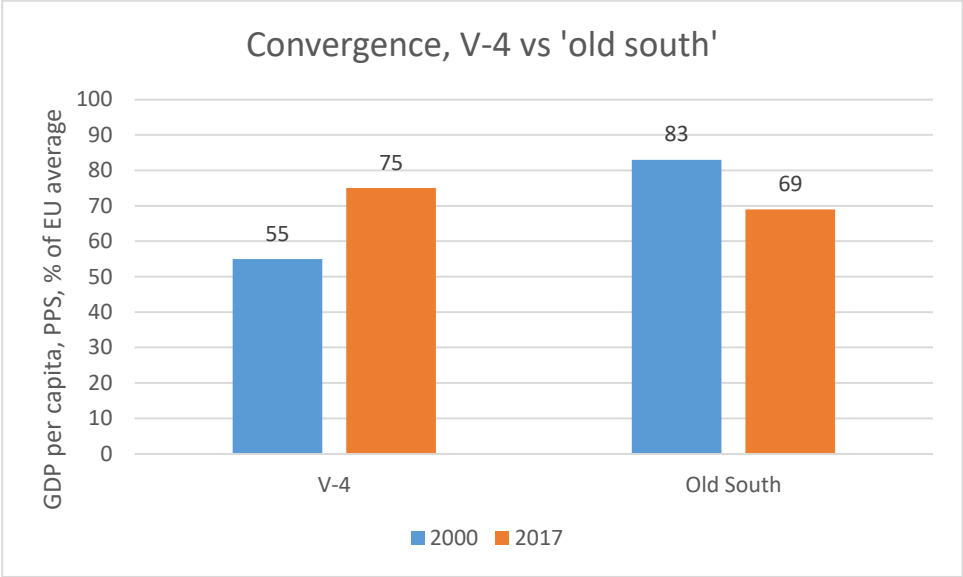
The future of Cohesion: a modified status quo?

Fostering cohesion is a key aim of the European Union. A considerable part of the EU’s budget is thus devoted to the cohesion policy whose purpose is to provide lagging regions and countries with the means to catch up with the others. The new member states have benefitted from substantial allocations of ESIF funds since they joined in 2004/7. This applies in particular to the ‘Visegrád Four’, which have received between 2% and 3% of their GDP in cohesion policy funding, which has probably contributed materially to the catch-up process.

In principle, EU cohesion support is destined mainly for “lagging regions”, i.e. those, with a GDP per capita (at PPP) below 75% of the EU average. Transition regions, i.e. those with a GDP per capita between 75% and 90% of the EU average and “more developed regions”, i.e. those with a GDP per capita over 90% of the EU average can also benefit, but with lower amounts and for a more restricted set of investment areas.

The relative success of the Visegrád countries is illustrated in Figure 6, which shows that jump of 20 percentage points (from 55% to 75% of the EU average) in the period 2000-2017. By contrast, the ‘old south’ (Portugal, Spain and Greece) has fallen back, from a position much ahead of the V-4 (over 83% of the EU average in 2000, to below 70% of the EU average and thus below the level now achieved by the V-4).

Figure 6: GDP per capita at PPS as % of the EU average, Visegrád 4 vs ‘old south’.⁹



Source: European Commission, AMECO database.

While this reversal of fortunes is likely to create further tensions for the negotiations of the next MFF, it also reveals that the use of the funds in the ‘old south’ or Mediterranean regions under convergence, may have been sub-optimal to achieve more resilient and diversified economies. It also may indicate national policy choices affecting the adaptability of the economy, e.g. Ireland not only grew quickly beyond the EU average, but also recovered faster from the crisis, aspects that should open a serious debate on structural aspects of development rather than the level or focus of EU funding.

⁹ V-4 = average of PL, CZ, HU and SK; Old south = average of EL, ES and PT

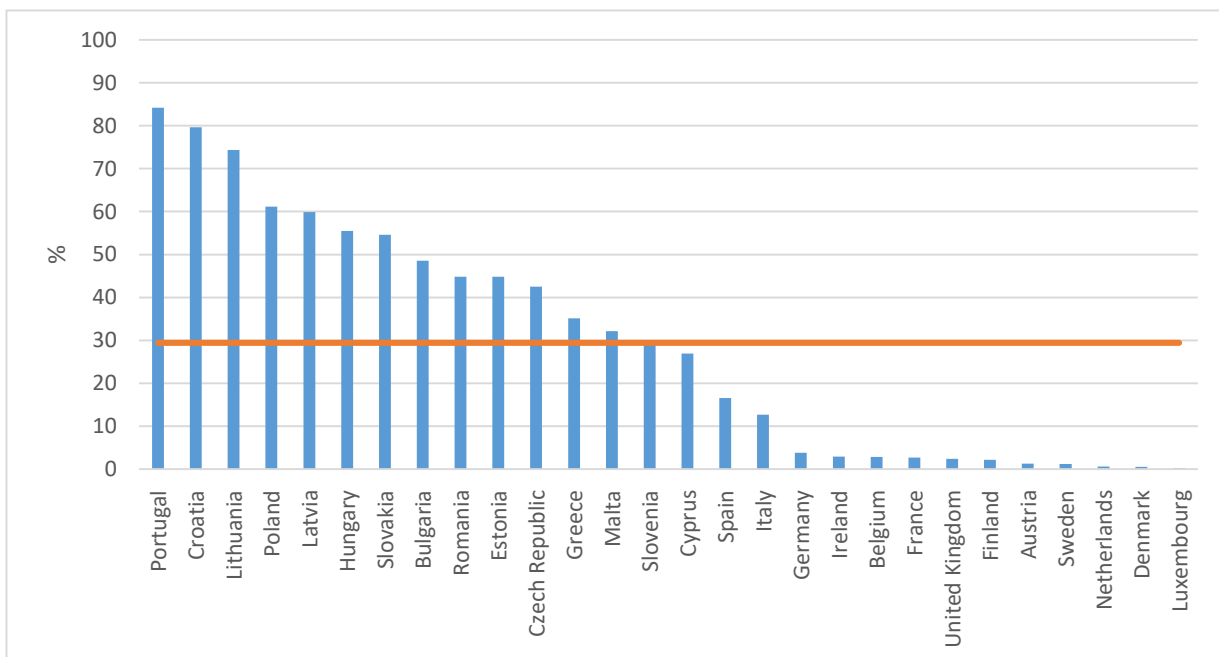
Differential situation and needs in the convergence regions

The development needs of regions in the Mediterranean and the new member states are different, and the size of national budget for investment diverges. In the more advanced of the new member states, the needs for investment in infrastructure is higher and investments in those areas will still show higher returns. In some cases, the opportunity costs of building new infrastructure are very low, not requiring the substitution of existing operational systems, e.g. there can be a technological leapfrog effect in motion too. In the 'old south' a number of structural reform problems linger and investments in the 'knowledge economy' and new business models need to take a higher priority. In terms of value, the impact of the funds is also very different due to the lower overall GDP and more limited size of national budgets (as the convergence process is based on purchasing power parity calculations, a similar GDP per capita for regional policy, measured in PPS, does not mean a similar nominal GDP).

Figure 7 below shows that in the new member states the EU has co-funded around one half of all public spending on infrastructure. In Poland this ratio was even somewhat above 60 %, for the Czech Republic still above 40 % (although one has to keep in mind that these figures also include co-financing by the member state. While most new member states have benefitted from high amounts, they are not the only ones, as the highest relative contribution to public sector infrastructure can be found in Portugal.

In Italy, by contrast, the ratio is only 12.8 %. This refers to the national average. If one looks at the poorer regions in Italy, the corresponding figure is higher, in some case more than three times higher, but would still remain below the values for the new member states because, as will be detailed below, poorer Italian regions receive less regional funding as they are located in a member state with a still relatively high average GDP per capita.

Figure 7: Share of EU cohesion funding in total public spending on infrastructure



Source: [European Commission](https://cohesiondata.ec.europa.eu/Other/Share-of-Cohesion-Policy-per-Member-State-to-publi/drqq-sbh7/data), <https://cohesiondata.ec.europa.eu/Other/Share-of-Cohesion-Policy-per-Member-State-to-publi/drqq-sbh7/data>

The effectiveness of EU cohesion spending to foster growth in lagging regions was for a long time a hotly contested issue, mostly for the spending in the EU-15.

Many regions in the old member states have by now received Structural Funds for a long time (25 years and more), but have not converged. This is particularly the case in countries, which have experienced

an overall crisis, like Greece, which, over the last decades has fallen back from a GDP per capita of over 85% of the EU average to about 67% today. Portugal has also fallen back, but by a smaller amount. Italy is a special case in that it did not need to apply for funding from the financial stabilisation instruments (EFSM or ESM), but its growth performance has, for almost a quarter of a century, been below that of the rest of the euro area and of the whole EU.

By contrast, all of the new member states, have converged. At the present speed of convergence, new member states (and all of the Visegrád 4) would enter the transitional regime (between 75% and 100% of the EU average) during the next MFF based on their national averages. A key issue is whether this uneven catch-up is due to differences in national policies or to circumstances beyond the control of national governments.

The [Commission](#) has argued that “The potential of the EU budget can only be fully unleashed if the economic, regulatory and administrative environment in the Member States is supportive. This is why, under the current Multiannual Financial Framework, all Member States and beneficiaries are required to show that the regulatory framework for financial management is robust, that the relevant EU regulation is being implemented correctly, and that the necessary administrative and institutional capacity exists to make EU funding a success.”¹⁰

Conditionality on ‘good governance’ might thus be an important element of the new MFF. In the present MFF, for the first time *ex ante* conditionalities have been required. Countries whose regions are applying for support in specific sectors, need to be in line with the EU regulations and directives for the sector. The strategic requirements, monitoring and control have been updated and improved. The next MFF will see more emphasis on good governance, not only on the rule of law, but on conditionality with ‘enabling conditions’,¹¹ a further deepening of *ex ante* conditionalities, moving from formal compliance to effective implementation.

The ‘Berlin formula’

Cohesion policy seems to have been successful in fostering convergence dynamics in the European Union for most regions, particularly the poorest, but the policy and link to structural reforms needs to be reinforced, given the uneven impact in different countries and the effect of the crisis. As presented in the first chapter, about a third of the EU budget, corresponding to roughly €40-50 billion per year, has been devoted to structural operations.

To understand the allocation of the funds, it is important to check the methodology. In a meeting held in Berlin in 1999, the European Council set out a formula, now known as the ‘Berlin method’, to allocate Structural Funds to regions and member states in a rigorous and transparent manner.¹² The formula was first adopted in the programming period 2000-2006 and has been modified ever since in each of the subsequent periods. In May 2018, the European Commission submitted a proposal suggesting few substantial adjustments to the Berlin method to allocate funds to regions within the coming multiannual budget.

¹⁰ Proposal for a Regulation of the European Parliament and of the Council on the protection of the Union's budget in case of generalised deficiencies as regards the rule of law in the Member States, COM(2018) 324 final.

¹¹ Proposal for a Regulation of the European Parliament and of the Council laying down common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, and the European Maritime and Fisheries Fund, and financial rules for those and for the Asylum and Migration Fund, the Internal Security Fund and the Border Management and Visa Instrument, COM(2018) 375 final

¹² “The new allocation method for the funds builds on the ‘Berlin formula’, adopted by the European Council in 1999” https://ec.europa.eu/commission/presscorner/detail/en/MEMO_18_3866

Ultimately, the key drivers of cohesion funds allocation are regional income and socio-economic regional indicators (see Box 1). Convergence being the primary purpose of cohesion policy, the Berlin methodology ends up in allocating more resources to the worst performers.

The formula proposed by the Commission for the coming programming period distinguishes three categories of regions (Table 1), each of whom are subject to different allocation criteria, for the allocation of ERDF and ESF resources, which, combined, represent the great majority of cohesion funding.¹³ The European regions are categorised as follows:

1. *Less developed regions* (LDR) if their GDP per capita is less than 75% of EU-27 average,
2. *Transition regions* (TR) if their GDP per capita is between 75%-100% of EU-27 average and
3. *More developed regions* (MDR) if their GDP per capita is more than 100% of EU-27 average.

However, LDR and TR are treated differently, depending on the GNI (not GDP) of the member state (MS) in which they are located, with three 'buckets':

1. MS with a GNI per capita at PPS less than 82% of the EU-27 average,
2. MS with a GNI per capita at PPS less than 99 % and more than 82% of the EU-27 average,
3. MS with a GNI per capita at PPS above 99 % of the EU-27 average,

The fact that national wealth is taken into account when allocating cohesion funds means that, *ceteris paribus*, a region in a richer member state will receive less resources than if it were to be part of a less developed country. Eventually, the proposed classification would end up creating 7 categories. Unfortunately, no justification is given for the precise numbers chosen to create these three buckets.

Table 1: Number of regions in each bucket¹⁴

		Regional classification (based on GDP pc at PPS of region (% of EU average))			Total
		Below 75%	Above 75% < 100%	Above 100%	
MS classification (based on GNI pc at PPS of country, (% of EU average))	Below 82%	52	8	(6)	66
	Above 82% < 99%	16	19	(20)	55
	Above 99%	3	34	(80)	117
Total		71	61	106	238

Source: own calculations based on Eurostat.

While lagging regions tend to be part of poorer nations and richer regions tend to belong to wealthier member states, only a third of transition regions are part of transition countries; the majority of transition regions are located in wealthier member states.

¹³ In the present analysis we do not consider EARDF nor EMFF. The Cohesion Fund is allocated at member state level; hence it is not taken into account.

¹⁴ Number of MDR are in parenthesis because their allocation is not affected by their respective national wealth.

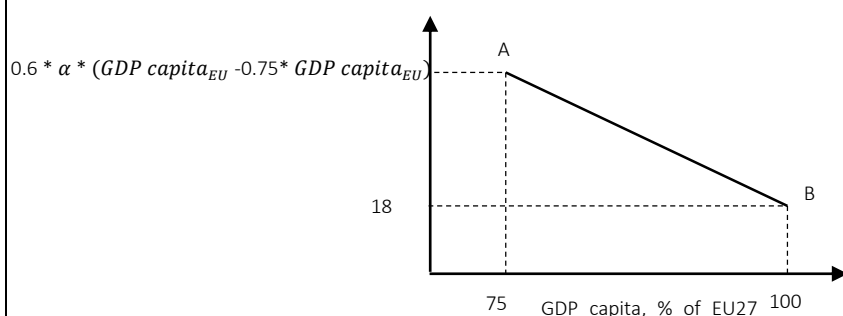
Box 1: Berlin method explained – Commission proposal

Less Developed Regions (LDR):

1. Prosperity gap → $\alpha * [population * (GDP\ capita_{EU} - GDP\ capita_{region})]$
2. Unemployment → $\beta * \left[unemployed - \left(\frac{unemployed}{unemployment\ rate_{region}} * unemployment\ rate_{LDR}\right)\right]$
3. Youth unemployment → $\gamma * \left[unemployed - \left(\frac{youth\ unemployed}{youth\ unemployment\ rate_{region}} * youth\ unemployment\ rate_{LDR}\right)\right]$
4. Low education rate → $\delta * [population_{25-64} * (low\ education\ rate_{region} - low\ education\ rate_{LDR})]$

Transition Regions (TR):

1. Prosperity gap → $population * [(0.6 * \alpha * GDP\ capita_{EU} - 54) + (72 - 0.6 * \alpha * GDP\ capita_{EU}) * GDP\ capita_{\% of EU}]$



A = 60% of the allocation a LDR region whose GDP per capita is 75% of the EU average would receive

B = average per capita aid that a MDR would receive

→ linear interpolation between A and B to calculate per capita allocation for transition regions, whose GDP is between 75% and 100% of EU GDP

2. Unemployment, Youth unemployment, Low education rate bonuses apply in the same way as for the LDR

More Developed Regions (MDR):

Allocation of 18 EUR per total eligible population to be redistributed based on the relative regional share of**:

1. Population (20%) → $population$
2. Unemployed (15%) → $unemployed - \left(\frac{unemployed}{unemployment\ rate_{region}} * unemp\ rate_{MDR}\right)$
3. Employed (20%) → $population_{25-64} * (employment\ rate_{MDR} - employment\ rate_{region})$
4. Early leavers (15%) → $population_{18-34} * (early\ leavers\ rate_{region} - early\ leavers\ rate_{MDR})$
5. Tertiary educated (20%) → $population_{30-34} * (tertiary\ educated\ rate_{MDR} - tertiary\ educated\ rate_{region})$
6. GDP (7.5%) → $GDP\ capita_{richest\ MDR} * population_{region} - GDP_{region}$
7. Population density (2.5%) → $population_{NUTS3\ region\ pop\ density < 12.5\ inhabitants\ per\ km^2}$

Bonus that apply to all regions

1. Greenhouse gas emissions → $(national\ CO_2\ emissions_{2016} - 2030\ emission\ target) * \frac{population_{region}}{population_{country}}$
2. Net non-EU migration → $400 * \left[nonEU\ net\ migration_{country} * \frac{population_{region}}{population_{country}}\right]$

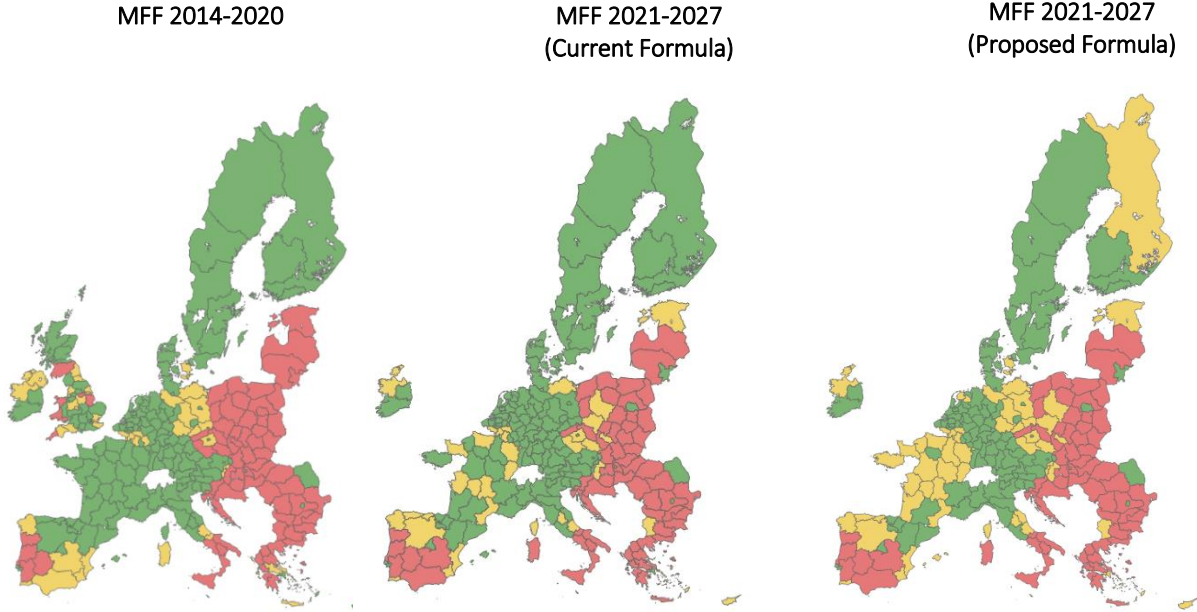
Different weights applied in parenthesis; * All allocation are per year

Retracing the backbone of the formulae that drove Structural Funds allocation in the current programming period shows a number of substantial modifications in the methodology proposed by the Commission for the next MFF. The Commission proposes to change the criteria through which eligible regions are classified, the formulae to calculate regional allocations that apply to each of the above described buckets, and sets boundaries that constrain the maximum and minimum transfers than a region may receive.

Regarding the first set of modifications, the Commission proposes to increase the upper limit for a region to be classified as 'TR', from 90% of average EU GDP per capita to 100%. As the Berlin method sets different criteria to calculate allocations based in regional groups, the proposed change will have clear implications for the regions that thus pass from being MDR to TR.¹⁵ Moreover, a reallocation of regions in different groups has other effects as it modifies the group averages (e.g. unemployment rate, education rate, employment rate, etc.). Given that the overall regional funds allocation depends on the regions' performance relative to group/EU averages, different averages lead to diverse allocations.

The maps in Figure 8 show the regional classification in the current programming period and present two scenarios for the future MFF. The central panel pictures the classification in the current criteria remaining unchanged, while the one on the right shows the regional classification under the proposed formula. France and Germany seem to be among the main beneficiaries of the revised methodology, as a relevant number of their regions would happen to be classified as TR, instead of MDR.

Figure 8: Regional categorisation – scenarios

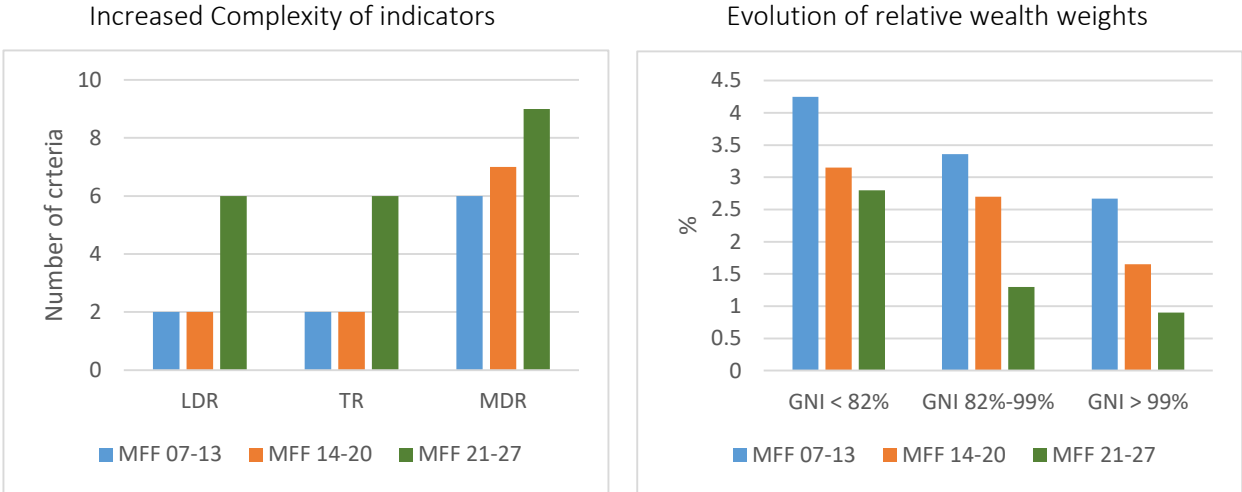


Source: own calculations based on Eurostat.

The most prominent proposed modifications refer to the formulae that apply to each of the regional categories and can be summarised as in Figure 9.

¹⁵ See Box 1.

Figure 9: More criteria and less weight on regional GDP



Source: own calculations based on Eurostat.

The panel on the left indicates that complexity has increased over time as measured by the number and the spectrum of socio-economic indicators taken into consideration.¹⁶ Furthermore, with the purpose of tackling more horizontal challenges, which partially deviates from the primary objective of wealth convergence – such as climate change and migration – the Commission proposed the introduction of new criteria to be taken into account when calculating funds allocation

The panel on the right shows two key elements: the weight put on regional GDP has fallen over time and the difference across different ‘classes’ of countries has widened considerably, at least if measured in relative terms. For example, the first incarnation of the Berlin formula foresaw a weight of 4.1 on the regional prosperity gap for regions in the poorest member states and a weight of 2.7 on the regional prosperity gap in the richest MSs – a ratio of about 1:0.7. By contrast, the formula proposed by the Commission foresees a weight of 2.7 on the regional prosperity gap in the poorest MSs and only 0.9 for the richest. A ratio of 3:1. This implies that if one compares two regions with the same (low) GDP per capita, but located in two different MSs, under the new MFF one would find that regions located in a poor member state (GNI below 82% of EU average) would receive roughly three times as much as another region, *ceteris paribus*, but located in a rich MS (GNI above the EU average). Under the original Berlin formula, the region located in the poorer country would have received only about 50% more than the one located in the rich country.

The ‘nationalisation’ of the regional allocations via the modulation of the weight on regional GDP according to the prosperity of the MS had already started in 2007, but the proposals by the Commission would represent another very important step.

The strengthening of the national effect is not offset by the other indicators mentioned above, which are measured at the regional level, because GDP remains by far the most relevant indicator, driving more than 80% of cohesion policy funds allocation.¹⁷ But, as pointed out, the decline on the weight of prosperity gap has been less pronounced for poorer member states, implying that the ‘regional’ policy of the EU has de facto become a policy aiming mainly at helping poorer member states. It is thus becoming less regional and more national.

¹⁶ See Appendix.

¹⁷ Allocation of Cohesion policy funding to Member States for 2021-2027, ECA.

Finally, the Commission proposes to modify the criteria to set the maximum and minimum allowed regional allocations.

Within the present programming period, caps to structural funds allocation are used to avoid excessive or insufficient concentration of resources. For the new Commission proposal, caps are set as follows:¹⁸

Table 2: Caps

CAP 2014-2020	Conditions	CAP 2021-2027 (proposed)	Conditions
GDP caps			
2.35% of GDP	Average real GDP growth 2008-2010 higher than 1%	2.3% of GDP	GNI per capita < 60% of EU average
2.59% of GDP	Average real GDP growth 2008-2010 lower than 1%	1.85% of GDP	GNI per capita 60%-65% of EU average
		1.55% of GDP	GNI per capita > 65% of EU average
"Previous period" caps			
MS cannot receive more than 110% of its allocation for the 2007-2013 period		MS cannot receive more than 108% of its allocation for the 2014-2020 period	-
		MS cannot receive more than its allocation for the 2014-2020 period	GNI per capita > 120% of EU average

Source: Common Provisions Regulation 1303/2013 and Common Provisions Regulation proposal COM(2018) 321 final.

Furthermore, it has always been deemed politically inconvenient if EU funding were to change too abruptly. This is why there were always some rules concerning changes in classification or when the pure application of the rules were to lead to large changes because of rapid changes in the relative income of regions or countries. This is also the case for the next MFF, where the Commission proposes 'safety nets' that are more generous than the ones in the current MFF as follows (Table 3).

Table 3: Safety nets

Safety net 2014-2020	Safety net 2021-2027
MS cannot receive less than 55% of its allocation for 2007-2013 period	MS cannot receive less than 76% of its allocation for 2014-2020 period
TR cannot receive less than they would if they were MDR	TR cannot receive less than they would if they were MDR
Regions that lost their LDR status cannot receive less than 60% of their annual allocation for the Investment for jobs and growth goal in the 2014-2020 programming period	Regions that lost their LDR status cannot receive less than 60% of their annual allocation for the Investment for jobs and growth goal in the 2014-2020 programming period

Source: Common Provisions Regulation 1303/2013 and Common Provisions Regulation proposal COM(2018) 321 final.

¹⁸ See Appendix for a detailed description.

Although the Commission proposes a reduction in the allowed negative variation amplitude relative to the previous period allocation, there still remains a pronounced asymmetry between the positive and negative variation bands. The maximum negative variation is proposed to be reduced from 45% to 24% and the maximum positive variation from 10% to 8%. This is relevant because, in our calculations, *previous period caps* seem to be much more binding than GDP caps.

That said, the amount allocated by the final inter-institutional agreements on the multiannual budget are likely to diverge to some extent from the theoretical allocation suggested by the proposed changes to the Berlin formula as the result of political negotiations, or the Council may require the formula to be amended.

Allocation MFF 2021-2027 and scenarios

In order to analyse the implications of the proposed changes to the Berlin formula one needs to calculate region by region the amount that would be allocated under the proposed new rules.

In the calculation we use the theoretically latest data available before the start of each programming period, therefore 2006, 2013 and 2020. The 2020 data must of course be based on projections and are calculated using growth rates forecasted by AMECO for GDP¹⁹ and GNI; for all other indicators forecasts are calculated by applying the average growth rate experienced from 2014 to 2018 to 2018 data. For the projections for the forthcoming MFF we use EU-27 averages to take Brexit into account.

We use these calculations for two purposes: first, we check whether for the two past MFFs (starting 2006 and 2013) our calculations based on the Berlin formula yield results that are close to the outcome. This allows us to establish whether the Berlin formula was applied in reality (and whether our calculations are materially correct). The calculations for the 2021-27 period allow us to forecast the allocations per region Italy would receive under the proposed new formula.

On the first count, we find that the Berlin formula happened to be a very good predictor of the real allocation of EU cohesion policy funds to member states. When regressing²⁰ predictions calculated via the Berlin method on the real allocations, one finds 96-98% of the variations in real allocation can be explained by the Berlin method. The correlation between calculated and real values is extremely high (0.98-0.99).

There are of course some outliers, but they concern only a few MS, while for the majority the difference between predicted and actual allocations is limited, around 0-20%. These differences can be due to many reasons. For example, changes can be agreed in the negotiation phase; discrepancies may also result from the fact that growth projections at the start of the MFF turned out to be wrong and different reference years or the absorption of funds may have been sub-optimal.

Notwithstanding the limitations mentioned, we consider the Berlin method a reliable tool to depict different scenarios that may occur within the next multiannual programming period. Furthermore, the discrepancy between predicted and real allocation for Italy is very limited (between 1% and 8%).

¹⁹ National forecasted growth rates of GDP, measured in PPS, are assumed to apply indistinctly to all regions of the nation.

²⁰ Simple cross-section OLS regression.

Table 4: Berlin method – calculations vs real allocations²¹

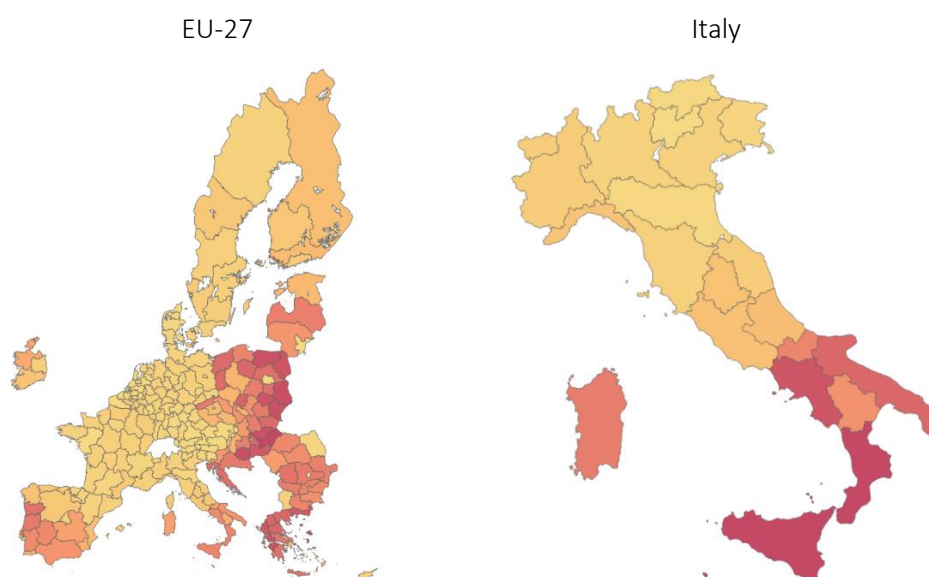
	MFF 2007-2013	MFF 2014-2020	MFF 2021-2027 ²²
Data (average) - regional classification	2000-2002	2008-2010	2014-2016
Data	2006	2013	2020
Average prediction-real allocation discrepancy (countries)	29%	24%	15%
Prediction-real allocation discrepancy (Total EU)	10%	2%	2%
Italy prediction-real allocation discrepancy	8%	1%	4%
Correlation prediction-real allocation	0.99	0.98	0.98
R2 regression prediction-real allocation	0.98	0.96	0.96
Coefficient regression prediction-real allocation	0.97	1.09	1.08

Source: Own calculations based on Commission data.

According to the prescriptions indicated in the proposal submitted by the Commission, we calculate the theoretical regional cohesion policy funds allocation for the programming period 2021-2027.

Figure 10 below shows the relative distribution of cohesion funds per capita for the coming MFF. The spectrum of colours is determined looking at the maximum and the minimum allocation and then shaded accordingly. In the left panel minimum and maximum allocation refer to the whole EU, whereas in the right panel they refer only to Italy.

Figure 10: Structural funds per capita



Source: Eurostat and authors' elaboration based on the 'Berlin method'.

The distribution of Structural Funds per head remains strongly concentrated in eastern countries. Lots of resources are also directed to Greece, Portugal and the southern regions of Italy and Spain. The fact that the shades of yellow are not easily distinguishable in richer regions means that the variations within region groups (LDR, TR, MDR) is much less significant if compared with cross-group variation. This

²¹ Calculations take into accounts the following Funds: ERDF, ESF, YEI, CF, ETC (EARDF, EMFF are not considered in the analysis).

²² Based on EU27 data (the proposed Berlin Formula assumes Brexit). The predicated-real allocation discrepancy is relative to the Commission calculations, not real allocations. The discrepancy is most likely due to the fact that we use 2020 forecasted data.

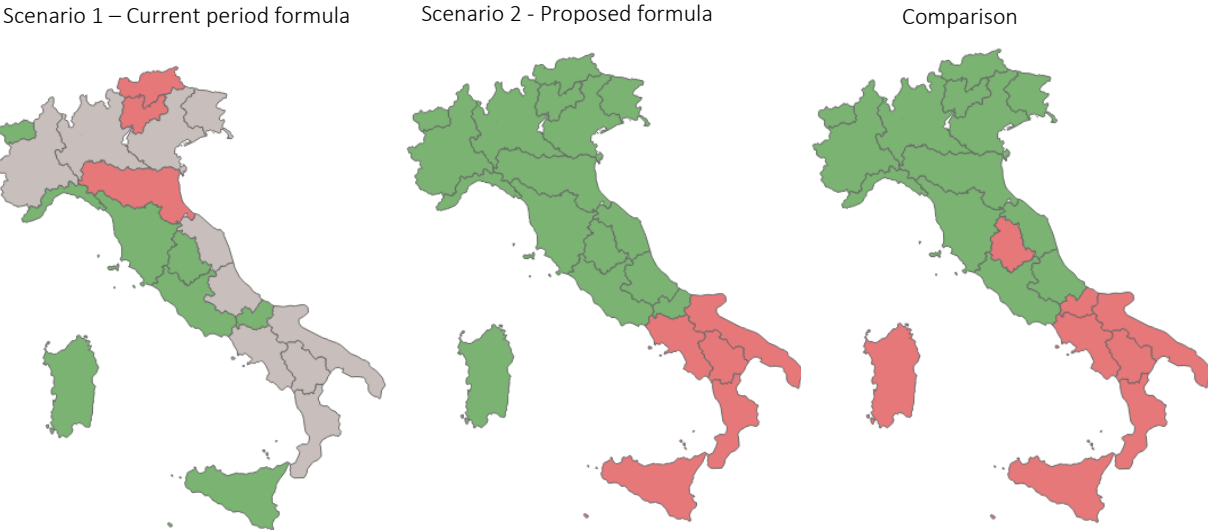
reflects the relevance of regional classification criteria and confirms the major implication that widening the group eligible for transitional support proposed for the MFF 2021-2027 will have.

However, the maps in Figure 10 make it possible to appreciate how allocations may differ significantly even within the same regional grouping, in per capita terms, mirroring the relative wealth of regions. If looking at the real allocation the distribution is more homogeneous.

Looking to Italy, one notices a strong concentration on transfers to the southern regions. The majority of resources are directed towards Sicilia, Calabria and Campania, which are expected to receive roughly half of cohesion funds to Italy over the coming programming period, corresponding to about 18 billion.²³ Looking at total allocation (not per capita), Campania, Sicilia and Puglia are among the main beneficiaries in Europe, respectively at the 4, 5 and 12 position.

According to our calculations, Italy may expect to receive a similar amount of Structural Funds transfers in the next MFF as in the current programming period. Notwithstanding, there may be relevant distributional differences based on the actual allocation methodology that will be adopted. The maps in Figure 11 show the difference, at the regional level, between actual allocations in MFF 2014-2020 and the expected one for the coming MFF 2021-2027, both expressed in 2020 prices. We focus only on significant changes, defined as more than 10% variations with respect to the current programming period. Regions shaded in green will receive more funds, while red and grey mean respectively less transfers and no sizeable variations (below +/- 10%). The first panel shows the allocation for Italian regions if the current formula remains in place. For most regions the allocation will remain similar, 8 regions will receive more and only 3 will see their funds allocation reduced. The second panel shows the allocation if the proposed formula is approved. All centre-north regions would receive more funds than in the 2014-2020 programming period, while 5 southern regions would receive less. The minor allocation to Sicilia, Calabria, Basilicata, Campania and Puglia reflects the proposed reduction in the weight attached to GDP as driver of allocations. Panel 3 shows which regions would benefit and which would be penalised if the proposed formula is applied, relative to the scenario in which the current formula is not modified. Results highlight that the Mezzogiorno will be penalised.

Figure 11: MFFs allocation – scenarios²⁴



Source: Eurostat and authors’ elaboration based on the ‘Berlin method’.

²³ We consider only ERDF and ESF+, as regionally allocated funds

²⁴ In order to ensure comparability, allocation for the period 2014-2020 include only ERDF, ESF (CF and ECT are included only to calculate caps and safety nets)

Finally, in Figure 12 we propose an additional analysis in order to assess how variations within the new proposed formula might affect funds distribution in Italy. The map plots which regions would benefit if the current regional classification methodology (TR defined as those whose GDP per capita, measured in PPS, is between 75%-90% of EU average, instead of 75%-100%, as proposed by the Commission) was to be applied to the proposed formula. Although the allocation for most of the regions would be unaltered, there would be major changes in few more developed regions (Emilia-Romagna, Trentino and Friuli-Venezia Giulia). Marche clearly would be worse-off in this scenario, since it would be classified as MDR and not TR. As aforementioned, different regional groups, results of different classification criteria, produce different group averages, and, hence, diverse allocations.

Figure 12: The impact of different criteria for regional categorisation



Source: Eurostat and authors' elaboration based on the 'Berlin method'.

Our results can be summarised in the following tabular form:

Table 5: Allocation for Italy (ERDF, ESF+)²⁵

	MFF 2014-2021	MFF 2021-2027
Old formula	€34 bn (€48bn)*	€37 bn (€51 bn)*
Proposed formula	-	€35 bn

* Figure in brackets indicate amount if caps did not apply.

Source: Own calculations based on Eurostat.

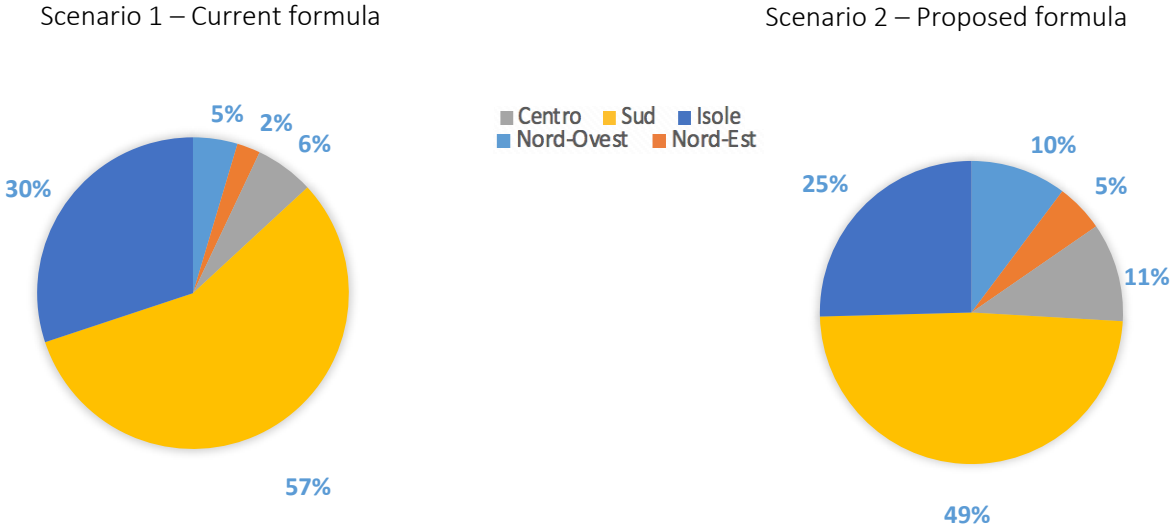
²⁵ See appendix for detailed regional allocation; allocations are expressed in 2020 prices (2% yearly inflation is assumed); Previous period allocation caps take into account also YEI transfers (which the Commission proposed to be included in the ESF (creating the ESF+) for the next programming period; Allocation for the EU27 would be 5% lower if the proposed formula will substitute the old one (€270 billion instead of €285 billion).

We account for the caps which stipulate that the increase from the previous period allocation cannot be higher than 8% (in the proposed formula) and 10% (in the old formula). Numbers in parenthesis show the allocations if caps did not apply. The caps on changes, which are tighter for increases than for falls in allocation, thus play an important point for a country like Italy where the income of per capita of most regions has declined considerably over the last 7 years.

Table 5 shows that the allocation for Italy in the MFF 2021-2027 under the new formula would be €35 billion. This is not substantially different from the sum the country was allocated during the last period. The new formula with its lower weight on GDP implies prima facie a substantial fall in the allocation as the 'old' formula would have given Italy about €51 billion. But even under the old formula the caps (limits on increases) would have prevented a substantial increase in the allocations. The difference between the old formula and the one is thus relatively minor (€37 billion versus €35 billion).

However, the new formula would lead to a substantial reallocation within Italy: as shown in Figure 13, the southern regions would receive less and the northern and central regions would receive more. The reason for this is that the weight on GDP is lower, leading to a loss for the southern regions, but this is made up by increases for the other regions on account of the unemployment and other indicators.

Figure 13: Distributional consequences of the proposed formula



The bottom line of our analysis is that Italy, according to the Commission proposal, will receive slightly more funds relative to the current MFF (only about €1 billion spread over 7 years). Nonetheless, Italy would be penalised by the new proposed methodology and by Brexit (see Box) in overall net contributions. Southern Italian regions would receive, marginally, less than in the current programming period.

Box 2: The impact of Brexit

There exist many analyses of the impact of Brexit on the overall budget of the EU because of the loss of a large net payer. We propose a different exercise. We analyse how Brexit affects the allocation of Structural Funds under the Berlin formula in the sense that with Brexit this formula has to be calculated using EU-27 averages whereas without Brexit one needs to use EU-28 data.

Figure 14: The impact of Brexit



Source: Eurostat and authors' elaboration based on the 'Berlin method'.

Figure 14 shows the theoretical allocation of funds if the UK had remained part of the European Union. This is clearly a simplified exercise: we apply the formula proposed by the Commission and we include the UK in the calculation for the distribution, *ceteris paribus*. The only significant difference is the use of regional GDP measured in PPS relative to the EU-28, not EU-27. The simulation highlights that LDR and TR regions lose from Brexit scenario, while MDR benefit. This is mainly due to the fact that the PPS measure of GDP is calculated relative to the average EU price level. Brexit will imply lower EU average prices, hence increasing the GDP-PPS of poorer regions, eventually leading to lower allocations. Moreover, the UK being richer than the EU average, Brexit will lower the average EU GDP per capita in PPS, reducing the *wealth gap* of less developed regions, and hence their calculated allocations. This broadly explains why LDR and TR lose from Brexit. Dealing with MDR regions, it is more difficult to disentangle which criteria play a major role in driving the changes. The allocation to MDR depends on the performance *relative* to the group averages. Brexit will affect the averages and therefore the final allocations.

Theoretical allocation vs actual payments

When dealing with the cohesion policy, it is important to bear in mind that allocations do not necessarily translate into actual transfers. In fact, the only way Structural Funds can be unleashed is through project approvals. Eventually, the amount actually transferred by the EU to individual regions will depend on the number, size and quality of projects proposed. The initial theoretical allocation serves as a ceiling.

In the previous section we conducted an analysis using the Berlin method to calculate the theoretical amount of funds each EU region is expected to receive within the coming programming period. Although we highlighted how the Berlin formula is a good predictor of actual allocation, it is still not clear whether the methodology guarantees accuracy when it comes to actual payments. One way to verify that hypothesis is to regress actual payments on the variables indicated by the Berlin formula as the drivers

of allocation and compare estimated coefficients with the fixed parameters of the formula. We conduct the analysis using data relative to the programming period 2007-2013, the latest available. Results are shown in Table 6.

Table 6: Berlin formula parameters vs estimated coefficients

VARIABLES	Convergence Objective regions		Regional Competitiveness and Employment Objective regions	
	Allocation	Payments	Allocation	Payments
Wealth gap	1.00	0.75*** (0.04)		
Unemployment	700.00	899.10** (414.65)	0.20	0.16*** (0.06)
Population			0.50	0.01 (0.30)
Employment			0.15	0.13*** (0.05)
Low educated employment			0.10	0.64*** (0.23)
Caps adjustment	1.00	0.87*** (0.06)	1.05	0.25 (0.56)
Observations	70	70	138	136
R-squared	1.00	0.93	1.00	0.60

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Results refers to regions eligible for the Convergence Objective and Regional Competitiveness and Employment Objective regions. Unfortunately, the formulae applied to allocate funds to regions eligible for transitional support for the MFF 2007-2013 are not suitable for the analysis.

The Berlin method seems to be a rather good predictor of actual regional payments for Convergence Objective regions (which are defined as LDR in the new Commission proposal). The R² of the regression is extremely high, indicating that GDP and unemployment, if properly adjusted, can explain more than 90% of the variations in payments. Estimated coefficients are relatively similar to the formula parameters, although, as one would expect, somewhat lower. Results are in line with the fact that all EU countries have received between 90%-100% of allocated funds in the 2007-2013 programming period. The results for Regional Competitiveness and Employment Objective regions indicate that the Berlin method is a less accurate predictor for wealthier regions. The indicated allocation drivers explain only 60% of the variations and estimated coefficients are less precise.

While the formula may explain the allocation, more controversial is to understand the reasons for regional underperformance in terms of growth and employment. For that, the work on the role of governance and structural barriers to development is more relevant. Quality of strategies, governance and the right framework for development are important. Disentangling the institutional, structural and macro-economic factors to understand performance is no easy feat. This is clearly discussed in the impact assessment by the Italian Senate,²⁶ which analyses to great detail the impact of cohesion policies in European and Italy. According to the document, governance has a role to play, but other factors are also at play and the level of development of regions is in itself related to the quality of governance. Several factors are at play, and the report highlights that the structural disadvantages in the southern

²⁶ Senato della Repubblica (2018), 'The Impact of Cohesion Policies in Europe and Italy', Impact Assessment Office, Documento di valutazione No11.

regions are too serious for the cohesion policy to compensate them, requiring national action. It is important to highlight the fact that EU spending in the south of Italy (or the Mezzogiorno) is only a small fraction of the primary government spending there (4.8% in 2013-2015), far lower than in new member states. The assessment calls for quantitative and qualitative improvements in national policies.

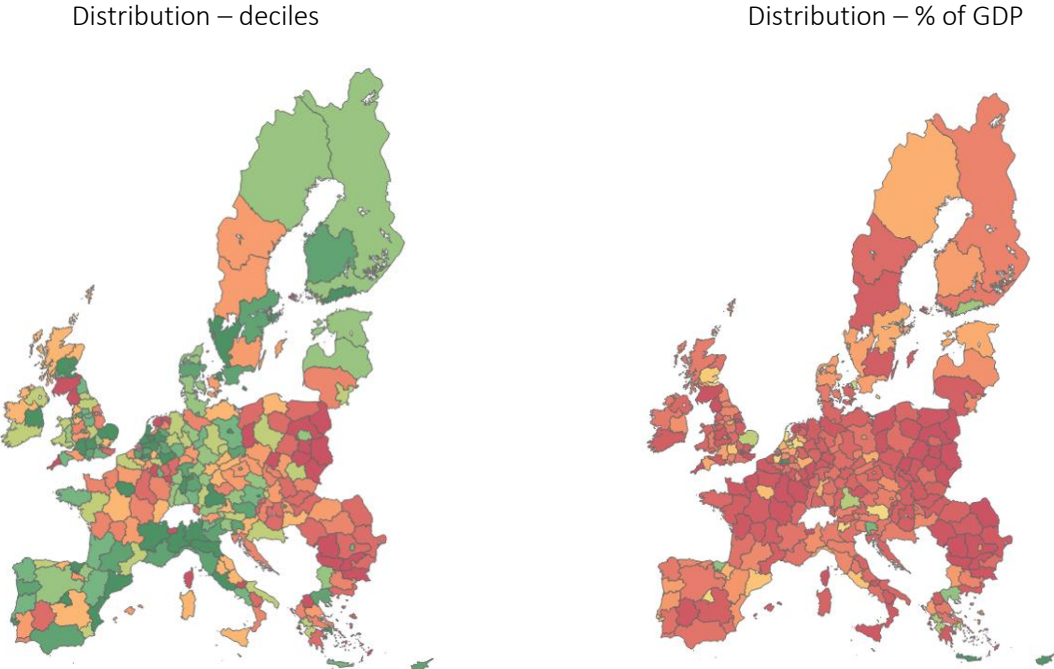
Research and innovation

As documented above, an increasing allocation of the EU budget has gone to ‘other’ items, aside from agriculture and regional funds. One key other item is support for research and science. There is general agreement that the competitiveness of the EU economy requires a substantial effort in upgrading European spending on science, research and technology. The European Commission proposed an increase, both in absolute and relative terms, in R&I spending. Resources in this field, are allocated strictly based on performance.

Figure 15 shows the distribution of one key element of spending under this heading, namely Horizon 2020 projects. The distribution of these projects and funds at the regional level is important because local R&I can contribute to create an ecosystem of innovation which is likely to foster regional growth. Valero and Van Reenen (2019) show that universities have a significant impact on growth at the regional level, with positive spill-over effects to neighbouring regions.

In an estimation performed by the OECD of the impacts on the economy of the EU 6th and 7th Framework Programme, each euro spent in those programmes have increased the value added in the business sector by €13.²⁷ This is a clear indication of the importance of R&I spillovers.

Figure 15: Horizon 2020 in EU regions

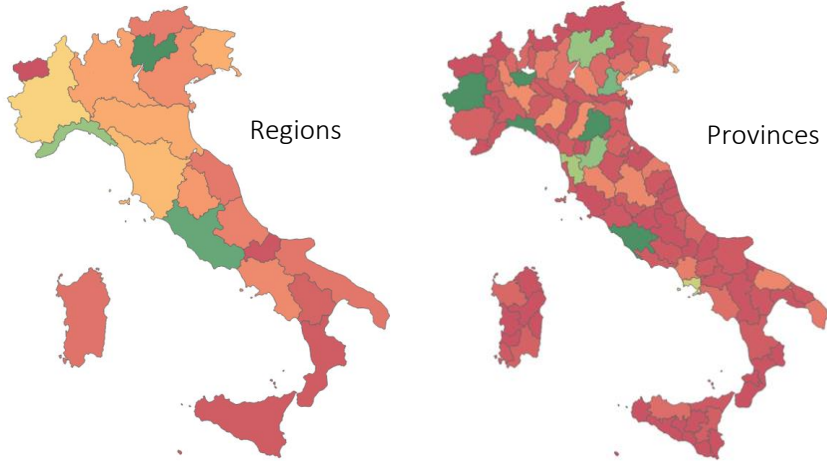


Source: own calculations based on Commission data.

²⁷ Presented in Box 10 of page 30 of the Commission staff working paper accompanying the impact assessment of the Horizon 2020 proposals (SEC(2011) 1427 final) of 30 November 2011.

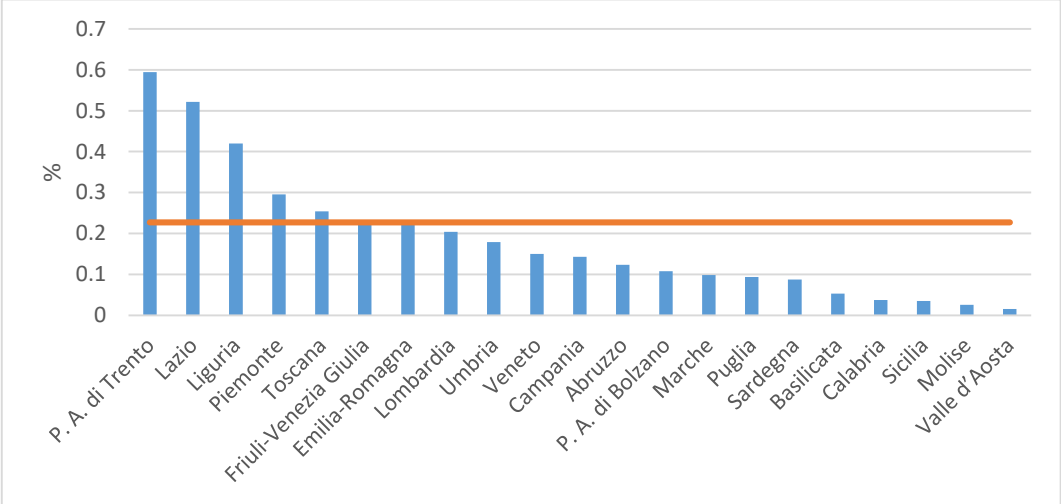
Figure 15 shows the distribution of H2020 funds in EU regions in two ways.²⁸ The left panel plots the distribution in deciles, whereas the right as percent of GDP. There is a significant concentration of resources in richer regions, as 20% of regions receive almost 80% of resources. Figure 16 then provides the same information in more detail for Italian regions and Provinces. The panel on the left highlights how only few regions stand out and the panel on the right indicates that even within regions funds are concentrated in a small number of provinces. The bottom panel provides details of EU R&D payments highlighting that only 25% or regions are above average, reinforcing the image of concentration.

Figure 16: R&D performance of Italian regions and provinces



Source: European Commission data and authors' elaboration.

Figure 17. Horizon 2020 Total funding (% of GDP), Italian regions



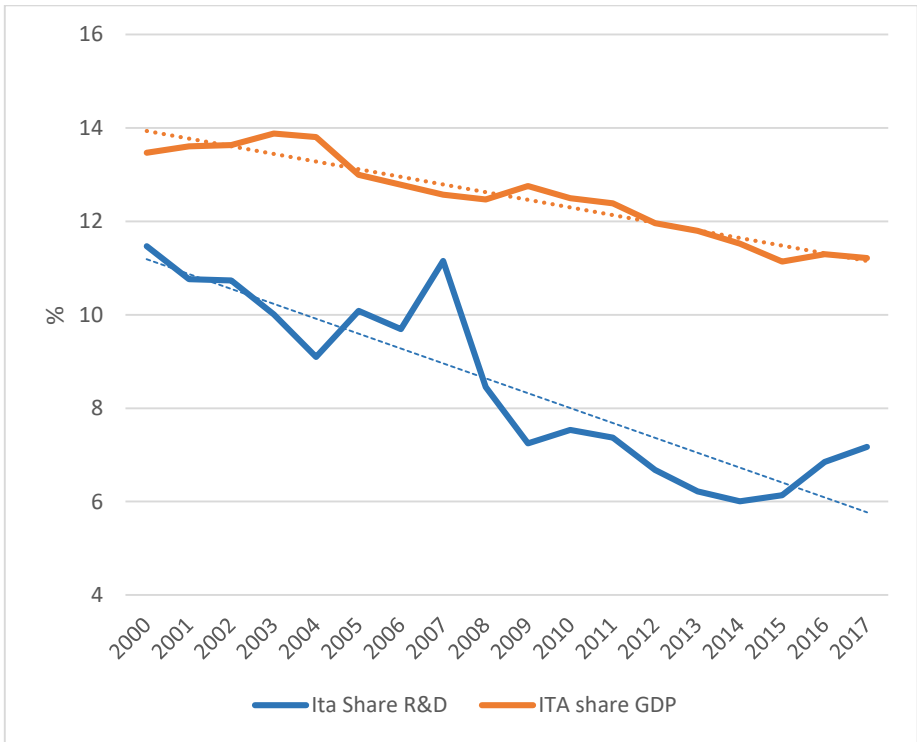
Source: Own calculations based on Commission data.

²⁸ Most EU funded research and innovation projects involve multiple partners throughout the EU and beyond. It is thus difficult to determine precisely where the funds are ultimately spent. The data presented here is based on the country/region of residence of the leader in the projects and thus cannot show where the beneficiaries are located. However, the leader in a project usually has the highest share in the project budget. Another reason why the distribution of project leadership across regions should still give an indication of the distribution of the funding is that the distribution of partners should be similar across projects and countries.

Figure 18 shows that the Italian performance in R&D has been following a downward trend in the last three programming periods and this decline has been even more pronounced than the fall of Italy’s GDP per capita relative to the EU average. Fortunately, the rate the decline has slowed down and the curve has flattened over the last 6-7 years. A key target for the coming MFF should be to invert this trend and ensure a better participation of Italian research institutions in EU programmes.

However, it is important to place a note of caution that the research sector benefits from concentration and the presence of strong international links and top researchers. A policy to create many institutions of low quality would weaken overall national performance and strength of the centres.

Figure 18: Italian R&D performance over time



Source: European Commission data and authors’ elaboration.

Conclusions

Any analysis of regional policy must consider the tension between the fact that, in the end, the MFF is essentially a political process, and the very technical details of the regulations which govern the allocation of Structural Funds.

This contribution has focused on the potential implications for Italy of the proposals of the Commission to change the formula for the allocation of Structural Funds across regions and countries. The old Brussels adage is that the ‘Commission proposes, Council disposes’. It thus remains to be seen whether these proposals will survive the political negotiations which may be concluded under the German Presidency in the second half of 2020. The Parliament has to give consent, which is not assured as the wedge between the positions of the two legislative arms has widened compared to the previous MFF.

Our broad conclusions are that the traditional spending items, cohesion and agriculture are on a declining trend. This represents a challenge for Italy, whose receipts from the EU budget have been dominated by these two budget lines.

In more detail we find that Italian regions should be allocated more funding for cohesion because they have become relatively poorer, but under the rules of the new proposal that increase is largely neutralised.

One of the aspects, which the level of funding cannot address, is the quality of the local strategies and governance. There is a need to undertake structural reforms and redirect the efforts to investments building the base for a more resilient and diversified economy. The easy returns to investment from building basic infrastructure have long been reaped. The key aim for policymakers should now be to strengthen the competitiveness of Italy's regions by investing notably in research and innovation.

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Appendix

Table 7: Data clustering based on multiannual budget headings

	MFF 2000-2006	MFF 2007-2013	MFF 2014-2020	MFF 2021-2027
CAP	1 – Agriculture 2 - EAGGF	2.0.1 - Market related expenditure and direct aids 2.0.2 - Rural development	2.0.1 - European Agricultural Guarantee Fund (EAGF) - Market related expenditure and direct payments 2.0.2 European Agricultural Fund for Rural Development (EAFRD)	3.8 - European Agricultural Guarantee Fund (EAGF) + European Agricultural Fund for Rural Development (EAFRD)
SF	2 - Structural actions (only ERDF, ESF, CF)	1.2 - Cohesion for growth and employment	1.2 Economic, social and territorial cohesion	2. Cohesion and values
R&D	3 - Internal Policies _ Research and technological development	1.1.1 - Seventh Research framework programme	1.1.31 - The Framework Programme for Research and Innovation (Horizon 2020)	1.1 – Horizon Europe
Other	Tot – (CAP + SF)	Tot – (CAP + SF)	Tot – (CAP + SF)	Tot – (CAP + SF)

Source: European Commission data (https://ec.europa.eu/budget/graphs/revenue_expenditure.html).

Table 8: Cohesion Policy funds allocation determinants: Evolution over time

Programming period / Regional classification	MFF 2007-2013	MFF 2014-2020	MFF 2021-2027
Less developed regions	<ol style="list-style-type: none"> 1. Prosperity gap 2. Unemployment 	<ol style="list-style-type: none"> 1. Prosperity gap 2. Unemployment 	<ol style="list-style-type: none"> 1. Prosperity gap 2. Unemployment 3. Youth unemployment 4. Low educated 5. Greenhouse gas emission 6. Migration
Transition regions	<ol style="list-style-type: none"> 1. Prosperity gap 2. Unemployment 	<ol style="list-style-type: none"> 1. Prosperity gap 2. Unemployment 	<ol style="list-style-type: none"> 1. Prosperity gap 2. Unemployment 3. Youth unemployment 4. Low educated 5. Greenhouse gas emission 6. Migration
More developed regions	<ol style="list-style-type: none"> 1. Population 2. Unemployment 3. Employment 4. Population density 5. Prosperity gap 6. <i>Low</i> educated 	<ol style="list-style-type: none"> 1. Population 2. Unemployment 3. Employment 4. Population density 5. Prosperity gap 6. <i>Tertiary</i> educated 7. Early leavers 	<ol style="list-style-type: none"> 1. Population 2. Unemployment 3. Employment 4. Population density 5. Prosperity gap 6. <i>Tertiary</i> educated 7. Early leavers 8. Greenhouse gas emission 9. Migration
<p>Note:</p> <ul style="list-style-type: none"> • <u>Less developed regions</u>: GDP per capita (PPS) <u>less than 75%</u> of EU average • <u>Transition regions</u>: GDP per capita (PPS) <u>between 75% and 90%</u> (100% in MFF 2021-2027) of EU average • <u>More developed regions</u>: GDP per capita (PPS) <u>more than 100%</u> of EU average 			

Table 9: Historic of allocations and scenarios for the future²⁹

Regions	MFF 2007-2013	MFF 2014-2020	MFF 2021-2027			
			Scenario 1 – No formula change	Scenario 2 – Proposed formula	Scenario 3 – Proposed formula + old regional classification	Scenario 4 – Proposed formula + no Brexit
Nord-Ovest	2,372	1,633	1,707	3,603	3,351	2,305
<i>Liguria</i>	432	176	276	516	487	328
<i>Lombardia</i>	1,132	891	865	1,937	1,785	1244
<i>Piemonte</i>	792	553	552	1,118	1,050	713
<i>Valle d'Aosta</i>	16	13	15	31	29	20
Nord-Est	1,643	1,028	894	1,810	1,615	1,142
<i>Emilia-Romagna</i>	503	343	277	564	483	349
<i>Friuli-Venezia Giulia</i>	227	110	112	205	184	131
<i>Provincia Autonoma di Bolzano</i>	62	43	27	62	57	40
<i>Provincia Autonoma di Trento</i>	67	42	29	51	44	33
<i>Veneto</i>	784	490	448	929	846	589
Centro	2,931	1,548	2,257	3,709	3,406	2,480
<i>Lazio</i>	1,780	859	1,218	2,182	2,041	1,384
<i>Marche</i>	290	208	214	417	349	239
<i>Toscana</i>	663	378	419	778	714	495
<i>Umbria</i>	199	103	406	332	302	362
Sud	15,440	20,821	21,004	17,122	17,080	20,038
<i>Abruzzo</i>	503	425	440	543	502	563
<i>Basilicata</i>	692	642	586	470	470	602
<i>Calabria</i>	4,037	3,474	3,652	2,853	2,853	3,319
<i>Campania</i>	2,514	9,636	9,775	7,834	7,834	9,127
<i>Molise</i>	162	164	387	298	298	377
<i>Puglia</i>	7,533	6,480	6,164	5,123	5,123	6,050
Isole	10,081	9,422	11,134	8,947	8,947	10,420
<i>Sardegna</i>	1,319	1,236	1,985	1,704	1,704	2,023
<i>Sicilia</i>	8,762	8,186	9,149	7,243	7,243	8,397
Italy	32,467	34,453	36,996	35,190	34,399	36,385

²⁹ Allocations are results of our calculations based on the Berlin method, not the actual realized allocations nor real payments. Allocations are expressed in 2020 EUR million. 2% fixed yearly inflation rate is assumed.