



Europe's Future | July 2020

How resilient are European countries and regions?

The coronavirus crisis and its continuing effects on European economies has propelled the debate about crisis resistance and resilience firmly back onto the EU agenda. This policy brief sheds light on the degree of resilience within EU regions prior to the outbreak of COVID-19 and draws potential lessons for decisions faced by policy-makers in the current crisis.

Introduction

The European Union is suffering from the ongoing coronavirus crisis. Many member states shut down their economies almost completely over several weeks. Although most countries are beginning to relax restrictions and have reopened retail outlets and services, uncertainties about the future course of the virus continue to dominate discussions. As the level of vulnerability and counter-measures taken so far differ markedly between member states, greater economic and social divergence is more than likely (Redeker & Hainbach, 2020). In this context, it is more important than ever that European countries and regions are resilient. This will lead to a faster recovery and to stronger capacity to handle future shocks.

This policy brief examines the concept of (regional) resilience and investigates different structural indicators to track it. It shows that wide disparities with respect to diversity, skills, innovation and good governance, all determinants of resilience, exist. These differences occur not only between European countries and within the classic core-periphery divide, but also between regions within member states. Capitals and metropolitan areas are especially set apart from rural regions. To avoid further disparities arising from the current health crisis and enhance resilience in any future crises, we need to focus more on both the macroeconomic framework and structural policies at EU-level. The “Next Generation EU” package that was negotiated at this month’s European Council could be a decisive step in creating a more sustainable and resilient Europe

after the crisis. What is more, the European structural and cohesion funds should be expanded and effectively reallocated to the neediest regions within and beyond the next Multiannual Financial Framework (MFF).

A multidisciplinary approach to (regional) economic resilience

The need for resilient economies has been a staple of policy-makers' debates over the past crisis-ridden decade. Although the concept of resilience has won increasing relevance in recent years among economists and politicians, a precise definition and measurement remain ambiguous (Martin & Sunley, 2015).

Its roots go back to engineering, ecological and psychological sciences (e.g. Strambach & Klement, 2016). In engineering research, resilience means "throwing back". In this context, economies are resilient if they are able to return to their initial equilibrium once the shock has cleared. With respect to (socio-)ecological system theory, a system can have not just one but several equilibria. Instead of returning to its initial steady state after an external shock, an economy might reach another, possibly better, state of equilibrium while gaining in resilience (Reggiani et al., 2002). In behavioural psychology, there is a type of "adaptive resilience" or the skills and capacity of an individual to maintain or regain psychological well-being after a personal trauma (Brinkmann et al., 2017; Vogt & Schneider, 2016). Here, resilience is a process of several adjustments to new circumstances and thus dynamic and learnable. While the focus rests on subjective well-being, certain objective equilibria play a minor role.

Reducing vulnerabilities, resisting shocks and recovering quickly

Building on the above-mentioned concepts from other disciplines, Hill et al. (2008) were among the first to pick up the debate around economic resilience. They define it as the ability of a region to recover successfully from shocks that either throw the economy off its growth path or have

the potential to do so. The OECD defines economic resilience very similarly as the capacity of an economy to reduce vulnerabilities, resist shocks and recover quickly. Resilience can be fostered by policies that mitigate the risk and consequences of severe crises (Brinkmann et al., 2017). Martin and Sunley (2015) go into more detail and define resilience as "the capacity to withstand or recover from market, competitive and environmental shocks". If necessary, economic structures and social and institutional arrangements need to undergo adaptive changes. The aim is to maintain or restore previous development trajectories, or to transit to a new sustainable path characterized by a fuller and more productive use of physical, human and environmental resources. Even though these definitions differ in detail, there is a broad consensus that economic resilience consists of multiple elements: Vulnerability, endogenous or exogenous shocks, robustness, resistance, recoverability and adaptability at a macro- and micro-level.

Several studies on the impact of the global financial crisis in the US and in Europe have further shown that significant differences in terms of resilience exist not only between countries but between metropolitan and rural regions (Wink, 2014). Urban centres have also fostered resilience in their surrounding areas, with rural regions close to big cities showing more resilience than more disconnected regions (ESPON, 2014).

How to measure economic resilience

Many studies use classic macroeconomic aggregates like GDP per capita, household incomes, Gross Value Added, imports, exports and (un)employment rates to measure resilience (Drobniak, 2017; ESPON, 2014; Wink, 2014). They capture the economic well-being of a state quite comprehensively. Furthermore, they are popular by making extensive data available and facilitating simple comparability between countries and regions.

The additional examination of structural indices and their evolution over time helps to achieve a

more comprehensive understanding of long-term economic resilience. Therefore, data based on company and employee characteristics, such as the overall number of businesses, presence of international firms, tax inflows from companies and employees and the skills level of the workforce have gained relevance (e.g. Hill et al., 2012). Especially in recent years, the focus has shifted to R&D and innovation and technology frameworks as key aspects of resilient economies (e.g., Cooke, 2008). All the more so given the current coronavirus crisis, where many jobs must be done from home, the aspect of a functioning digital infrastructure has taken on greater importance.

To assess the structural features of European regions, the focus will be on concepts from the research project ESPON by the European Regional Development Fund and EU member states.¹ They show, using developments in GDP and employment, that primarily four policy areas require further action to foster economic resilience: Diversity, skills, innovation and good governance. The status quo regarding these four elements pre-coronavirus crisis will be analysed. This should help understand underlying structural features and differences between European regions and their relevance for policies during and after COVID-19.

Understanding differences in European regional resilience pre-COVID-19

Diversity

Diversity marks out regions less dependent on particular companies or sectors. Diverse regions are characterised by coverage of multiple market segments, also known as horizontal differentiation (Sorensen & Sorensen, 2007). More diverse economies tend to be more resilient as they are better able to adapt to changing circumstances after any shock (ESPON, 2014). Two indices are

commonly used to measure economic diversity:² The Orgive index measures the concentration ratios of a region's sectors. This means: If each sector in an economy is represented by the same share, the index will equal zero as in displaying perfect diversity. The National-Averages index additionally compares the sectoral composition of a region to the national average.³ Some studies have suggested that the more a region's sectoral composition resembles the national one, the more resilient this region should be (Dissart, 2003; Wagner & Deller, 1993). Both indices should be considered for the sake of completeness.

The overall low values in Figures 1 and 2 show that sectoral diversity is generally high across Europe. According to the Orgive index (Figure 1), Italy and Switzerland in particular have an evenly distributed sectoral composition. In contrast, Sweden and Norway are at the lower end of diversity, which might be due to their high concentration on knowledge-intensive sectors, as will be seen later on. In addition, it appears that countries in South-East Europe are not that diversified, due to their higher specialisation in lower-skilled work. The National-Averages index (Figure 2) shows similar effects for most countries and regions in the core. In relation to the national sectoral composition, the UK, South Italy and Portugal perform not as well as before. On the other side of the equation, French regions and the Scandinavian countries are more diverse and in line with their sectoral composition at national level. The regions in Eastern Europe not only show less diversity for their own part but also diverge from their national averages.

Here, it is obvious that big cities and particularly capitals have a very different sectoral composition than other parts of Europe. Capital cities like Berlin, Paris or Prague differ much more in their sectoral composition from the national average than the remainder of their respective countries.

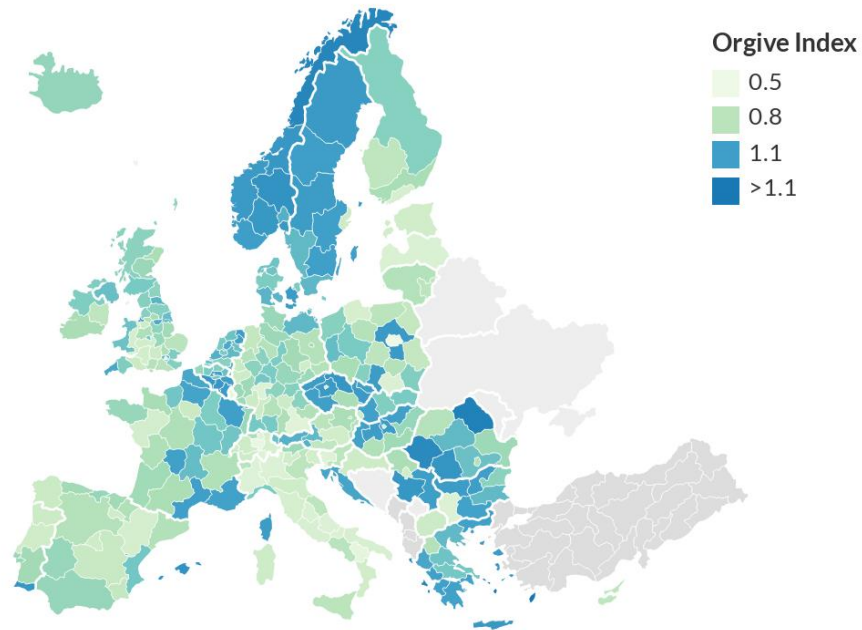
¹ It has to be mentioned that the availability of data plays a key role in measuring economic activity at the regional level. Although in some countries like Germany, regional information is widely available due to the country's structure ("Länder", municipalities etc.), it is often non-existing in other European countries.

² The detailed methodology of the two indices can be found in Siegel et al. (1995).

³ For both indices, regions are split into the ten key sectors according to the NACE classification used in the EU and the sectoral shares reflect the employment share in the given sector.

Figure 1: Orgive Index

Sectoral concentration, NUTS-2, 2018

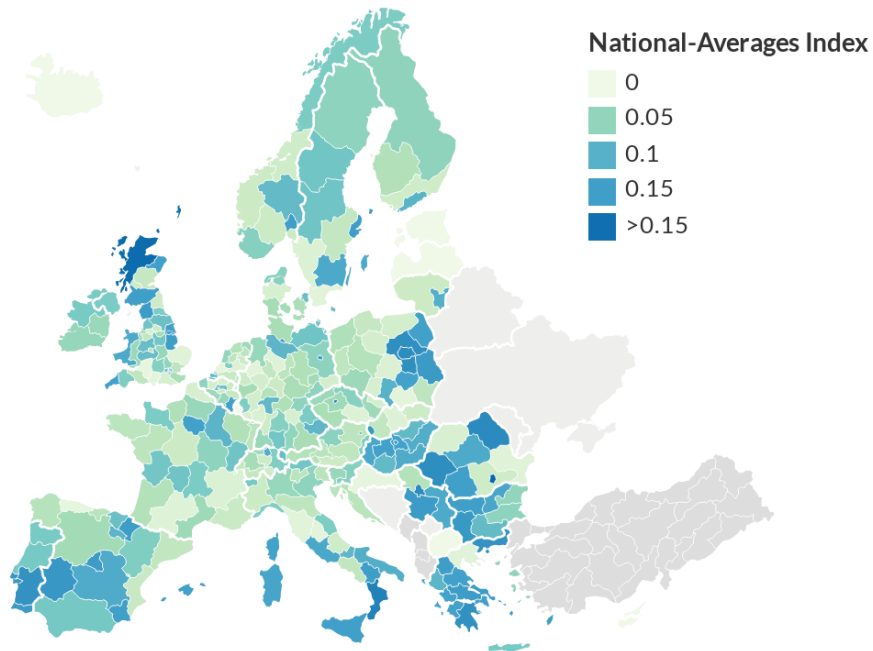


Note: Perfect diversity in terms of equal sector shares at value 0; The higher the value, the less diverse. Some data are from 2016 or 2017. Sources: Eurostat Regional Database, OECD.stat. Own calculations.

| BertelsmannStiftung

Figure 2: National-Averages Index

Sectoral concentration relative to country-average, NUTS-2, 2018



Note: Perfect diversity in terms of equal sector shares like country average at value 0; The higher the value, the less accordance with national average. Some data are from 2016 or 2017. Sources: Eurostat Regional Database, OECD.stat. Own calculations.

| BertelsmannStiftung

This uneven distribution of sectors between and within European countries might hinder the cohesion and resilience process. In light of the current crisis the figures show that some highly affected regions such as North Italy might have the necessary structural features to bounce back more rapidly.

Skills

Countries and regions with a higher-skilled labour force have proven to be more resilient to shocks (ESPON, 2014). More highly qualified workers tend to be employed in jobs that are more crisis-resistant and are less substitutable by new technologies (Hirsch-Kreinsen, 2016). In the current COVID-19 crisis above all job losses are more likely in lower-skilled professions that cannot be conducted from home (Evans & Dromey, 2020). Regional skill levels are measured by the proportion of knowledge-intensive sectors (Figure 3) and the proportion of the economically active population with tertiary education qualifications (Figure 4).

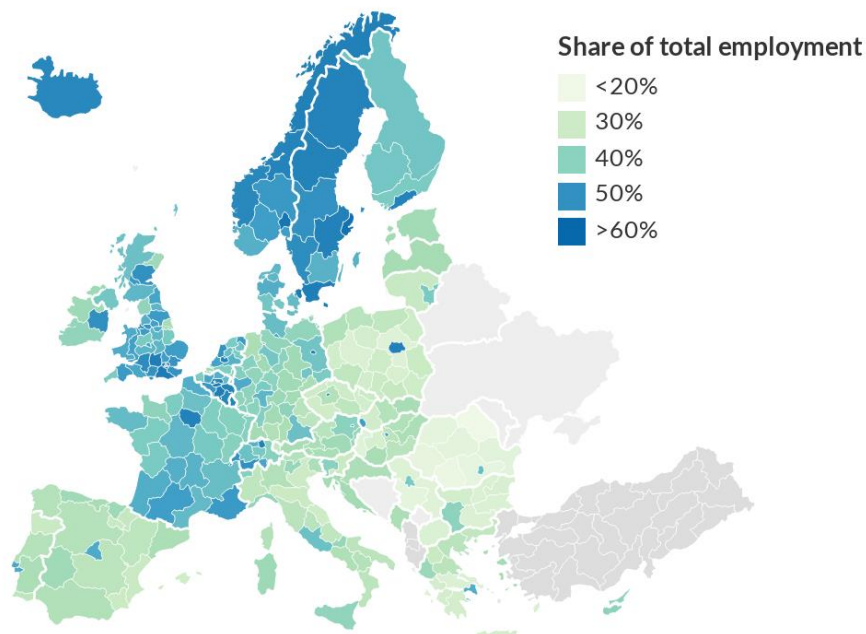
The share of knowledge-intensive sectors in Europe varies. While most regions in Eastern

Europe have proportions below 20% of total employment, regions in Scandinavia in particular show very high levels of above 50%. Also, some regions in France and South UK and most regions in Belgium and the Netherlands have high knowledge-intensive sector shares. Some countries like Portugal, Italy and Germany are very homogenous, with regional proportions mostly between 30% and 40%, while other countries exhibit large within-country differences such as France or UK. Overall, Europe shows a North/West versus South/East divide in terms of knowledge-intensive sectors. Figure 4 depicts the share of the tertiary educated economically active population. The pattern is similar to before. South-east European regions have very low levels of tertiary educated workforce, while North-west Europe, especially Scandinavia, UK and parts of France and Spain, show high values.

Even more strongly than is the case with diversity, high skills seem to be found in capital cities and the regions surrounding them. These regions will likely be able to recover more quickly from the current crisis.

Figure 3: Knowledge-intensive sectors

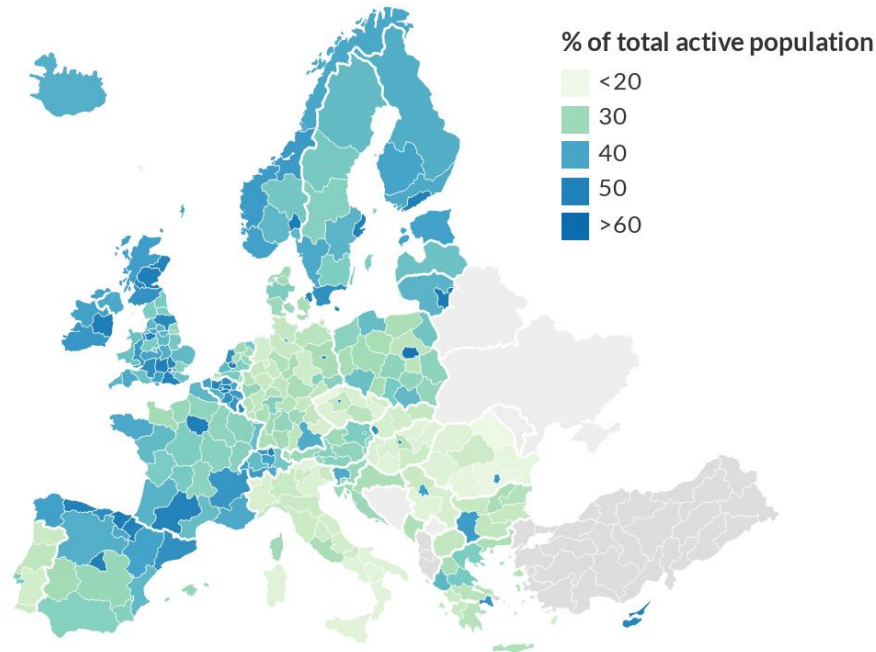
NACE classification, NUTS-2, 2018



Note: NACE is the industry standard classification system used in the EU. For more information see: <https://ec.europa.eu/>. Source: Eurostat Regional Database.

Figure 4: Share of tertiary education

ISCED-2011, NUTS-2, 2018



Note: Share of tertiary education refers to economically active population above 15 years with tertiary education degree as share of total economically active population above 15 years. Source: Eurostat Regional Database.

| BertelsmannStiftung

In particular, Italy, as affected most severely by the pandemic, shows levels of high skill well below the average in all of its regions. As job losses due to corona are predominant in households with lower education (Hanspal et al., 2020), Italian regions are suffering in the current crisis from their low-skilled workforce. Low-skilled work mostly cannot be done remotely and is therefore more vulnerable in times of health crises and digitalisation. In the long run these shortcomings in skills in Italy and most East European regions will slow down their process of becoming more resilient and crisis-resistant.

Innovation

Regions with higher innovation activity levels, for instance as evidenced in the form of patents or spending on R&D (e.g. Nagaoka et al., 2010), tend to respond to shocks more positively than others (ESPON, 2014). Here, innovation levels are measured by R&D expenditures as a

percentage of GDP (Figure 5).⁴

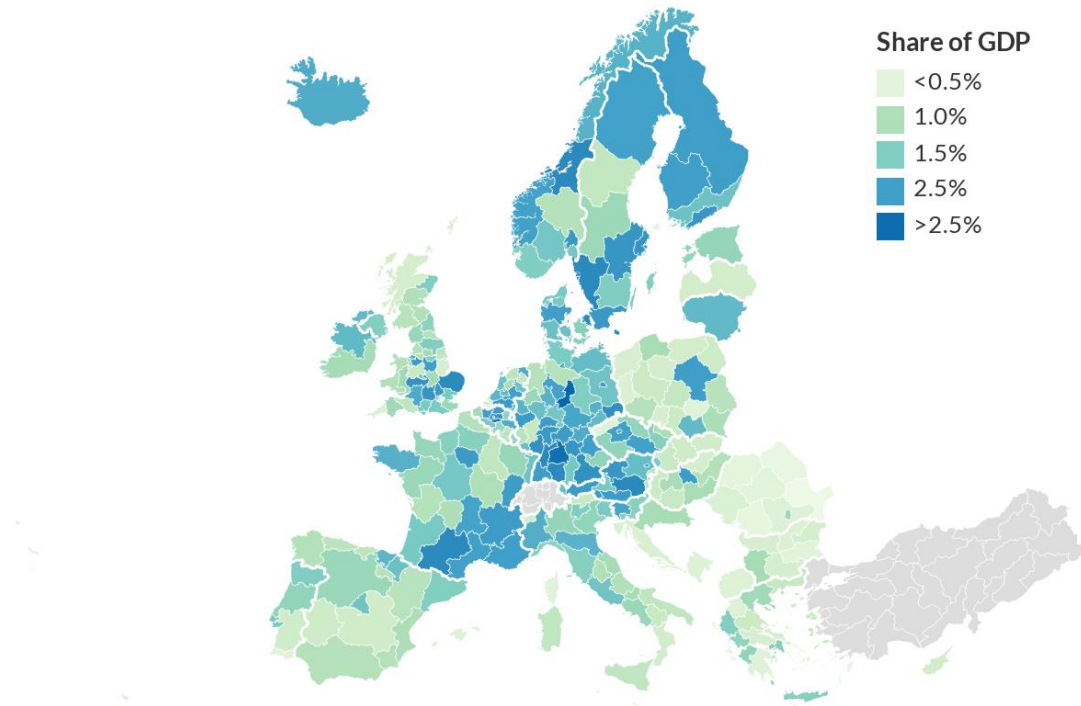
R&D expenditures as a share of regional GDP are high in most German and Austrian regions as well as in parts of France and Scandinavia. Again, some more rural regions benefit from their proximity to a metropolitan area, like the regions around London, Stuttgart or Stockholm. Regions in Spain, Portugal and South Italy are generally spending little on R&D. Except for the Scandinavian countries, it seems also that regions invest less in R&D the more remote they are from Core Europe. Territorial location in Europe plays a key role.

Low spending on R&D corresponds to lower innovation expertise and resources to withstand and tackle the impacts of a crisis. Particularly in times of rapid technological change and digitalisation, regions require the innovative capacity to keep up with the times.

⁴ As the data on patents or European Union trade marks at regional level only cover the years until 2014 or 2015, they will not be used.

Figure 5: R&D expenditures

As a share of GDP, NUTS-2, 2017



Note: Some data are from 2013 or 2015. Source: Eurostat Regional Database.

| BertelsmannStiftung

As the figure shows, most peripheral regions may not have enough innovative power to strengthen their resilience.

Good Governance

The quality of government, usually understood as low levels of corruption, impartial rule of law, government effectiveness and accountability, is also a key factor for resilient economies (Charron et al., 2012). ESPON (2014) has shown a strong positive correlation between the quality of government and its proven capacity to be resilient during and after economic shocks. In the following, good governance will be illustrated through the European Quality of Government index (EQI) by Charron et al. (2019).⁵ Up to now, this is the first source of data allowing us to compare quality of government within and between European countries.⁶

There emerges a clear difference between Core and North Europe on the one hand, and Eastern and Southern Europe on the other. While most regions in Germany, UK and Scandinavia have a very high quality of government, regions in Romania, Greece and Italy have rates considerably below the European mean.

Countries and regions with a lower quality of government will not have enough political power and trust to establish long-term stability. With respect to the COVID-19 crisis, a higher quality of government goes in line with more effective measures to stem the pandemic. If the population perceives its government as stable and reliable, more individuals will follow legal instructions or recommendations and thus hinder any further spread of the virus.

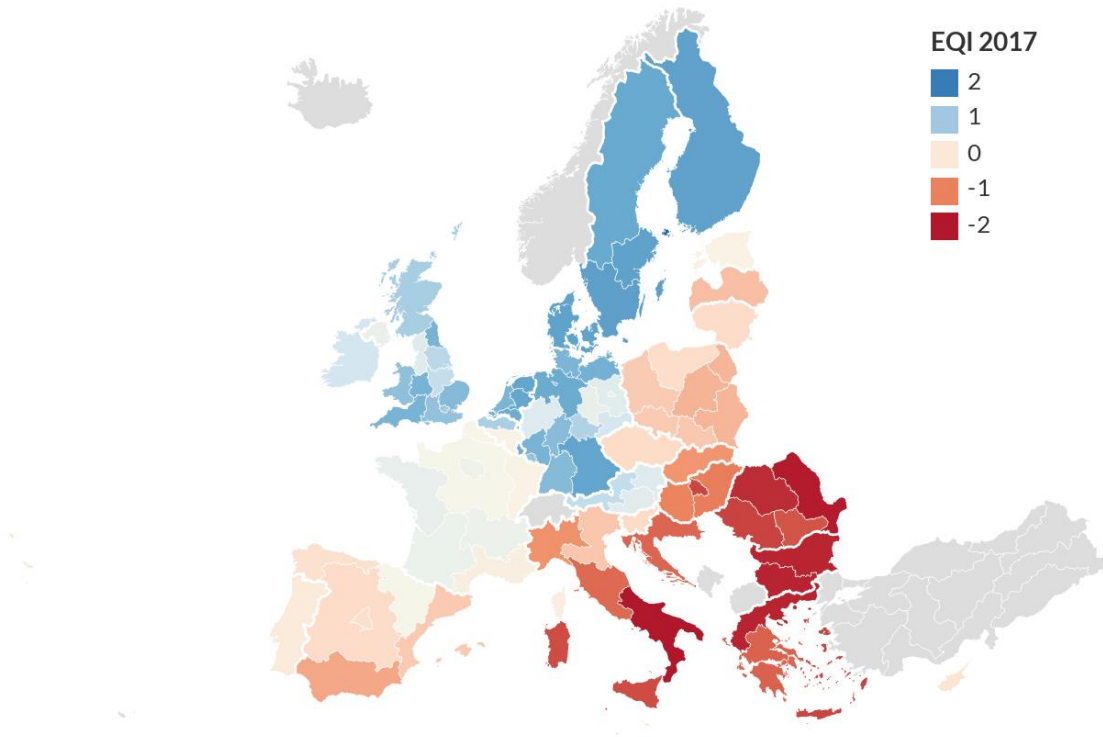
⁵ The index is based on a citizen survey where respondents are asked about perceptions and experiences with public sector corruption, along with the extent to which citizens believe various public sector services are impartially

allocated and are of good quality. For details see Charron et al. (2019).

⁶ There exist many other that measure diverse aspects of governmental quality, e.g. the SGI. But as all of them are on a country-level, they are not depicted here.

Figure 6: European Quality of Government Index

NUTS-1, 2017



Note: Higher values of EQI correspond to higher quality of government. EU mean at 0. Source: Charron et al. (2019).

| BertelsmannStiftung

This is of critical importance in highly affected regions. Italy in particular seems to have an unfavourable combination of severe affectedness and relatively low values of governmental quality. This might pose a risk for recovery from the current crisis and future resilience.

The relevance of regional resilience for policies in times of corona and beyond

Traditionally, macroeconomic policies play a decisive role in softening the negative impact of a shock in the short run and speeding the recovery after a crisis. Yet structural policies that strengthen an economy's growth potential and adjustment capacities play a more relevant role when it comes to fostering the mid- or long-term resilience of an economy (Sánchez et al., 2015).

Europe's regions have shown in parts substantial differences in their structural features before the COVID-19 crisis. Especially when it comes to

diversity and skills, capital regions are set apart from more rural areas. In times of crisis, these disparities might become more pronounced in the absence of countervailing policy measures. Therefore, regional education and labour market policies should be improved. Creating better educational opportunities for disadvantaged households as well as reallocation and retraining of employees is necessary to foster long-term resilience and cohesion within European regions. Innovational power is strong in Scandinavian and Core countries. Not only Eastern Europe, but also regions in Spain and Italy come in the middle or lower part of European spending on R&D. Combined with their high incidence of coronavirus cases, this makes them more vulnerable to prolonged economic consequences than other member states. Therefore, policies promoting firm-level innovation, developing new technologies and advancing the digitalisation process will first and foremost help peripheral regions in becoming more crisis-resistant. Considering the quality of government, effectiveness and trust play a major role in times

of crisis, especially if the further spread of a pandemic has to be confined. Governmental quality is not only important for long-term resilience but also for short-term measures. Policies shoring up enduring and high-quality governmental structures and institutions in South and Eastern European regions should be promoted.

The “Next Generation EU” package with its “Recovery and Resilience Facility” and the MFF 2021-2027 that was negotiated at this month’s European Council meeting is a decisive step in helping member states overcome the current crisis and become more crisis-resistant in the future. From the standpoint of fostering resilience, it is advisable that the majority of resources should come in the form of grants, and that policies meet the requirements of sustainable development. In particular, direct payments – if effectively distributed – have the potential to boost Europe’s economic resilience as member states do not have to save for their repayment. The short-term assistance is indispensable above all for countries most severely impacted by the coronavirus and with lower fiscal and structural resourcefulness such as Spain and Italy. Yet as disparities and low structural features were already existing before COVID-19, more long-term measures should be implemented. Apart from providing immediate relief and recovery from the coronavirus crisis, the EU’s structural and cohesion funds should be scaled up and allocated more efficiently to structurally fragile regions in Eastern Europe. Although these regions are currently benefitting from these funds, the assessment process is highly bureaucratic and outcomes are limited compared to the expense involved. The buttressing of the structural funds will not only foster long-term economic resilience across European countries and regions but also support greater and durable cohesion within them. In the face of the current crisis, the EU should not lose sight of its long-term development towards a stronger Europe.

Concluding remarks

Europe's regions show different levels of diversity, skills, innovation and governmental quality. As

these are important factors for long-term resilience and crisis-resistance, further structural policies that foster them are required. In particular, strengthening South and Eastern Europe as well as rural regions more remote from metropolitan areas is essential. Adjusted structural policy measures will not only improve economic resilience within European regions but also advance the process of achieving cohesion between them.

References

- Brinkmann, H., Harendt, C., Heinemann, F., & Nover, J. (2017). Ökonomische Resilienz – Schlüsselbegriff für ein neues wirtschaftspolitisches Leitbild? *Wirtschaftsdienst*, 97(9), 644-650.
- Charron, N., Lapuente, V., & Annoni, P. (2019). Measuring quality of government in EU regions across space and time. *Papers in Regional Science*, 98(5), 1925-1953.
- Charron, N., Lapuente, V., & Dijkstra, L. (2012). Regional governance matters: A study on regional variation in quality of government within the EU. *Regional Studies*, 48(1), 68-90.
- Cooke, P. (2008). Regional innovation systems, clean technology & Jacobian cluster-platform policies. *Regional Science Policy & Practice*, 1(1), 23-45.
- Dissart, J. C. (2003). Regional economic diversity and regional economic stability: research results and agenda. *International Regional Science Review*, 26(4), 423-446.
- Drobniak, A. (2017). Economic resilience and hybridization of development – A case of the Central European Regions. *Regional Statistics*, 7(01), 43-62.
- ESPON (2014). *Territorial Dynamics in Europe - Economic Crisis and the Resilience of Regions*. European Union, Territorial Observation No. 12.
- Evans, S., & Dromey, J. (2020). Coronavirus and the labour market: impacts and challenges. *Learning and Work Institute*.

- Hanspal, T., Weber, A. & Wohlfart, J. (2020). Income and Wealth Shocks and Expectations during the COVID-19 Pandemic, CESifo Working Paper, No. 8244, *Center for Economic Studies and Ifo Institute (CESifo)*, Munich
- Hill, E., Clair, T. S., Wial, H., Wolman, H., Atkins, P., Blumenthal, P., Ficenec, S., & Friedhoff, A. (2012). Economic shocks and regional economic resilience. In *Urban and regional policy and its effects: Building resilient regions* (pp. 193-274). Brookings Institution Press.
- Hill, E., Wial, H., & Wolman, H. (2008). *Exploring Regional Economic Resilience*, Working Paper 2008, No. 04, Institute Urban and Regional Development, UC Berkeley.
- Hirsch-Kreinsen, H. (2016). Digitalisation and low-skilled work. *WISO Diskurs*, 19, 2016.
- Martin, R., & Sunley, P. (2015). On the notion of regional economic resilience: conceptualization and explanation. *Journal of Economic Geography*, 15(1), 1-42.
- Nagaoka, S., Motohashi, K., & Goto, A. (2010). Patent statistics as an innovation indicator. In *Handbook of the Economics of Innovation* (Vol. 2, pp. 1083-1127). North-Holland.
- Redeker, N., & Hainbach, N. (2020). Flattening the Recession Curve: Comparing Initial Fiscal Responses to the Corona Crisis Across the EU. *Bertelsmann Stiftung Policy Paper*.
- Reggiani, A., De Graaff, T., & Nijkamp, P. (2002). Resilience: an evolutionary approach to spatial economic systems. *Networks and Spatial Economics*, 2(2), 211-229.
- Sánchez, A. C., Rasmussen, M., & Röhn, O. (2015). "Economic resilience: what role for policies?", *OECD Economics Department Working Papers*, No. 1251, OECD Publishing, Paris.
- Siegel, P. B., Johnson, T. G., & Alwang, J. (1995). Regional economic diversity and diversification. *Growth and Change*, 26(2), 261-284.
- Sorensen, J. B., & Sorenson, O. (2007). Corporate demography and income inequality. *American Sociological Review*, 72(5), 766-783.
- Strambach, S., & Klement, B. (2016). Resilienz aus wirtschaftsgeographischer Perspektive: Impulse eines „neuen“ Konzepts. In *Multidisziplinäre Perspektiven der Resilienzforschung* (pp. 263-294). Springer, Wiesbaden.
- Vogt, M., & Schneider, M. (2016). Zauberwort Resilienz. *Münchener Theologische Zeitschrift*, 67(3), 180-194.
- Wagner, J. E., & Deller, S. C. (1993). A measure of economic diversity: An input-output approach. *Staff Paper*, 93.
- Wink, R. (2014). Regional economic resilience: European experiences and policy issues. *Raumforschung und Raumordnung*, 72(2), 85-91.

About the project

Within the “Europe’s Future” programme, *Repair and Prepare: Strengthening Europe* delivers ideas and analyses for a stronger European economy. It covers three areas: We outline a reform agenda for the Eurozone that addresses key economic, political, and legal aspects; we propose improvements to make the European Single Market fit for the future; and we address the prospects for and determinants of sustained growth and prosperity in a Social Europe.

Title image:

Charles Clegg, Europe / Flickr – CC BY-SA 2.0, <https://creativecommons.org/licenses/by-sa/2.0/>



Editor:

David Gow

Author | Contact

Natascha Hainbach

Junior Project Manager

Programme Europe’s Future

Bertelsmann Stiftung

Telephone +49 5241 81-81843

Natascha.Hainbach@bertelsmann-stiftung.de

www.bertelsmann-stiftung.de/europe