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DISCUSSION PAPER

// MAXIMILIAN VON EHRLICH

The Importance of EU Cohesion Policy for Economic Growth and Convergence

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The Importance of EU Cohesion Policy for Economic Growth and Convergence

by Maximilian von Ehrlich, Universität Bern[1]

Abstract:

This chapter discusses factors that contributed to different economic dynamics across European regions and the prevailing disparities. The impact of EU Cohesion Policy in reducing disparities is studied based on the empirical evidence on the effects of EU regional policy. With more than thirty years of experience, several important conclusions can be drawn about the effectiveness and efficiency of place-based transfers in Europe. While EU regional policy has not completely countered market-driven processes that lead to regional disparities, it appears to have modestly alleviated them. To enhance the effectiveness of EU Cohesion Policy, this chapter advocates for an improved policy design and a shift in emphasis towards local institutions and governments in recipient regions, emphasizing that merely increasing the volume of transfers cannot compensate for these improvements.

Keywords: EU Structural Policy, Place-based policies, regional inequality, economic geography

JEL Codes: R10, R50, H20, F20, D70

[1] Contact: maximilian.vonehrlich@unibe.ch This research has been financially supported by the German Ministry of Finance.

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1) Introduction

Reducing regional disparities in economic development is a long-standing objective of the European Union (EU), one that the EU is willing to support with a substantial part of its budget. Regional policy aimed at reducing disparities, or so-called Cohesion Policy, amounts to around a third of the total EU budget or the equivalent of 112 Euro per person and year in the period 2014-20 and up to 400 Euro in some of the cohesion countries (EU Commission, 2022 Cohesion Report).[2] Overall, the potential impact of the policy is more significant than the budgetary calculation would suggest because EU rules on state aid also impact policy in individual Member States. Since 1988, the EU Structural Funds have been integrated into an overarching Cohesion Policy that focuses on supporting 'less developed' or 'lagging' regions. The largest share of the budget goes towards these regions. Despite 35 years of Cohesion Policy, regional disparities in the EU are still sizable and seem, in many cases such as parts of Southern Europe, rather persistent. But does this mean that the policy has failed to achieve the desired results? This paper discusses the drivers of regional disparities according to economic theory and evaluates the role of the EU's regional policy in supporting economic growth in lagging regions. To understand the effects of regional transfers on local growth and convergence, it is essential to analyze the economic drivers of disparities in the first place.

[2] "Cohesion countries" are less developed countries of the European Union that qualify for funding from the Cohesion Fund. The composition changed across budgeting periods.

The first part of this paper presents a framework to discuss the factors that contributed to different economic dynamics and prevailing disparities across European regions. Important factors include the sorting of the high-skilled labor force towards productive agglomerations, the employment shift to knowledge-intensive services and high-tech manufacturing, adverse economic shocks that have affected some regions more than others, or labor market characteristics and rigidities that prevent spatial equilibrium adjustment. The second part of the paper provides a discussion of the equity and efficiency rationales for EU cohesion policies. The third part summarizes the empirical evidence on the effects of EU regional policy. Drawing from more than thirty years of experience and data, a substantial body of academic literature has developed. Insights from this literature can be clustered into several important questions about the average effectiveness of EU regional transfers and the factors determining differences in effectiveness across recipient regions. In summary, the literature suggests that EU regional policy did not overcome market processes leading to regional disparities but may have modestly mitigated disparities. There are success stories where lagging regions grew out of EU cohesion support (e.g., regions in Ireland, Poland, or the Baltic states), whereas other regions continue for decades to qualify for the highest intensity of cohesion funding, due to zero growth or even shrinking local economies (e.g., the Italian Mezzogiorno or some regions in Greece). Some of these cases are analyzed to understand the challenges of regional transfers and the factors and types of investments that may contribute to a more effective Cohesion Policy. The fourth part of the paper discusses the general equilibrium effects of different types of transfers: how much displacement of economic activity versus additional value added is generated? Which indirect effects beyond the direct effects in the recipient regions must be considered for assessing the aggregated effects of investments in transport infrastructure or local production amenities? The paper concludes with some thoughts about how the design of cohesion policies and the framework conditions in recipient regions can be improved to make transfers more effective.

2) Regional disparities in Europe: causes and dynamics

2.1) Measurement, levels and evolution of regional disparities

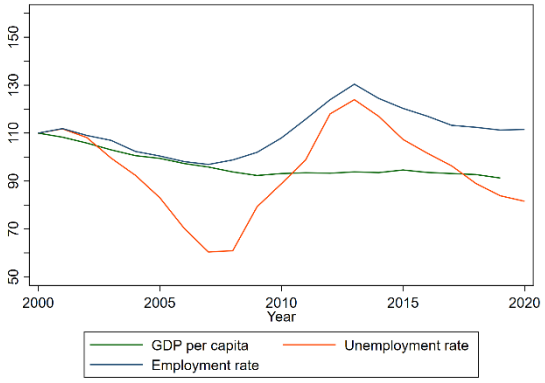
The first step to studying the contribution of EU regional policy to the evolution of disparities is to find a reasonable way to measure them. The EU usually measures disparities on the NUTS2 level[3] as this level corresponds largely to the target unit for the allocation of regional policy transfers. The EU Cohesion Report (EU Commission, 2022) adjusts this approach somewhat and looks at population-weighted variations of outcomes per NUTS2 region. It shows that in the last decade, the degree of

[3] NUTS2 level is defined as sub-regional entities in comparison to NUTS1 which is defined according to state borders.

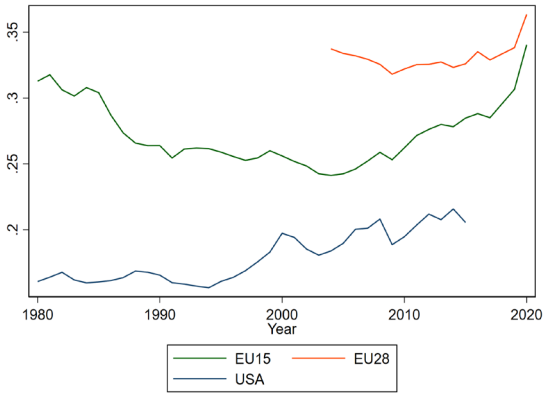
disparities as measured by the coefficient of variation of per capita GDP (often referred to as sigma convergence) remained largely unchanged. This is also illustrated in Figure 1. At the same time, the variation in the employment rate went up somewhat.[4]

Figure 1: Evolution of Disparities

A. NUTS 2 Regions



B. Metro Regions



Source: Panel A: Regional disparities in per capita GDP (coefficient of variation), employment (mean absolute deviation), and unemployment (mean absolute deviation) for EU27 countries based on Figure 2.4 in EU Commission (2022), values in panel A are normalized to 100 in 2000; Panel B: Disparities in per capita GDP (coefficient of variation) across Metro Areas based on Ehrlich and Overmann (2022) based on Eurostat data, OECD metro definitions and BEA data for US metro regions.

However, from the perspective of economic processes, focusing on NUTS2 regions may not be a good approach as it compares units that are very different. The administrative definition of regions following the NUTS classification is often quite arbitrarily defined and pretty broad such that they vary a lot across European countries. The Cohesion Report admits this issue but addresses it only slightly by combining some units of NUTS2 regions that belong to the same metropolitan area. Additionally, this classification includes urban as well as rural regions which follow very different economic dynamics. With regard to the evaluation of policies, this would in principle suggest also discussing the Common Agricultural Policy of the EU that may have some effect on local growth and convergence.

Ehrlich and Overman (2022) propose a different approach to explain disparities and their evolution by using an economic definition of regions where areas are tied together by labor and goods markets. The paper uses Eurostat data to compute economic outcomes for all European metro regions from 1980 onwards. Using the definitions of Ehrlich and Overman (2022) the overall message is that in the last decade, disparities have not been decreasing, neither in terms of per capita GDP nor in employment rates. This is documented in the right panel of Figure 1. Interestingly, when we keep the definition of the EU fixed at the EU15 and analyze a longer time horizon, we observe quite a pronounced decrease in disparities until early 2000 while this trend seems to have stopped or even reversed across EU15 metro regions afterward. It also becomes evident that this changing trend in terms of regional disparities is not only limited to the EU but also observed in the US (where it started somewhat earlier). An alternative way to look at the evolution of disparities is the so-called beta

[4] Note that the variation in employment rates is more meaningful than the one in the unemployment rate as it captures participation rates. The EU Cohesion Report discusses another important concept, namely labor market slack, which also shows persistently high disparities (Map 5.5 p.140.)

convergence defined as the relationship between GDP per capita growth and initial GDP per capita. A more negative beta coefficient implies a higher speed of catching up of poorer regions. And again, as documented in Ehrlich and Overman (2022) in the 80ies and 90ies there was a significant, negative beta convergence coefficient, but for the level of European metro regions, this catching-up process slowed down from 2000 onwards.

From these observations, we cannot draw conclusions about the role of regional policy in reducing disparities across regions per se, without first understanding the market factors that may have led to these results.

2.2) Drivers of geographical economic disparities

What is behind these disparities? The theory of regional and urban economics highlights the concept of spatial equilibrium as in Roback (1982): Firms and workers trade off the productivity advantages of different regions against the costs of locating there. Accordingly, we should see increases in per-capita incomes with the sizes of metro areas but also increases in living costs. As shown by Ehrlich and Overman (2022), there is very clear evidence for both correlations and, more importantly, an explanation for why market processes may have led to increasing disparities. The study shows that agglomeration elasticities – which measure the percentage increase in productivity or wages that result from a one percent increase in population -- have increased over the last decades. Compared to 1980, the per capita income gain that is caused by higher population density either due to agglomeration economies or due to sorting of high-skilled labor has almost doubled. The agglomeration elasticity, as estimated in Ehrlich and Overman (2022), went up from 4.3 in 1980 to 7.8 in 2015. Adding to this picture, the EU Cohesion Report documents an increased employment share in metro regions (and particularly in metro regions of capitals) relative to non-metro regions between 2000 and 2020.

Overall, economic activity tended to be concentrated in places that showed already relatively high employment to start with, which was enhanced by a stronger increase in productivity in these regions. What is behind the positive correlation between initial employment and per capita income growth? The economic literature highlights two main effects: First, both static and dynamic agglomeration economies may have increased over the last decades. This seems to be driven by two main factors: structural changes and a general employment shift towards knowledge-intensive services and high-tech manufacturing. Services and high-tech manufacturing tend to be both highly clustered in space. Second, the sorting of high-wage individuals to productive metro areas may have contributed to this process.

Bigger cities experienced an inflow of a high-skilled labor force. Data from the EU statistics on income and living conditions (SILC) shows that high-skilled workers are 9.5 percent more likely to live in a city than low-skilled workers, and the effect increased over time. Why is that the case? The so-called college wage premium is about 7 percent higher in cities. Accordingly, there seem to be geographical differences in the relative demand for skills. The theoretical mechanisms behind this could be related to skill-biased agglomeration economies (Moretti, 2013), or that high-productivity firms benefit disproportionately from agglomeration as in Gaubert (2019). Even if the distribution of skill groups had not changed, the fact that the wage premium of high-skilled increased, as documented in Dustmann et al. (2009), would partly explain the rising disparities. In addition to the changes in demand for skill groups, there may also be geographical differences in the supply of high-skilled labor. This could be for instance due to different preferences for amenities. The endogenous provision of such amenities may also be a driver of sorting (Diamond, 2016 and Gaubert and Diamond, 2022).

Surging housing prices in productive metro areas may have also contributed to the sorting process. The cost of living increased proportionally in those cities that were already relatively more productive, which could further enhance sorting. With housing supply becoming more inelastic and assuming non-homothetic preferences, highly productive metro areas become less affordable for low-wage workers, hence reinforcing spatial disparities (Aguiar and Bils, 2015, Basten et al. 2017).

Many countries in Europe experienced these general trends but they led to different outcomes in terms of the degree of increasing disparities. These different dynamics given similar economic trends are certainly related to institutions and local policies. A recent paper by Gagliardi et al. (2023) shows that the employment losses caused by structural change could be compensated much faster in regions that had a higher share of college graduates in the labor force in the year of their country's manufacturing peak. Higher levels of human capital allowed for faster growth in human capital-intensive services which could compensate for losses in declining sectors. Labor market institutions are another crucial factor determining the evolution of regional disparities. Boeri et al. (2021) analyze the spatial disparities between the South and the North of Italy and compare the evolution to the disparities between the East and West of Germany. The Italian labor market is characterized by wages set according to nationwide contracts which allow only for limited spatial adjustment. Accordingly, the link between local productivity and local nominal wages is broken, and the Italian South has higher non-employment rates than in a system with collective bargaining that is combined with flexibility to respond to local productivity differences as in the case of East and West Germany. Note that a similar mechanism applies when nationwide, uniform minimum wages that do not account for differences in the costs of living are implemented. The degree of labor mobility within countries is crucial for the adjustment of the spatial equilibrium. With low labor mobility, disparities are more persistent. Policies that reduce mobility, for instance by contributing to an inelastic housing supply in productive centers, are important factors that contribute to regional disparities. Further dimensions that affect regional employment and investment include local tax policies (Duranton et al, 2011), access to investment capital (Samila and Sorenson, 2011), and product and labor market regulations in combination with the efficiency of public administration (Ardagna and Lusardi, 2010, Amoroso at al., 2023). Note that these factors may interact with the sorting dynamics as well as with the effectiveness of the place-based policy. The link between the incentive effects of local taxes and place-based policies will be discussed in more detail below.

Given the still significant level of economic disparities in Europe, cohesion transfers are an important instrument that aims at reducing regional income disparities. The question is how much EU cohesion funds can mitigate the economic trends towards disparities. According to the spatial equilibrium model, the effects of cohesion transfers to specific regions -- compared to direct transfers to individuals – may be complicated by the mobility of individuals and firms. On the one hand, cohesion transfers may reduce mobility and thereby slow down the adjustment process (Egger et al. 2014; Jofre-Monseny 2014), and on the other hand, mobility may imply that transfers capitalize in land prices such that regional policy is not necessarily benefiting the groups it intended to target.

3) The theoretical rationale for place-based transfers

The Treaty on the Functioning of the European Union (TFEU) states the importance of "reducing disparities between the levels of development of the various regions and the backwardness of the least favoured region" where particular attention shall be paid, among others, to regions affected by industrial transition and structural adjustment (Articles 174, 176 TFEU). Yet, the theoretical rationale for regional transfers often goes beyond geographical equity considerations and includes aggregate

efficiency motives. This highlights the question of whether or not there is an equity-efficiency trade-off for regional transfers, and whether the balance between *equity* and *efficiency effects* is different for different types of transfer interventions.

The equity considerations mean that the EU cohesion policies work like a fiscal equalization scheme that tries to ensure that EU citizens have similar levels of public goods and services. Using transfers to mitigate the economic decline in regions with structural change might also spare its inhabitants the costly move to more productive places. These costs of deviations from location preferences include non-monetary aspects that are not part of a criterion that aims at maximizing output or productivity.

Due to geographic equity considerations, transfers may shift, to a certain extent, economic activity from richer to poorer regions. This contributes to narrowing disparities but may have efficiency costs. Hence, the displacement of economic activity must enter the evaluation of aggregate effects of regional policy as well as the analysis of the overall effect and whether the gains in targeted areas outweigh potential losses in non-targeted areas. Efficiency arguments for place-based transfers relate to non-linearities in economic development which could lead to employment or income gains in the target regions that compensate for the displacement. Place-based transfers could kick off endogenous agglomeration processes which offset the initial costs (Kline, 2010). Similarly, it is often referred to poverty or development traps (see European Commission 2021, Chapter 2.3) that can be overcome by sufficient investment or big push policies. Another efficiency argument builds on the fact that cohesion transfers finance public goods which may exert cross-regional externalities such that centralized and coordinated provision enhances efficiency (e.g. transport infrastructure investments). It becomes obvious that different types of cohesion measures may highlight different aspects of the equity-efficiency tradeoff. To evaluate the aggregate effects of EU Cohesion Policy, a general equilibrium analysis taking into account effects in recipient regions as well as displacement and spillover effects is required.

4) Contributions of EU Cohesion Policy to growth and convergence: A summary of the evidence

About thirty years of data on regional policy in Europe allowed for a large body of literature that studies the effects of transfers in recipient regions, whereas the literature on general equilibrium effects which will be discussed in Section 5 is still much scarcer. In this section, we focus on the literature that studies the net economic effect of transfers rather than the specific outcomes targeted by the individual instruments. There are comprehensive evaluation studies analyzing specific outcomes such as kilometers built, the number of public or commercial buildings built, or the capacity of supported childcare which are of interest when studying the channels of policy intervention, whereas this section will focus on the macro level effects.

The main challenge in evaluating place-based transfers is selection into treatment, as regions qualify for transfers precisely because they are less developed, lagging, or at a very peripheral location. The naive comparison of recipient and non-recipient regions is thus likely to provide biased results regarding the policy effectiveness in recipient regions. Microeconometric methods such as regression discontinuity design, event study analysis or propensity score matching have been applied to address the endogenous nature of transfer recipients and helped to identify the causal effects of transfers. This section tries to focus on the summary of research papers that fulfill the methodological quality requirements of a good econometric strategy for obtaining causal effects. Based on these papers, good evidence exists at least for seven important questions.

1. Do EU regional transfers cause additional growth in the recipient regions, on average?

2. Do EU regional transfers cause additional growth for all recipient regions alike?
3. Do more regional transfers generate additional growth? What is the evidence regarding big-push hypothesis versus diminishing returns of transfers?
4. What are the distributional effects of transfers?
5. Are EU regional transfers contributing to resilience during economic crises?
6. What are the long-run effects? Do transfers mostly generate consumptive effects or is there evidence for a persistent shift in the spatial equilibrium?
7. What is the role of local political incentives and rent-seeking for the effectiveness of funds?

4.1) Average effect:

The first question investigates whether the transfers caused, on average, growth of income and employment in recipient regions. Becker et al. (2010) introduce a regression discontinuity design exploiting the EU rule that the majority of funds goes to those regions that have a per capita income of less than 75% of EU income for an average over some predefined years. This generates a strong discontinuity which cannot be manipulated and has later been used by other papers for different outcomes as well. The results for the period 1989-2006 suggest that transfers led to higher growth on average. For Objective 1 regions, the study finds that transfers led to real economic growth in both GDP and GDP per capita of around 1.6% per year of a program period. Aggregating these figures across all years of the three program periods considered and across all regions and comparing them with the total costs, the study finds a multiplier of regional transfers of between 0.8-1.2, depending on the econometric specification. This means that one Euro adds on average around 0.80-1.20 Euros to GDP (at purchasing power parity) in the recipient regions. Pellegrini et al (2013) confirmed this result using data on certified expenditures. A more recent paper by Lang et al. (2023) uses transfer data from the EU regional development and Cohesion Policy up to the year 2017 and confirms the validity of the regression discontinuity design. The authors find average effects that are very similar to the effects identified for the earlier periods with average multiplier estimates ranging between 0.9 and 1.4. Overall, econometric analysis shows that, on average, recipient regions grow faster than non-recipient regions because of transfers. The estimated multipliers are close to one such that one may conclude that “you get out what or slightly more than what you put in”.

4.2) Heterogeneous treatment effects

The second question pertains to whether the funds are as effective anywhere and which factors matter for the effective use of transfers. This is often related to the concept of absorptive capacity. Overall, it should be borne in mind that the multipliers discussed in response to question 1 are average values. With regard to the question of whether the funding process could be made more efficient or effective, it is crucial to identify sources of heterogeneity in the effectiveness of the allocations. Becker et al. (2013) have determined such heterogeneity on the basis of two sources of absorptive capacity: the availability of human capital and high-quality institutions. Regions with high absorptive capacity are more able to benefit from technology spillovers from richer regions than others.

The results from this study are unambiguous regarding the question of whether transfers can trigger an economic upswing in the EU’s poorer regions. Regional transfers are shown to be most effective where per capita income is already relatively high, i.e., somewhat less developed regions within a highly developed country benefit most from regional transfers. In contrast, low-income regions benefit very little or not at all from regional transfers. In other words, the redistribution objective of

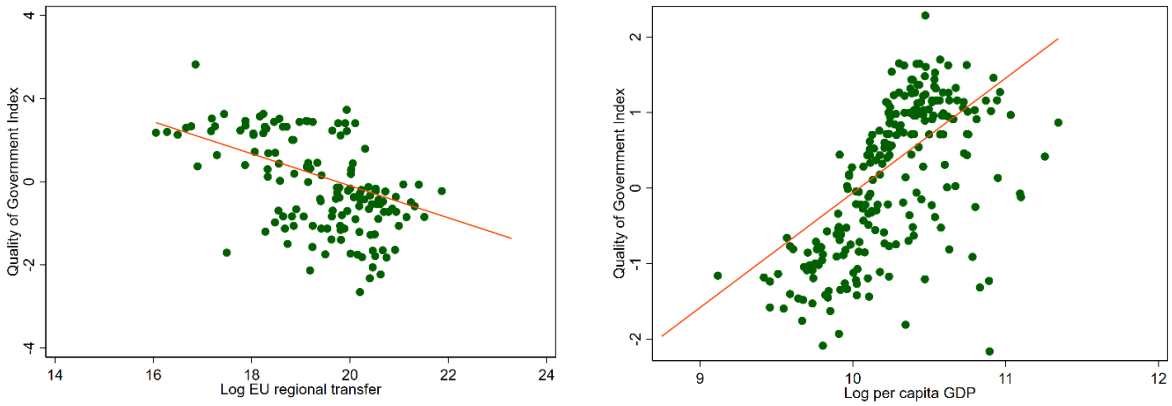
EU funds is not achieved, and the funds fail to create cohesion and do not trigger a catch-up effect of poorer EU regions unless these regions are located in a highly developed country. This has to do with the absorptive capacity: Only 30% of the recipient regions in Becker et al. (2013) have the power to turn transfers (more specifically, transfers under Objective 1 funding which are the focus of the study) into economic growth. Of those regions that were able to generate growth, only two thirds have additional effects on investments, implying that a significant part of the funding goes into consumption.

These results are supported by the analysis of Rodríguez-Pose and Garcilazo (2015) who conclude that the quality of local government is both a direct determinant of economic growth as well as a significant moderator of the efficiency of EU cohesion expenditure. Consistent with the heterogeneous treatment effect, the literature finds that the responsiveness to EU transfers varies substantially across countries. For instance, there seems to be relatively little effectiveness in Italian regions (e.g. Ciani and de Blasio, 2015) whereas Brachert et al (2019) document positive effects of regional transfers on productivity growth in Germany, and Biedka et al. (2022) estimate positive effects on the growth of municipal revenues in Poland. Exploiting detailed information about funded projects and beneficiaries, Bachtrögler et al. (2019) conclude that the effectiveness of EU cohesion policies varies significantly across and within countries for similar interventions. Focusing on Italy, a recent paper by Albanese et al (2021) concludes that the level of local institutional quality as well as population density matters for local transfer responses. Canova and Pappa (2022) estimate the dynamic multiplier effects of ERDF and ESF spending accounting for regional heterogeneity including the level of regional development, Eurozone membership, and geographical location. According to their results, the transfers did not contribute to reducing disparities across European regions as the multipliers are significantly lower in the low-income regions and in peripheral regions. This difference compensates the skewed distribution of funds towards low-income regions. They relate these discrepancies in the local responses to the Cohesion Policy to local government expenditure.

Given the results on local quality of government and human capital as crucial complementary factors for transfer effectiveness, one may jump to the conclusion of making transfer eligibility conditional on sufficient levels of local quality of government or investment in local human capital. The latter is crucially affected by the sorting mechanisms described above which indicates potentially reinforcing effects. We observe a sorting of high-skilled labor force to productive centers, and at the same time transfers in lagging regions lose effectiveness with a declining human capital endowment. Accordingly, transfers should be used such as to raise the attractiveness of a region for high-skilled labor and slow down the sorting dynamics.

Figure 2 illustrates the correlation between regional transfer intensities and the quality of government index by Charron et al. (2022). Restricting the volume of EU cohesion transfers paid to regions with low quality of local government would imply a significant redistribution of transfers and would counteract the aim of supporting the regions with the lowest levels of per-capita GDP. A conclusion from these results is that transfers could possibly be used more fruitfully in the long term by investing in local human capital and good institutions as well as in investments mitigating the sorting of skilled groups. In other words, the overall amount of funds spent could be reduced without lowering the effect when spending it more wisely.

Figure 2: EU Transfers and Quality of Regional Government 2014-2020



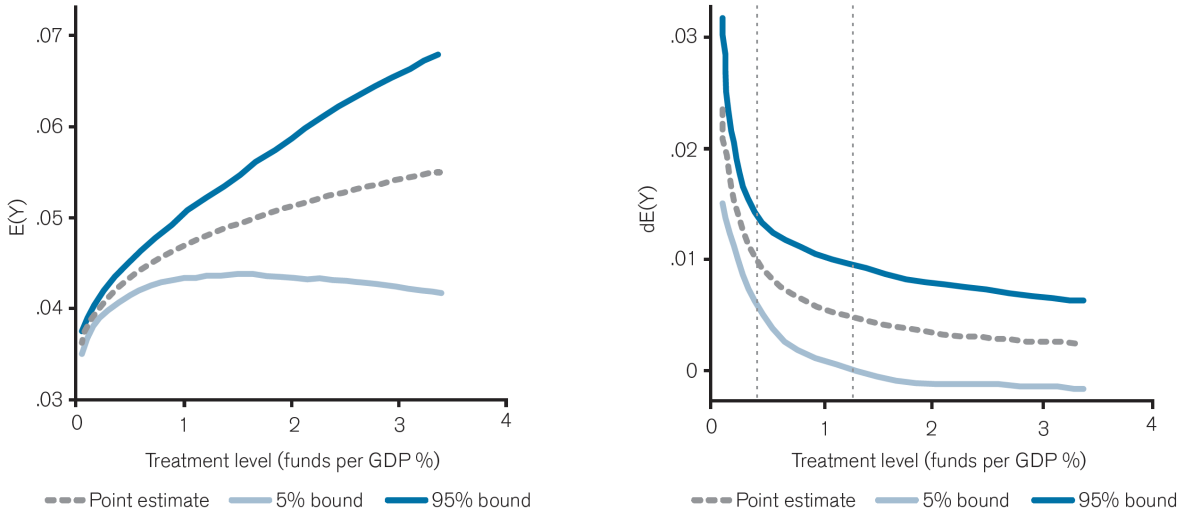
Source: EU data on transfers to NUTS2 regions available at https://cohesiondata.ec.europa.eu/EU-Level/Historic-EU-payments-by-MS-NUTS-2-region-filter-by/2qa4-zm5t ; Eurostat regional data; Charron et al. (2022) for the regional Quality of Government Index.

4.3) Transfer intensity

Over the last decades a large set of regions has received support from EU cohesion transfers. Distributing transfers for a given budget more broadly comes at a lower transfer intensity per recipient region compared to a more concentrated spending. The EU Cohesion Report discusses the hypothesis of development traps (European Commission 2021) which may require a sufficient transfer intensity, i.e. a big-push investment, for regions to grow out of such development traps. This idea is closely related to non-linearities in economic development as they could occur if the transfers are capable of setting off agglomeration economies that become self-sustaining. In contrast, diminishing returns to transfers, for instance, due to a more or less fixed set of potential high-return investment opportunities, would imply that higher transfer intensities lead to declining marginal effects. This empirical question has been addressed in Becker et al. (2012) using EU cohesion expenditure distributed among NUTS3 regions. Figure 3 illustrates the central results of the study where the left-hand side corresponds to the dose-response function which depicts the predicted outcome in terms of per-capita GDP growth as a function of local transfers as a share of local GDP. The right-hand side depicts the estimated treatment effect function which is estimated separately and corresponds to the first derivative of the dose-response function, i.e. the marginal effect of an additional unit of transfers for income growth. The dose-response shows that, on average, higher transfers per local GDP led to higher growth. Yet, the confidence bounds get larger at high intensity and the curve displays a concave slope, which implies that there are decreasing returns to transfers. The treatment effect function shows the highest marginal effects of transfers at low levels of transfer intensity with a confidence interval including zero at a treatment intensity of about 1.3%. Beyond this level of transfer intensity, the null hypothesis of zero income growth effect cannot be rejected. Becker et. al (2012) refer to this threshold as the maximum desirable transfer intensity. This is in line with the hypothesis of diminishing returns and in contradiction to the development trap hypothesis. The latter would rather suggest a convex shape of the dose-response function and a minimum necessary level of transfer intensity for significant positive effects. Hence, the evidence speaks against the development trap hypothesis. Comparing the estimated threshold for significant positive treatment effect with the distribution of transfers, Becker et. al (2012) conclude that about 18% of the recipient regions are at a level beyond the maximum desirable transfer intensity. According to the estimates, cutting transfers in these regions would not even reduce their growth and the budget could be used in a more efficient way. Assuming this threshold remained constant, the share of recipient regions

that exceeded this level rose to 35% in the most recent budgeting period. A later study by Cerqua and Pellegrini (2018) confirms the concave shape of the dose-response function of EU cohesion transfers and regional growth and suggests that the marginal treatment effect becomes negligible when the transfers per capita reach about 275 Euros. To summarize, more transfers do not necessarily yield more local growth and convergence.

Figure 3: Dose-Response Function of EU Transfers



Source: Becker, Egger and von Ehrlich (2012). The dashed lines represent the point estimates, the solid blue lines the confidence bounds of the estimated functions.

4.4) Long-run effects of transfers

While a significant effect of EU regional transfers may arise due to direct consumptive effects, an important question relates to the long-run equilibrium. Are transfers capable of shifting regions to a different long-run trajectory or are effects rather short-lived and vanish once transfers are discontinued? Interesting case studies by Barone et al. (2016) for Italian regions and Di Cataldo (2017) for British regions have analyzed economic development once cohesion transfers are phased out. The two studies base their econometric analysis on regions that lost cohesion support due to changes in the EU average per-capita GDP which was caused by EU enlargement. This led to a reallocation of transfers that were exogenous from the perspective of these regions. The results indicate a significant loss in per capita GDP following the reduction of cohesion funds. For these cases, there seems to be a move back to their old equilibrium and no persistent shift. Becker et al. (2019) studied all regions switching in and out of Objective 1 support between 1989 and 2013. Consistent with the Italian and UK evidence the analysis finds positive per-capita-income growth effects that develop relatively quickly but are not very long-lived: Taking the funding away leads to a reversion to per-capita-income levels (corrected for purchasing power differences) prior to when the funding had first been received. Yet, this does not seem to be a pattern that holds true for all place-based policies alike. Studies on US place-based policies by Kline and Moretti (2013) and on German place-based policies by Ehrlich and Seidel (2018) document persistent effects on the spatial equilibrium decades after the end of the place-based transfers. Canova and Pappa (2022) study a shorter time window of 1-3 years after transfer recipience and estimate the dynamic multipliers of ERDF versus ESF transfers. They conclude that the effects of ERDF transfers dissipate within three

years whereas ESF transfers have more medium-term effects after 2-3 years. This could be related to the different types of investments supported by the two instruments. A conclusion from this mixed evidence is that the long-run effects depend largely on the context, the type of policy and investment, and the level of spatial aggregation analyzed. First, different policies may have led to different expectations about the duration of the place-based transfers. When transfers are expected to be paid for a long-time horizon – such as the "Zonenrandgebiet" support in the study for Germany – the location choices of firms and households may be influenced. Second, investments in immobile and durable capital structures or investments in human capital display different dynamic effects than transfers used for more consumptive purposes. Third, the spatial equilibrium may be affected at a granular spatial scale when one municipality recieves support and a neighboring municipality does not, whereas mobility costs to relocate between labor markets or states may not be compensated by the transfers.

4.5) Distributional effects of transfers

Inequality considerations are a crucial rationale for EU cohesion transfers. The effects on regional aggregates may conceal effects on individual income inequality within recipient regions. The incidence of regional transfers within recipient regions is important at least for two reasons: First, while regional transfers may reduce inequality between regions it is not obvious whether this effect is accompanied by an increase of inequality within regions such that the general aim of individual inequality is unclear.[5] Second, depending on the distribution of the transfer incidence within regions, recipient regions may become relatively more or less attractive for different type of households. Given the role of skill sorting for regional inequality discussed above, place-based transfers that redistribute towards low-skilled within recipient regions may have contributed to the sorting equilibrium. Most evidence on the within-region incidence of place-based transfers looked only at broad groups and, in particular, at the effects on wages versus land or property prices. Some evidence on capitalization effects of place-based transfers in Ehrlich and Seidel (2018) (not for EU cohesion transfers) and Albanese et al. (2023) suggests that property owners could reap many of the benefits of the transfers which is not in line with the purpose of redistributing towards poorer households. New evidence by Lang et al. (2023) studies the effects of EU transfers on micro-level income data. The authors find that income groups at the top brackets gain whereas lower brackets benefit less or even display no effect. It suggests that within region inequality goes up as a consequence of the transfers. Similarly Albanese et al. (2023) document for Italy that the Gini index within municipalities that received EU cohesion transfers is positively affected by the transfers.

4.6) Effects during economic crises

With the global financial crisis, the European debt crisis, and the COVID-19 pandemic, the EU cohesion funds have been mobilized to address regional differences in the distress caused by these crises. In the wake of the crisis, the EU adjusted the design of the policy among others by extending the deadlines for spending cohesion funds during the 2000-06 budeting period, by adjusting the co-financing requirements or by redirecting unallocated funding between funds and different priorities of regions.[6]

[55] Note that the dynamics of disparities reported in the EU Cohesion Report (see Figure 1) focus the population weighted coefficient of variation instead of a conventional coefficient of variation between regions.
[6] EU Council Regulation 18512/11 reduced co-financing requirements. The EU Commission's packages on the Coronavirus Response Investment Initiative (CRII) and the Coronavirus Response Investment Initiative Plus (CRII+) allowed for more flexibility in the use of cohesion transfers.

The effects of cohesion transfers during the financial and economic crisis has been studied by Becker et al. (2019) using changes in government bond yield spreads as a measure for how severe a country has been hit by the crisis. The analysis looks at GDP per capita, employment as well as public and total investment. The results show that cohesion funds were less effective in the sense that effects on per-capita income growth were smaller. At the same time, the funds could stabilize employment as the effects on employment during the crisis were larger than before. However, regions that were more strongly hit in an adverse way by the crisis as measured by a larger government bond yield spreads of the country were not shielded successfully by the funds received. One explanation could be the lack of the capacity to co-finance the received funds. The EU Commission recognized this issue and adjusted the co-financing rates but this may have come too late or may have been not sufficient. Di Caro and Fratesi (2022) explore a number of very different shocks to the EU economy and their consequences for effectiveness of EU Cohesion Policy. They find a positive short-term impact of Cohesion Policy on sustaining regional labour market resilience mainly during the financial and economic crisis in the EU15 which neither holds true for other crises considered in the paper nor for Member States that joined the EU later.

4.7) Role of local political incentives

Finally, a very important question concerns the political economy of transfers. This relates to the evidence on highly varying effectiveness across recipient regions which has been discussed above.

When local majorities decide upon how to use funds from the central EU budget, they may use them to raise attractiveness for the incumbent majority and thereby perpetuate a local economic structure that is not dynamic (D'Amico, 2022). For instance, subsidies may be used to support declining incumbent industries or make regions with a high share of low-skilled labor force even more attractive to low-skilled workers. This would perpetuate the sorting dynamics that lead to disparities in the absence of transfers. Moreover, the political equilibrium may be biased towards using EU cohesion transfers for tangible investments that become visible in the short term and to less investment in factors that turn our relevant for absorptive capacity such as human capital or quality of institutions. Puga (2002) points out that a further rationale for regional transfers may be building support for EU integration. The funds may contribute to enhance the support for efficiency enhancing coordination across regions and countries. Yet, the same logic also implies that politicians may be willing to accept local efficiency losses if compensated by transfers.

A potential further issue of centrally administered place-based policy is rent-seeking. The competition of potential beneficiaries for discretionary funds for local investments may generate a rent-seeking contest with the associated inefficient resource allocation (Blankart and Ehmke, 2015). Candidates need to invest resources in designing and presenting their projects. According to rent-seeking theory, the net benefits of transfers may be significantly reduced by the transaction costs invested to `win the price' in the rent-seeking contest. This seems to be particularly relevant in an environment with a low quality of local government and the degree of inefficiency caused by rent-seeking may grow with the number of government layers influencing the allocation mechanism. While this theory may explain parts of the large heterogeneity in local transfer effects, there is no empirical evidence on this mechanism for EU cohesion funds.

Realizing aggregate efficiency gains in terms of productivity would require the central transfers to exploit non-linearities such as agglomeration economies as discussed in Section 3. A criticism applicable to centrally administered place-based is that the central governments are unlikely to have sufficient information to select those regions that comply best with the criteria of high marginal benefits of investment (e.g. Glaeser and Gottlieb, 2008). More importantly, such a distribution of

transfers towards the places that display the highest returns may not be in line with the aim of reducing regional disparities.

Accetturo et al. (2014) study the effects of central government transfers in a model where they can be used cooperatively for the provision of a public good or diverted to private rents. The theory suggests that if local governments are characterized by low efficiency, transfers from the central government can reduce local cooperation. Evidence from the European Social Survey supports this theory. The authors document a negative effect of place-based policies on social capital -- measured by local trust and cooperation – in settings with local quality of local governments.

Stipulating certain preconditions for the recipience of cohesion transfers could be one way to address the issues discussed in this section. Another way would be to set incentives for local governments. These incentives should be such that policies beneficial to the long-term development of local economic activity are rewarded. Fiscal decentralization in the form of revenues from taxes on local economic activities could provide a basis for such incentives as well-used transfers would benefit the future tax base.

5) General equilibrium effects of place-based policies

The papers discussed so far focused on the effects of transfers in the recipient regions. To evaluate the aggregate effects on economic output and welfare in Europe, a general equilibrium analysis is required which should account for at least three important effects.[7] First, potential displacement affects the effectiveness of regional transfers. The increase of economic activity in one place may come with a decrease in other places when compared to the counterfactual without transfers.[8] Second, regional trade in goods and services influences the economic incidence of transfers. Benefits may not only occur in the recipient regions, but they may be channeled through trade linkages to other regions.[9] Third, direct spillovers could impact productivity or transport access of neighboring regions which results for instance in changes in the local price indices of non-recipient regions. The latter matters particularly for investments in production amenities or transport infrastructure which have immediate consequences for the entire transportation network. Blouri and Ehrlich (2020) aim to capture these general equilibrium effects for EU cohesion transfers by using a quantitative spatial equilibrium model. The analysis distinguishes three different types of place-based policies: investments in transport infrastructure which reduce transportation costs, investments in local production amenities improving local productivity (e.g. subsidies for R&D activities, universities, broadband internet access, energy supply, etc.), and wage subsidies directly affecting the regional income. For each of the three types of transfers, the local impact in the recipient region is estimated and fed into the model. A motive for regional redistribution is incorporated in the analysis via location preferences of individuals which means that the spatial distribution of economic activity that maximizes output and productivity is not equal to the welfare-maximizing distribution. Accordingly,

[7] A further aspect concerns the efficiency costs of raising the budget for place-based funds. These costs depend on the type of taxes and the corresponding tax elasticities. Since the budget cannot easily be linked to specific sources, the analyses discussed largely disregard this further efficiency cost. Blouri and Ehrlich (2020) consider spatial distortion of labor supply but disregard any effects of taxes and transfers on the extensive margin of labor supply.

[8] Einiö and Overman (2020) document displacement caused by place-based policies on the regional level. Such shifts may also be observed when comparing beneficiary and non-beneficiary firms as in Bronzini and Guido de Blasio (2006).

[9] Siegloch et al. (2023) provide evidence for significant spillovers of German place-based transfers to recipient regions via regional trade.

supporting employment in the poorer regions increases welfare according to the model's welfare function even if it may decrease productivity. However, the analysis shows that depending on the type of instrument (transport infrastructure vs. production amenities vs. wage subsidies) the regional distribution of transfers that maximizes welfare for a fixed budget is characterized by very different spatial distributions than the one observed for EU cohesion transfers. Wage subsidies are used in the most efficient way if they are focused on few but the most lagging regions. In contrast, efficient investments in transportation infrastructure are realized by a distribution that focuses on relatively central regions including many regions that are currently not among the net recipients of EU cohesion funds. The reason is that an improvement of the infrastructure in central regions will be passed on to the effective trade costs for a large share of other regions. Furthermore, investments in transport infrastructure and production amenities are complementary which does not hold true for wage subsidies. Overall, significant improvements in terms of both welfare as well as reductions in regional inequality can be realized when considering the effects of transfers beyond the immediate effect in recipient regions and distributing transfers accordingly.

6) Conclusions for a more effective and efficient EU Cohesion Policy

A central part of the EU integration process is the reduction of regional disparities. In the recent decade, market dynamics have led to a slowdown in the convergence process. The evidence for the effectiveness of EU cohesion transfers in compensating these trends towards rising disparities in Europe is mixed. The economic literature has shown that transfers may be ineffective or only have short-lived effects if they are not complemented by a conductive economic environment in recipient regions. Increasing the volume of transfers cannot compensate for this. It has been shown that higher transfer intensities are unlikely to yield higher benefits as the evidence clearly points to decreasing returns of transfers in recipient regions. What is key is the design of transfers (i.e., which type of instruments and in which regions) and the local economic environment in recipient regions. Evaluations and insights obtained from EU Cohesion Funds seem particularly relevant given the significant expansion of EU fiscal policy via the Next Generation EU (NGEU) funds.

A pivotal factor exacerbating growing disparities is the concentration of high-skilled individuals in a limited number of highly productive places. For EU cohesion transfers to be effective it is imperative to increase the attractiveness of lagging regions to a high-skilled labor force and to invest strategically in the long-term development of human capital in these regions. The nature of investments supported by transfers significantly influences the local demand for skilled labor, consequently impacting the relative wages across various skill levels. For instance, transfers predominantly allocated to infrastructure construction projects may inadvertently reinforce disparities arising from the concentration of high-skilled individuals. Conversely, directing transfers towards sectors with heightened skill requirements, such as education and healthcare, holds the potential to mitigate these disparities by fostering increased demand for skilled labor and reducing spatial disparities.

The other crucial factor that has been identified in the economic literature is the quality of local governments. Restricting transfers to certain minimum conditions will not be a solution as this implies that many of the lagging regions are not eligible for transfers. Hence, the key question is about how to improve the quality of local governments in lagging regions. This is not an easy undertaking. One approach to addressing this challenge involves establishing effective incentives for local governments to allocate transfers towards policies conducive to the development of local businesses. In many lagging regions and in particular, regions facing economic decline, the political economy equilibrium may imply that governments have an incentive to keep the status quo of the current economic

structure. Prioritizing the support of current stakeholders and slowing the pace of decline may yield short-term gains, making it an appealing strategy for short-sighted administrations. Decentralization of tax revenues to the municipal level could be a potential strategy to realign incentives toward longer-term investments. Providing local governments with revenues generated from taxes on local economic activities serves as a crucial incentive mechanism. The correlation between the growth of the local economy and increased tax revenues for municipal budgets creates a dynamic where local governments are incentivized to utilize EU Cohesion Funds in a manner that fosters sustained local economic growth. This, in turn, not only contributes to future revenue streams but also aligns with the broader objectives of reducing disparities. In contrast, in a setting where local government revenues mainly rely on grants from higher-level governments, there is less incentive to channel EU Cohesion Funds into optimizing local public services and infrastructure for business activity. This fiscal structure may imply to local governments that their investments in enhancing local business conditions primarily benefit the central government, and the resulting revenues are distributed irrespective of the contributions to the tax hike.[10]

There are substantial differences across EU countries in the share of tax revenues on local economic activities that are allocated to the local budgets. Herrmann (2022) documents that such revenues from taxes on local economic activity which can act as an award to local governments for their efforts to increase the local business environment are particularly low in some of the countries where lagging regions see high transfer intensities since several budgeting periods (in particular Greece, Southern regions of Italy). In contrast, some of the countries where EU cohesion funds turned out successful display relatively high shares of decentralized tax revenues (like Irland, Poland, and the Baltic Countries).[11] Given the evidence for the heterogeneity in the local effectiveness of EU cohesion transfers it seems important to study the political incentive schemes in recipient regions in more detail.

Finally, it has been shown that for a comprehensive evaluation of the efficiency and equity effects of EU Cohesion Policy a general equilibrium perspective is required. The degree of displacement effects or positive spillovers varies depending on the nature of transfer investments and the specific regions of intervention. A more targeted utilization of transfers and an enhancement of overall policy design could be achieved by taking into consideration the implications of general equilibrium responses. In doing so, a more nuanced and effective approach to EU Cohesion Policy can be realized, ensuring a more efficient allocation of resources.

[10] Fiscal structures are the prerogative of Member States. Accordingly, conditioning EU Cohesion Funds on a certain degree of revenue decentralization is not feasible. However, policy designs that highlight the incentive effects for local governments may be an alternative approach to studying the importance of this channel and raising awareness for reforms in this direction.

[11] Herrmann (2022) computes the share of «award-compatible taxes" and reports values between zero percent in Greece and 55 percent in the Baltic states.

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L 7,1 · 68161 Mannheim · Germany
Phone +49 621 1235-01
info@zew.de · zew.de