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Summary of research findings on the effect of EU Structural Funds on Regional Growth, across the EU as a whole, and highlighting whether/where the UK effects differ from the EU average

The following note summarizes joint research by Sascha O. Becker (CAGE, University of Warwick Warwick), Peter H. Egger (ETH Zurich) and Maximilian von Ehrlich (University of Bern). We have looked at the effect EU Structural Funds on regional growth over the four programming periods 1989-1993, 1994-1999, 2000-2006, 2007-2013 with a special focus on Objective 1 funds ("Objective 1" now renamed "Cohesion Objective"), but also looking at any EU regional transfers.

Main points:

- Generally, very difficult to find "causal effect" of EU transfers on regional growth because poor regions (the main recipients) might have different growth rates than rich regions also in the absence of EU structural funds
- Objective 1 funds are "interesting" because they are assigned by a clearly defined rule: NUTS2 regions, whose GDP per capita is less than 75% if EU average, are eligible
- Assignment of funds to regions to the left and right of the 75% threshold is, from a statistical perspective, in the vicinity of the 75% threshold, like "flipping a coin" and can be exploited in statistical analysis
- Finding: Objective 1 funds are, <u>on average</u>, helping recipient regions to grow faster, but multiplier around 1, i.e. on average "you get out what you put in", but not more than that
- See Becker, Egger, von Ehrlich (2010)

- Going away from effects on average, are there differences in the growth effects of Objective 1 funds, depending on region characteristics? In other words: is there <u>heterogeneity</u> across regions?
- Answer: yes, endowment with human capital and a high quality of government matter
- Only regions with more educated work force and regions with high quality of governance are able to turn transfers under the Union's Objective 1 Structural Funds programme into faster growth.
- Those regions are the ones who are responsible for a positive average effect of the programme.
- See Becker, Egger, von Ehrlich (2013)

- As for EU Structural Funds as a whole, do more funds mean more growth?
- Answer: no, there are <u>decreasing returns</u>, i.e. after a certain point, *additional* funds do not lead to *additional* growth.
- See Becker, Egger, von Ehrlich (2012)

- Research by Becker, Egger, von Ehrlich (2016, 2017) updates these earlier findings to include the latest data and confirms the patterns described above; looking at whether the UK recipient regions follow the same pattern as recipient regions in other EU countries, we find that the UK has benefited (or not) from EU transfers in a similar way to other EU regions.

(see overleaf for references and abstracts)

Underlying research papers on the effects of EU Structural Funds on Regional Growth

Becker, Sascha O., Peter H. Egger and Maximilian von Ehrlich (2010) "Going NUTS: The Effect of EU Structural Funds on Regional Performance" *Journal of Public Economics* 94(9-10): 578–590. http://dx.doi.org/10.1016/j.jpubeco.2010.06.006

Abstract:
The European Union (EU) provides grants to disadvantaged regions of member states to allow them to catch up with the EU average. Under the Objective 1 scheme, NUTS2 regions with a per capita GDP level below 75% of the EU average qualify for structural funds transfers from the central EU budget. This rule gives rise to a regression-discontinuity design that exploits the discrete jump in the probability of EU transfer receipt at the 75% threshold for identification of causal effects of Objective 1 treatment on outcome such as economic growth of EU regions. We find positive per capita GDP growth effects of Objective 1 transfers, but no employment growth effects.

Becker, Sascha O., Peter H. Egger and Maximilian von Ehrlich (2013) "Absorptive Capacity and the Growth Effects of Regional Transfers: A Regression Discontinuity Design with Heterogeneous Treatment Effects", *American Economic Journal: Economic Policy* 5(4): 29-77. http://dx.doi.org/10.1257/pol.5.4.29

Abstract:
Researchers often estimate average treatment effects of programs without investigating heterogeneity across units. Yet, individuals, firms, regions, or countries vary in their ability to utilize transfers. We analyze Objective 1 transfers of the EU to regions below a certain income level by way of a regression discontinuity design with systematically varying heterogeneous treatment effects. Only about 30 percent and 21 percent of the regions—those with sufficient human capital and good-enough institutions—are able to turn transfers into faster per capita income growth and per capita investment, respectively. In general, the variance of the treatment effect is much bigger than its mean.

Becker, Sascha O., Peter H. Egger and Maximilian von Ehrlich (2012) "Too much of a good thing? On the growth effects of the EU's regional policy", *European Economic Review* 56(4): 648-668. http://dx.doi.org/10.1016/j.euroecorev.2012.03.001

Abstract:
The European Union (EU) provides grants to disadvantaged regions of member states from two pools, the Structural Funds and the Cohesion Fund. The main goal of the associated transfers is to facilitate convergence of poor regions (in terms of per-capita income) to the EU average. We use data at the NUTS3 level from the last two EU budgetary periods (1994–1999 and 2000–2006) and generalized propensity score estimation to analyze to which extent the goal of fostering growth in the target regions was achieved with the funds provided and whether or not more transfers generated stronger growth effects. We find that, overall, EU transfers enable faster growth in the recipient regions as intended, but we estimate that in 36% of the recipient regions the transfer intensity exceeds the aggregate efficiency maximizing level and in 18% of the regions a reduction of transfers would not even reduce their growth. We conclude that some reallocation of the funds across target regions would lead to higher aggregate growth in the EU and could generate even faster convergence than the current scheme does.

Becker, Sascha O., Peter H. Egger and Maximilian von Ehrlich (2016) "Effects of EU Regional Policy: 1989-2013", CAGE Working paper
http://www2.warwick.ac.uk/fac/soc/economics/research/centres/cage/manage/publications/271-2016_becker.pdf

Abstract:
We analyze EU Regional Policy during four programming periods: 1989-1993, 1994-1999, 2000-2006, 2007-2013. When looking at all periods, we focus on the growth, employment and investment effects of Objective 1 treatment status. For the two later periods, we additionally look at the effects of the volume of EU transfers, overall and

in sub-categories, on various outcomes. We also analyze whether the concentration of payments across spending categories affects the effectiveness if EU transfers. Finally, we pay attention to the role of EU funding for UK regions given the current debate in the UK.

Becker, Sascha O., Peter H. Egger and Maximilian von Ehrlich (2017) "EU Regional Policy and the UK", in Nauro F. Campos and Fabrizio Coricelli (eds.): The Economics of the UK-EU Relationship: From the Treaty of Rome to the Vote for Brexit; Palgrave Macmillan, in print.

Abstract:
This chapter sheds light on the effectiveness of EU Regional Policy with a particular focus on the UK. Some taxpayers in the UK might be concerned whether the EU spends their contributions to the EU Regional Policy budget wisely, independent of whether EU money returns to the UK or not. Also, some UK taxpayers might wonder whether the UK has benefited itself from EU funding. Finally, some UK citizens might be concerned about what would replace EU Regional Policy transfers to some regions in the UK, if the UK were to leave the EU. We address all of these questions and complement our analysis with some historical background on EU Regional Policy.