FUNDING GROWTH?

UNDERSTANDING THE IMPACT OF EUROPEAN STRUCTURAL AND
INVESTMENT FUNDS ON ECONOMIC GROWTH AND EMPLOYMENT
IN NORTH-EAST ROMANIA

By

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Submitted to

Central European University

School of Public Policy

In partial fulfillment of the requirements for the degree of

Master of Arts in Public Policy

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Budapest, Hungary

2019

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ABSTRACT

Economic convergence of member states is a prominent goal of the European Union. The European Structural and Investment Funds (ESI Funds) are key vehicles through which this goal is achieved. By adopting an innovative quasi-experimental research design in combination with in-depth interviews with key actors, this paper evaluates the impact of ESI Funds on economic growth and employment in North-East Romania. Employing a difference-in-difference research design, the paper finds no impact on employment and a slightly negative impact on GDP per capita. The interview data indicate that absorption capacity and poor allocation of funds are two important barriers that may explain why no positive impact on employment and GDP per capita is found.

Key words: European structural and investment funds, economic convergence, regional economic development, policy evaluation, absorption capacity.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

CF:	Cohesion Fund
EAFRD:	European Agricultural Fund for Rural Development
EAGGF:	European Agricultural Guidance and Guarantee Fund
EC:	European Commission
EEAS:	European External Action Service
EMFF:	European Maritime and Fisheries Fund
ERDF:	European Regional Development Fund
ESF:	European Social Fund
ESIF:	European Structural and Investment Funds
EU:	European Union
GDP:	Gross domestic product
GDP pc:	Gross domestic product per capita
NUTS:	Nomenclature of territorial units for statistics

1. INTRODUCTION

Economic convergence of member states is a prominent goal of the European Union (EU) (Farole et al., 2011). The European Structural and Investment Funds (ESI Funds) are key vehicles through which this goal is achieved. In the 2007-2013 programming period, the EU spent over €400 billion through the ESI funds (European Commission, 2019b). In the current programming period (2014-2020) the EU will invest another €325 billion (Eurlex, 2019). Given the large investment, estimating the impact of ESI funds on economic growth is highly relevant.

The evidence regarding the effect of ESI funds on economic growth and employment in disadvantaged regions is, however, mixed (see e.g. Ederveen et al., 2006; Becker et al., 2010; Becker, 2012; Hagen and Mohl, 2016). Studies have found positive, neutral and even negative effects of ESI funds on economic growth. Moreover, researchers have stressed that ESI funds may only be conditionally effective in stimulating economic growth (see e.g. Ederveen et al., 2006; Rodríguez-Pose and Garcilazo, 2015). Ederveen et al. (2006), for example, conclude that the only regions that benefit from structural funds are regions with an adequate institutional framework in place.

By adopting an innovative quasi-experimental research design in combination with in-depth interviews with key actors, this paper aims to contribute to the debate about the effectiveness of ESI funds. To estimate the impact of ESI funds on North-East Romania, the paper exploits the similarity between NUTS-2 region North-East Romania and the Republic of Moldova (hereafter Moldova). Following Romania's EU accession in 2007, North-East Romania has received investments from the ESI funds

worth over €4 billion. Moldova, on the other hand, is not a member of the EU and has not received these funds. Using a difference-in-difference methodology this paper estimates the impact of the ESI funds on GDP per capita and unemployment in North-East Romania.

Through interviews with key actors in North-East Romania and Moldova, this paper contributes to unpacking the black box of the causal relationships between ESI funds, economic development, and employment. The paper sheds a light on the other dimensions of the impact of ESI funds on North-East Romania and makes a first attempt to understand the mechanisms through which ESI funds affect the outcomes of interest. Moreover, based on the interview data barriers are identified that may constrain the effectiveness of ESI funds.

This paper contributes to the existing literature by its innovative research design. At writing, this is the first paper that utilizes the comparability of an EU region and a non-EU country to employ a difference-in-difference analysis on the impact of ESI funding. Moreover, the mixed-methods approach contributes to understanding the context of the quantitative estimation and enhances the comprehension of processes that matter for ESI funds to be absorbed and have a true effect in one of the least developed regions in the EU. Previous authors have emphasized that studying those processes more thoroughly, is an important direction of future research (Hagen and Mohl, 2016). Finally, this paper contributes to the literature on countries' absorption capacity of foreign aid by investigating the case of North-East Romania in-depth (Horvat and Maier, 2004; Šumpíková et al., 2004; Zaman and Georgescu, 2009).

The paper finds no impact on unemployment and a slightly negative impact on GDP per capita. The interview data adds a valuable perspective to these results in two ways. Firstly, the interview data does not correspond to the quantitative results. The interviewees do perceive the ESI funding to have had a positive impact on North-East Romania. Secondly, the interviewees identify absorption capacity and poor allocation of ESI funding as two important barriers that potentially explain why the difference-in-difference analysis finds no positive impact on employment and GDP per capita. The findings endorse the idea that there is no definite answer to the question of whether, when and where ESI funds are beneficial for growth and employment. It also endorses the idea that its effectiveness may be different in different regional contexts. The study shines light on which barriers may hinder ESI funding to be effective. These findings have implications for future research and society.

Studies aiming to enhance understanding of the complex causal relationship between ESI funds, economic growth, and employment remain an important direction for future research. Conducting similar quasi-experimental studies in other EU regions is encouraged. In addition, studies that more systemically evaluate the magnitude of the barriers identified in this paper would be a valuable contribution. For policymakers, the findings imply that more efforts should be made to thoroughly evaluate the EU's interventions in different regions, while respecting regional differences.

This paper is structured as follows. The next section starts with a summary of the EU's regional development policy. In section 3, the literature on the impact of foreign aid, and ESI funding in particular, on economic development and employment is reviewed. The quasi-experimental setting and methodology are discussed in section 4. Next,

section 5 estimates the impact of ESI funding. The paper ends with a discussion of the

effects of ESI funding and its implications for society and further research.

2. REGIONAL DEVELOPMENT POLICY OF THE EU

Today, economic cohesion is one of the EU's key priorities (Farole et al., 2011; for an overview of how the Cohesion Policy developed over time see Marcu and Dobrotă, 2016). The EU's regional development policy is delivered through five main funds: 1) The European Regional Development Fund (ERDF), 2) European Social Fund (ESF), 3) Cohesion Fund (CF), 4) European Agricultural Fund for Rural Development[1] (EAFRD), 5) European maritime and fisheries fund (EMFF). Collectively, these five funds are referred to as the European structural and investment funds (ESI funds; see figure 1)(European Commission, 2019).

Figure 1. The European Structural and Investment Funds (EC, 2019a).

Traditionally the Cohesion Policy is considered the main tool of the EU's regional development policy. The Cohesion Policy comprises the structural funds (ERDF and ESF) and the cohesion fund (CF)(European Commission, 2019c). The complementary EAFRD and the EMFF do, however, also have the potential to contribute regional

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[1] Before 2007, this was referred to as the European Agricultural Guidance and Guarantee Fund (EAGGF).

economic growth and employment. North-East Romania has received a substantial amount of funding from the EAFRD in particular (nearly €2 billion, see figure 2). It is hard to isolate the effects of the different funds. Therefore, this paper includes the EAFRD and EMFF in aggregating the total amount of funding that was awarded to North-East Romania. Since North-East Romania has not received funding from the EMFF, the paper focusses on the ERDF, ESF, CF, and EAFRD. Annex 1 presents a brief overview of the aims and characteristics of the different funds as formulated by the European Commission.

Figure 2. Total investments (modelled) in North-East Romania by ESI fund in million Euros, 2000-2016 (EC, 2019b).

The EU's Cohesion Policy (ERDF, ESF, and CF) is structured in periods of seven years. In the 2007-2013 programming period the three objectives of the Cohesion Policy were: 1) economic convergence, 2) regional competitiveness and employment, 3) European territorial cooperation (European Commission, 2007). Whether regions are eligible for the different funds depends on the characteristics of the region, but the Cohesion Policy does cover all regions (European Commission, 2019c).

In the 2007-2013 programming period most funding was allocated to regions covered by the 'convergence objective'. NUTS-2 regions with a per capita GDP under 75% of the EU average were eligible for funds under the convergence objective. This was the case for all regions in Romania in this period (European Commission, 2019c). Regions in countries with a GDP per capita under 90% of the EU average were eligible for the CF. This was the case for Romania, so North-East Romania was eligible for payments from the CF as well (European Commission, 2007). In the current programming period (2014-2020) the classification and eligibility criteria slightly changed. But also in the current programming period, North-East Romania is eligible for all funds under the Cohesion Policy (European Commission, 2019d). Two maps showing the eligibility of countries and regions for the cohesion fund and the structural funds (ERDF and ESF) in the current programming period can be found in Annex III.

This paper looks into the impact of ESI funding on North-East Romania during the programming periods 2000-2006 and 2007-2013. In the 2000-2006 period, Romania was not yet part of the EU. Nevertheless, in the years before Romania's EU accession, North-East Romania already received some pre-accession funding (the methodological implications of the pre-accession funds are discussed in section 4). Due to some delayed ESF payments, the investments under these programming periods cover 2000-2016, a slightly longer period (European Commission, 2019b). In those two periods, Romania as a whole received over €25 billion from the four ESI funds considered in this paper. In absolute terms, North-East Romania has received the largest amount of funding compared to other NUTS-2 regions in Romania. The NUTS 2 region received over €4 billion in the 2000-2016 period. However, after adjusting the ESI funding to population size, North-East Romania has received less

ESI funding per capita than the national average (€1249 compared to €1274, see figure 3).

Figure 3. Total ESI funding per capita (in Euros) by ESI fund and region, 2000-2016 (modelled).

A more detailed look at where the funding originates from reveals that North-East Romania has mainly benefited from the EAFRD fund. Also compared to other regions within Romania, North-East Romania is the largest receiver of EAFRD funds per capita. The EAFRD, which focuses on rural areas (European Commission, 2019a), accounts for 47% of the total amount of funding the region received in the 2000-2006 (the pre-accession period) and 2007-2013 programming periods combined (European Commission, 2019b).

The ERDF contributed to 26% of the total amount of funding North-East Romania received in both programming periods. The ERDF aims to promote balanced development in the different regions of the EU (European Commission, 2019a). One

of the major projects the ERDF supported in North-East Romania is the modernization of Iași Airport. The ERDF contributed around 68% of the total project costs of approximately €57 million. The introduction of a new "Integrated waste management system in the Iași County" and the "Rehabilitation of the district heating system" in Iași are examples of other projects that received funds from the ERDF (European Commission, 2019d).

Relative to other Romanian regions, North-East Romania has received little CF and ESF funding in particular. The funds accounted for respectively 18% (CF) and 9% (ESF) of the total amount of funds invested in North-East Romania (European Commission, 2019b). The CF mainly funds infrastructure-related projects. The focus of the ESF is on employment-related projects (European Commission, 2019a). In North-East Romania the CF contributed, among other things, to a project aiming to raise flood protection levels (European Commission, 2019d).

2.1. The effectiveness of the regional development policy of the EU

In light of the foregoing, the question about the effectiveness of the regional development policy of the EU is a legitimate one. On its website, the European Commission presents the results of the 2007-2013 programming period of the Cohesion Policy for Romania as a whole. The European Commission (2019e), among other things, states that in the 2007-2013 period over 50,000 jobs have been created as a result of the regional development policy (see figure 4). In a supporting report about the impact of the ERDF and CF, the European Commission (2016, p.9) states: *"Overall, the measures co-financed over the period led directly to the creation of over 35 000 jobs, over 13 000 in full-time equivalent terms in SMEs and over 1 000 research*

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ones. This was achieved in part through the support given to nearly 3 000 projects to help firms finance investment, 569 RTD projects, 101 business start-ups and 41 cooperation projects between enterprises and research centres."

Portraying the reality like this is problematic because it does not account for what would have happened if the EU had not contributed to those projects. In methodological terms, a counterfactual is missing. The real question is: what was the impact of the regional development policy in terms of employment and economic growth, relative to a no-intervention situation? This paper aims to answer this question, by estimating the impact of ESI funding on economic development and employment in North-East Romania. The next chapters will review previous work and elaborate further on how this impact is estimated.

3. LITERATURE REVIEW

The evidence regarding the effect of ESI funding on economic growth and employment is mixed (Bouvet, 2005; Eggert et al., 2007; Becker et al., 2010; Dall'erba and Fang, 2017). One of the most comprehensive regional level studies on the effect of the structural funds (ERDF and ESF) is Becker et al. (2010). Employing a regression-discontinuity design, the authors find a positive effect on GDP per capita. Multiple authors find similar (weak) positive effects on regional economic growth (see e.g. Bouvet, 2005; Dall'erba, 2005). Dall'erba (2005) identifies a positive relationship between structural funds investments and regional economic growth, but emphasizes that structural funds are unlikely to be the only explanation for regional growth. The Becker et al. (2010) study finds no effect on employment. The latter result could be attributed to the lagged effect of the funds on job creation. Mohl and Hagen (2011) complement this study, by finding evidence that high-skilled workers have particularly benefitted from the structural funds.

Other studies find no (see e.g. Dall'erba and Le Gallo, 2008) or even negative effects (Eggert et al., 2007) of ESI funding on economic growth. Evidence from large panel analysis including 124 regions, finds that the effect of structural funds in promoting economic growth depends on which objective is analyzed (Mohl and Hagen, 2010). In line with Becker et al. (2010) and Eggert et al. (2007), the authors find structural fund payments (aiming to support less prosperous regions) to have a positive effect on regional GDP per capita in less-developed regions. Payments from funds aiming to *"support the adaptation and modernization of education, training and employment*

policies in regions"[2] and *"to support economic and social conversion of areas experiencing structural difficulties (e.g. industrial decline)"*[3] (Mohl and Hagen, 2010, p.25), however, harm GDP per capita. Another noteworthy result of the Mohl and Hagen's (2010) study is that the effects of ESI fund payments may not be observable immediately. The study suggests a time lag of up to four years.

The mixed findings of the impact of ESI funds on economic growth correspond to mixed findings in the larger strand of literature examining the effectiveness of foreign aid on economic development in developing countries and regions (see e.g. Bourguignon and Sundberg, 2007; Bearce and Tirone, 2010). A meta-analysis of a large number of econometric papers, finds a weak positive, but insignificant effect of foreign aid on growth in developing countries (Doucouliagos and Paldam, 2009). Other studies find both significant positive (Karras, 2006) and significant negative effects on economic growth (Bräutigam and Knack, 2004).

3.1. Understanding the mixed results

The mixed results of previous work raise the question of why different studies arrive at different conclusions regarding the effects of ESI funds and foreign aid on growth and employment. Based on the existing literature the divergent results can be attributed to at least three, not mutually exclusive, explanations: 1) conditional effectiveness, 2) absorption capacity of regions and regional governments, and 3) characteristics of the EU regional development policy.

3.1.1. Conditional effectiveness

A first explanation for the mixed results is the idea of conditional effectiveness. Various authors have stressed that Cohesion Policy may be only conditionally effective in stimulating economic growth (see e.g. Ederveen et al., 2002; Ederveen et al., 2006; Rodríguez-Pose and Garcilazo, 2015; Hagen and Mohl, 2016). In a panel study, Ederveen et al. (2006) analyze the impact of structural funds on economic growth. Their model includes multiple conditioning variables which reflect institutional quality, such as trade openness, public debt (see also Ederveen, 2002) and corruption levels. The authors find that structural funds are only conditionally effective in stimulating regional economic growth. Whether regions benefit depends on the quality of their institutions. Rodríguez-Pose and Garcilazo (2015) arrive at similar conclusions. Employing a panel regression including 169 regions, the study suggests that government quality functions as a moderator of effective spending of the funding available under the Cohesion Policy. Furthermore, one of the most influential works in the foreign aid literature finds that foreign aid is only conditionally effective (Burnside and Dollar, 2000). The authors find that aid is effective in countries with good fiscal, monetary, and trade policies in place. Aid is ineffective in countries lacking such a supportive policy environment. In line with this, proponents of the idea of conditional effectiveness emphasize the abundant evidence in the foreign aid literature indicating that recipient governments have misused foreign aid for unproductive government consumption (see e.g. the influential work of Boone, 1996). Aid is spent in an unproductive way that does not contribute to economic growth (Bearce and Tirone, 2010).

A decentralized government system is also found to be an enabler of ESI funding effectiveness. Building on the influential decentralization theorem, which states that decentralization contributes to more efficient government spending by adopting policies that reflect the preferences of the local citizens, Bähr (2008) only finds a positive effect of the EU's regional policy on growth in states with a highly decentralized political system. Adapting the decentralization theorem to the case of the EU, Bähr's (2008) argument is that local authorities have information advantages that allow them to allocate funds more effectively. Empirical evidence of the importance of a supportive institutional environment and decentralization for the effectiveness of ESI funds may be an argument for paying closer attention to building strong (decentralized) institutions before attempting to stimulate economic development through ESIF investments (Ederveen et al., 2006).

Nevertheless, other scholars have argued that even if institutions are not functioning properly and recipient governments engage in corrupt practices, foreign aid could still promote economic growth. Two theoretical arguments are given to back this argument. Firstly, foreign aid may, even if it is spent on unproductive government consumption, contribute to growth. Secondly, aid may come with strings and conditions attached which might encourage reforms (Bearce and Tirone, 2010). The effect of the latter mechanism is, however, limited if enforcement is lacking and when a credible punishment in case of non-compliance is absent (Paul, 2006; Bearce and Tirone, 2010).

These theoretical arguments are backed with empirical evidence. The influential Burnside and Dollar (2000) article discussed above, has been challenged in many

subsequent studies (see e.g. Easterly et al., 2004; Morrissey, 2004). Also, the idea of conditional effectiveness of ESI funding is challenged. Beugelsdijk and Eijffinger (2005), for example, compare the effectiveness of the structural funds in 'less clean or corrupt' countries with its effectiveness in their 'cleaner' counterparts. The authors find no indications that less corrupt countries benefit more from structural funds than others. Thus, it can be concluded that the debate on whether good institutions are a necessary condition for foreign aid and ESI funds to be effective, is far from settled.

3.1.2. Absorption capacity

Related to the idea of conditional effectiveness, is the concept of a region's absorption capacity. Absorption capacity is the capacity to absorb foreign aid which has been assigned to a region. The concept deserves attention as it has been influential in studies examining why ESI funding does not always contribute to regional development (see e.g. Kálmán, 2002; Šumpíková et al., 2004; Zaman and Georgescu, 2009). Worldwide, especially less-developed countries have had trouble absorbing foreign aid (Becker, 2012). In this, the EU is no different. Multiple EU members, especially less developed ones (Becker, 2012), have or have had difficulty absorbing ESI funding (Zaman and Georgescu, 2009). The literature distinguishes three types of absorption capacity that matter for the absorption of ESI funding: 1) administrative absorption capacity, 2) macroeconomic absorption capacity, and 3) financial absorption capacity (Horvat and Maier, 2004; Šumpíková et al., 2004). Especially the administrative absorption capacity overlaps with the idea of conditional effectiveness of ESI funds, discussed in the previous paragraph.

The administrative absorption capacity entails the region's ability to apply, manage, implement, and evaluate ESI funded projects. Some scholars emphasize the regional government's administrative capacity (Šumpíková et al., 2004). This paper adopts a broader definition which also includes the administrative capacities of firms, organizations, and other potential beneficiaries of ESI funds. The administrative capacity is not limited to the availability of personnel, but also includes having the required experience and knowledge to apply, manage, implement, and evaluate ESI funded projects (Zaman and Georgescu, 2009). Concrete examples of barriers for absorption capacity are a lack of adequate human resources or high rates of corruption (Cace et al., 2009; Zaman and Georgescu, 2009). Kálmán (2002) argues that these barriers for the administrative absorption capacity are unlikely to ever completely disappear. Through improving the administrative capacity and a more constant flow of funding, the negative impact of these barriers can be mitigated.

The macroeconomic absorption capacity is the most straightforward category. It is the macroeconomic upper limit a (regional) economy can absorb. Often it is expressed as a percentage of GDP (Šumpíková et al., 2004). Financial absorption capacity can be defined as the region's ability to meet the co-financing requirements of certain ESI funds (Zaman and Georgescu, 2009). Projects funded with ESI funds often require co-financing. The EU only funds part of the total amount of funding that has been approved to a project. For the remaining amount a contribution from the beneficiary is required. Whether a (regional) government is able to co-finance projects depends on the government's financial resources. The financial absorption capacity entails both the actual availability of resources to co-finance projects and the ability to collect financial contributions from partner firms, organizations, or governments that are participating

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in the ESI funded project (Šumpíková et al., 2004). When the beneficiary does not have the adequate financial capacity to meet the co-financing requirements, this is likely to hinder the receipt of ESI funds.

A low financial absorption capacity may have further negative consequences for regional development. When a region has a low financial absorption capacity, co-financing requirements may crowd out investments of governments. Also, co-financing requirements may incentivize governments to neglect the maintenance or continuity of already existing infrastructure or projects. This could reduce the effect of ESI funding on economic growth and employment, or even harm the outcome variables (Kálmán, 2002).

3.1.3. Characteristics regional development policy of the EU

A final explanation for the mixed empirical results is related to the design of the regional development policy of the EU. The regional development policy covers multiple funds, but the clarity of the allocation criteria differs per fund (Mohl and Hagen, 2010). Vague allocation criteria increase the likelihood that funds are exploited for political rather than rational economic purposes. Hagen and Mohl (2016, p.ii) refer to these dynamics as political-economic factors: *"(…) the allocation of Cohesion Policy is not solely based on clear-cut criteria, rather there is room for political bargaining and/or side payments."* Related to this is the idea that a combination of rent-seeking behavior and information-asymmetries between the EU and beneficiaries of funding could explain why funding does not necessarily have a positive economic impact. The availability of funding will inevitably also trigger rent-seeking behavior. Rent-seeking actors try to access the funds with unproductive proposals. Given the considerable information-advantage of

the rent-seeking actor over the allocating authority, unproductive proposals may obtain funding (Kálmán, 2002).

3.2. Conclusion

To a large extent, the relationship between foreign aid and regional development remains a black box. Despite many scholarly efforts to unravel this black box (see e.g. Easterly et al., 2004; Bourguignon and Sundberg, 2007) there is no definite answer to the question of whether and when foreign aid, and ESI funds in particular, are effective in fostering economic growth and employment (see e.g. Dall'erba and Le Gallo, 2008; Becker et al., 2010). Many scholars consider the idea of conditionality an important explanation for the mixed empirical results (see e.g. Burnside and Dollar, 2000; Ederveen et al., 2006). Nevertheless, even when it comes to conditional effectiveness the empirical results are not unambiguous (Easterly et al., 2004; Beugelsdijk and Eijffinger, 2005).

Despite the contradicting empirical findings of the effectiveness of ESI funds and foreign aid, this literature review clarifies three things. First of all, there is evidence that ESI funds can contribute to regional economic growth. Secondly, the literature review endorses the idea that drawing general conclusions about the effectiveness of ESI funds is complex. Therefore, studying the effects of ESI funds more in-depth remains important. Finally, the idea that the effectivity of aid may depend on the institutional environment, the related absorption capacity, and the characteristics of the EU's regional development policy, does pose potential explanations for why ESI funds may foster, not affect, or even hinder economic growth and employment in North-East Romania.

4. METHODOLOGY

4.1. The quasi-experiment: exploiting the similarity of North-East Romania and Moldova

This paper estimates the impact of ESI funds on economic growth and employment in North-East Romania. The aggregate amount of ESI funding spent in North-East Romania by year is the independent variable of interest. To estimate this, ideally the following equation should be estimated:

$$y_t = \alpha + \beta ESIF_t + \varepsilon_t$$

Where y_t is one of the dependent variables GDP per capita or the unemployment rate. $\beta ESIF_t$ is the aggregate amount of ESI funding invested in North-East Romania. The time (year) is denoted in subscripts 't' (time).

Estimating this equation is, however, problematic. In the first place, the model would unquestionably suffer from omitted variable bias (Field, 2013). GDP per capita and unemployment are influenced by a variety of variables. By not including such relevant variables, the model will attribute the effect of the omitted variables to the included variables. Comparing North-East Romania's economic development and employment rate before and after the 'ESIF treatment' is also problematic, because conditions may have changed over time (Brown, 2019). In 2008, the financial crisis hit Europe, which is an example of an event that may have affected economic growth and employment in North-East Romania. So, from the estimation of this model we cannot draw valid causal inferences about the effect of ESI funding on economic growth and

employment. What would have happened if North-East Romania had not been exposed to ESI funds remains unclear.

To estimate the true effect of the policy, we have to compare how North-East Romania developed in the years after the intervention if exposed to ESI funding, to North-East Romania in the years after the intervention if not exposed to ESI funding (Lechner, 2011; Columbia University, 2019). This is problematic because in reality we only have data on how North-East Romania developed if exposed to ESI funding. Data on how North-East Romania would have developed if it had not been exposed to ESI funding is missing.

By employing a quasi-experimental research design this missing data hurdle can be overcome. Randomized control trials (RCT) are often considered the golden standard for impact evaluation. RCT requires a randomly assigned treatment and control group (Columbia University, 2019). However, in the case of ESI funding, this is not feasible, given the political and ethical reality. To overcome this, some scholars have selected comparison groups within the EU which received less structural funding (see e.g. Becker et al., 2010). This paper adopts a similar approach. But, instead of comparing North-East Romania to other EU regions, North-East Romania is compared to a non-EU country.

Adopting a difference-in-difference approach, this paper compares the development of North-East Romania to the development of Moldova before and after the 'ESIF treatment'. Moldova serves as a non-treated control group for North-East Romania. North-East ("Nord-Est" in Romanian) Romania is a NUTS-2 region which has received

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large amounts of ESI funding since Romanian joined the EU in 2007 (European Commission, 2019b).[4] North-East Romania shares its eastern border with Moldova and is the external border of the EU. Moldova is a landlocked country surrounded by Romania to the west and Ukraine to the north, east, and south. Moldova is not a member of the EU.

Figure 4. Map of part of Europe, highlighting non-EU countries (light grey), the NUTS-2 regions in EU member states (dark grey), North-East Romania (red) and Moldova (blue).

The assumption underlying this difference-in-difference approach is that Moldova would have experienced similar economic and employment trajectories to North-East Romania if North-East Romania had not been exposed to ESI funding. This

4 NUTS (Nomenclature of Territorial Units for Statistics) is the EU's hierarchical classification of regions. NUTS-2 regions are a classification of middle-sized regions. NUTS regions do not necessarily correspond to an administrative region, but may also only be a statistical region. The latter is the case for North-East Romania. It is a statistical region, not an administrative region (Eurostat, 2011).

assumption is based on many similarities between North-East Romania and Moldova: *"Romania and Moldova are bound by strong historical, cultural, economical, political common heritages."* (Burlacu, 2007, p.303). Both North-East Romania and Moldova are (part of a) post-communist country (Burlacu, 2007) and have been influenced by the Cucuteni-Trypillian culture (Manzura, 2005). Moreover, Romanian is the dominant language in both regions. The history of Romania and Moldova have been intertwined for longer periods. In fact, the regions were one country for a while and in the early 90s of the 20th-century movements and individuals on both sides of the border started to advocate for the reunification of Romania and Moldova (Angelescu, 2011). The regions are also similar in terms of demographic characteristics. Eastern Orthodox is the dominant religion in both regions and the population size of the regions only differs slightly. Finally, the size of the regions is similar, covering an area of approximately 35,000 km².

Table 1. Characteristics of North-East Romania (NUTS 2) and Moldova. [5]

Characteristic	North-East Romania	Moldova
Dominant language	Romanian	Romanian
Country size[6]	36,850 km²	33,846 km²
Dominant religion (2013)[7]	Eastern Orthodox (86%)	Eastern Orthodox (98%)
Official language	Romanian	Romanian
Population size (2018)	3,221,183	3,437,720

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[5] Data to construct this table were gathered from: Angelescu (2011); Eurostat (2019); Cline Center for Democracy (2019); Central Intelligence Agency (2019).
[6] For Moldova this includes Transnistria.
[7] Due to unavailability of data on a NUTS-2 level, national level data has been used for North-East Romania.

The argument that North-East Romania and Moldova are comparable cases, is further supported by the trends of the dependent variables of interest in the years before 2007. Figures 5 and 6 show that both in terms of GDP per capita growth and the unemployment growth, North-East Romania and Moldova demonstrate similar trends in the period before the 'ESIF treatment' in 2007.

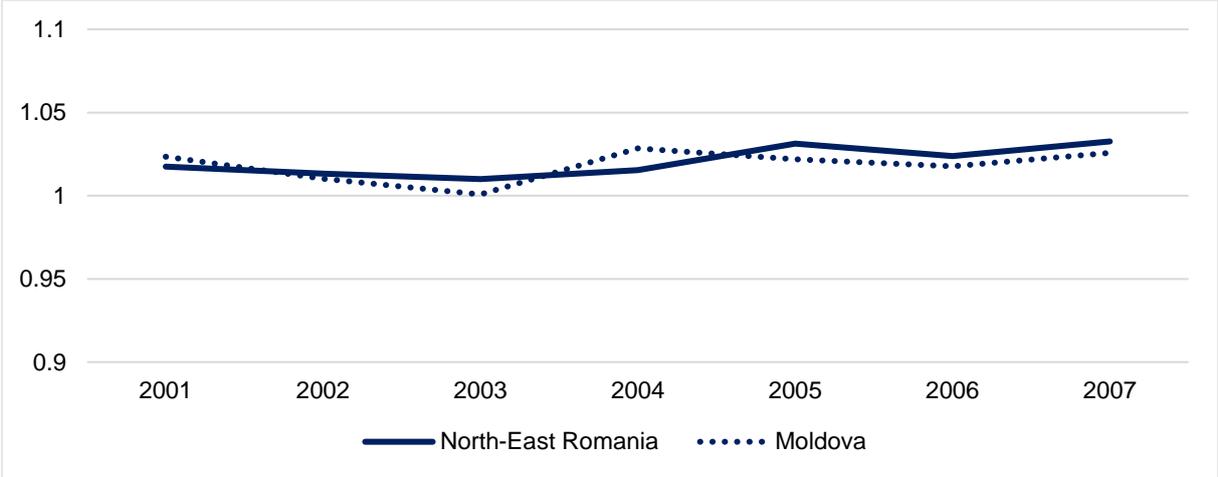Figure 5. GDP per capita growth rate North-East Romania and Moldova, 2001-2007.

Figure 6. Unemployment growth rate North-East Romania and Moldova, 2001-2007.

The case for comparability and the parallel trend assumption also hold when the differences between the two regions over time are described more formally. Table 2 depicts how changes of the means of the key variables of interest differ between North-

East Romania and Moldova before and after the 'ESIF' treatment in 2007. The ESIF variable is the only variable for which the means in the pre-treatment period differ significantly. This is no surprise, given that North-East Romania already received some pre-accession funding in the years before 2007. Moldova, on the other hand, did not receive any ESI funding. There were no other significant differences between North-East Romania and Moldova in the 2000-2006 period. This demonstrates that GDP per capita and unemployment are unlikely to be predicted by regional characteristics.

Table 2. Differences between North-East Romania and Moldova, pre and post-treatment.

	Observations	NE Romania	Moldova	Difference	T-statistic
Pre-treatment (2000-2006)					
GDP per capita (delta)	14	1.016	1.015	0.001	0.219
Unemployment rate (delta)	14	0.982	0.985	-0.003	-0.042
Population (delta)	14	1.000	1.000	-7.01E-05	-0.316
ESIF	14	12.027	0	12.027***	2.915
Post-treatment (2007-2016)					
GDP per capita (delta)	20	1.007	1.012	-0.004	-0.724
Unemployment rate (delta)	20	0.944	0.974	-0.030	-0.304
Population (delta)	20	0.999	1.000	-0.001	-1.113
ESIF	20	3.98E+08	0	3.98E+08***	6.920

Notes: The table reports the means, the difference in means, and the corresponding t-statistic for North-East Romania and Moldova before and after the 'ESIF treatment'. The unit of the ESIF variable is million Euros. The stars indicate significance at a 1% (***), 5% (**), and 10% (*) level.

4.2. Assumptions and methodological considerations

Two other assumptions must hold in order to employ a meaningful difference-in-difference analysis (Columbia University, 2019; Lechner, 2011). The first assumption is that, at baseline, the treatment is unrelated to the dependent variable. In this specific case, North-East Romania's exposure to the 'ESIF treatment', followed Romania's EU accession in 2007. Romania's EU accession in general is not considered to be related to the country's GDP per capita or level of unemployment in 2007 when the treatment started. Yet, the exact amount of ESI funding EU NUTS-2 regions receive is, at least partially, related to the level of development in the region or country. As has been described in section 2, in the 2007-2013 programming period, most funding under the Cohesion Policy was allocated to NUTS-2 regions with a per capita GDP under 75% of the EU average (European Commission, 2019c). This could be problematic if North-East Romania's GDP per capita position relative to other NUTS-2 regions would improve such, that the region would no longer be eligible for (the majority of) those funds. This was not the case. Throughout Romania's EU membership, North-East Romania remained eligible for the funds it was also eligible for when Romania joined the EU in 2007 (European Commission, 2019c; European Commission, 2019d). Hence, this assumption is not considered to be violated.

Secondly, there cannot be spillover effects between North-East Romania and Moldova (Columbia University, 2019). ESI funds are allocated to projects in North-East Romania, but may also have an effect on neighboring regions including Moldova. This would problematize Moldova's role as an objective counterfactual since spillover effects imply that Moldova is also affected by the 'ESIF treatment'. In other words, spillover effects might lead to biased results (Mohl and Hagen, 2010). The direction of

the potential bias depends on the impact of the ESI funds and its spillovers on North-East Romania and Moldova. Nevertheless, given the natural character of the experiment, it is unrealistic to assume that there are no spillover effects at all. Moreover, since the magnitude of potential spillover effects is unknown, it is not possible to control for them. To get an impression of the extent to which spillover effects are a source of potential bias, the interviewees have been asked to reflect on this issue.

Two additional factors complicate the difference-in-difference research design. Firstly, difference-in-difference analysis requires a clear start of the treatment (Columbia University, 2019), also referred to as the 'cut-off point'. In this case, however, North-East Romania has already received some ESI funding in the period before EU accession. In the 2000-2006 period, the region received pre-accession funding worth roughly €84 million. Although in absolute terms, this is a considerable amount of funding, it is only 2% of the total amount North-East Romania received in the entire 2000-2016 period (see also figure 7). Moreover and perhaps more problematic, in the phase prior the EU accession, Romania had to *"jump through a complex series of hoops"* to join the EU (White et al., 2013, p.45). Such institutional reforms may have affected the quality of the comparison of North-East Romania and Moldova. A way to estimate the weight of this pre-accession period would have been to consider 2000, the year when North-East Romania started to receive pre-accession funding, as an additional cut-off point in the difference-in-difference analysis. Unfortunately, since the regionalized data for North-East Romania was only available from 2000 onwards, conducting this additional analysis was not possible. Although its impact is likely to be small, the pre-accession funding could bias the estimated impact of ESI funds on GDP per capita and employment downwards.

The second source of concern is that North-East Romania is not the only side of the border that has received financial support. In the 2000-2016 period, Moldova has also received foreign aid from different entities, including the European Bank for Reconstruction and Development, the EU, and the World Bank (Aid Management Platform, 2019). In total, Moldova received around €2 billion in the 2000-2016 period. Depending on the direction of the effect of this foreign support, the estimation of the impact of ESI funds may be upward or downward biased. To overcome this complication, the regression models control for the foreign aid disbursed to Moldova.

4.3. The data

The data used in this work were gathered from multiple sources (Central Intelligence Agency, 2019; European Commission, 2019b; Eurostat, 2019; The Global Economy, 2019). In line with previous studies (see e.g. Becker et al., 2010), GDP per capita was used as a proxy for economic growth. To estimate the employment effect, the unemployment rate was used. The employment data was gathered from two sources (Eurostat, 2019; The Global Economy, 2019). This may have had minor consequences for the comparability of the data since the datasets define unemployment slightly differently. Data on the annual total amount of ESI funding invested in North-East Romania were obtained on a NUTS-2 level from Eurostat (2019). In line with the European Commission's recommendation for analyzing ESIF data, the modelled annual expenditure per ESI fund is used (European Commission, 2019b). Data on the total amount of foreign aid disbursed to Moldova was gathered from the Aid Management Platform (2019) of the Moldovan government. Finally, population (log) was included in the regression as a control variable.

4.4. Estimating the impact of ESI funds

The impact of ESI funding on North-East Romania is estimated by calculating the GDP per capita and the unemployment rate change in North-East Romania in the period before (2000-2006) and after 2007 (2007-2016) and comparing this to the change of the same variables in Moldova in the period before and after 2007. Figure 7 presents the total amount of ESI funding North-East Romania has received by year. The graph is color-coded. The grey bars indicate the years prior to EU accession, the blue bars indicate the years after EU accession. The figure shows that North-East Romania started to receive large amounts of ESI funding in 2007, when Romania joined the EU. In the years before EU accession (2000-2006) North-East Romania already received some pre-accession funding, but these amounts were substantially lower than the total amount North-East Romania received in the 2007-2016 period.

Figure 7. ESI funding in North-East Romania in million Euros, 2000-2016 (modelled).

The key question is whether the ESI funding has contributed to GDP per capita and employment growth in North-East Romania. Figures 8 and 9 depict how GDP per capita and employment in North-East Romania developed over time. Again, the graphs are color-coded. GDP per capita in North-East Romania seems to increase in 2007,

the year in which Romania joined the EU. In the following years, GDP per capita grew quite constantly, with exception of the 2009-2011 period. This may be attributed to the financial crisis which hit Europe in 2008. The regional unemployment rate drops respectively 0.9% and 1.4% in the first two years after EU accession. In 2009, the downward trend ends and the unemployment rate increases back to the 2006 level. Again, this may be related to the financial crisis. In subsequent years, the unemployment rate decreases somewhat constantly. In 2016 the unemployment rate reaches 3%, the lowest point in the 2000-2016 period.

Figure 8. GDP per capita (in Euros) North-East Romania, 2000-2016.

Figure 9. Unemployment rate (percentage) North-East Romania, 2000-2016.

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To formally estimate the impact of ESI funding on economic growth and employment, the initial equation (section 4.1.) is transformed to:

$$y_{rt} = \alpha + \beta_1 ESIF_{rt} + \gamma Post2007_{rt} + \lambda ESIF_{rt}xPost2007_{rt} + \beta_2 Controls_{rt} + \varepsilon_{rt}$$

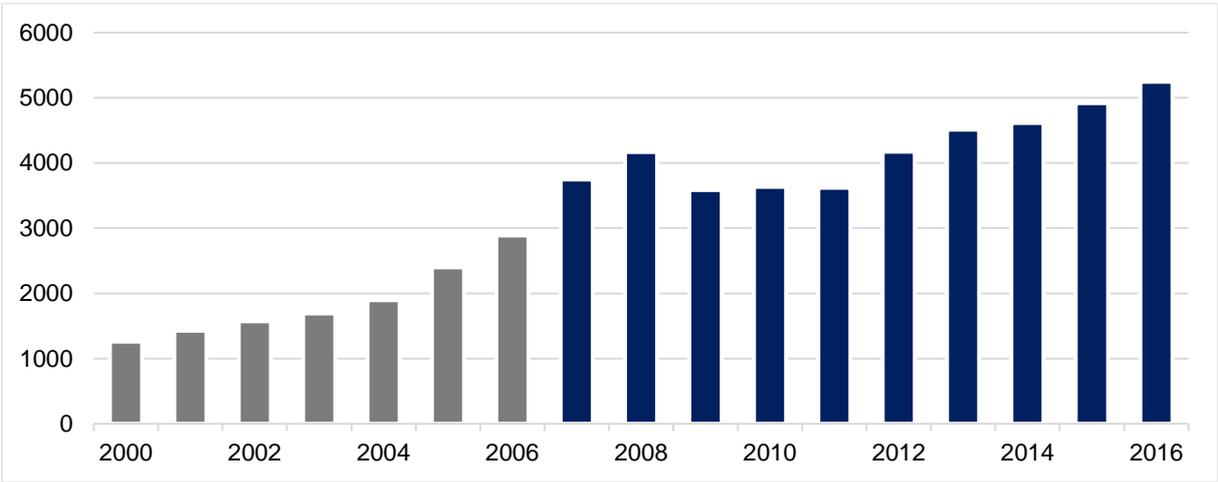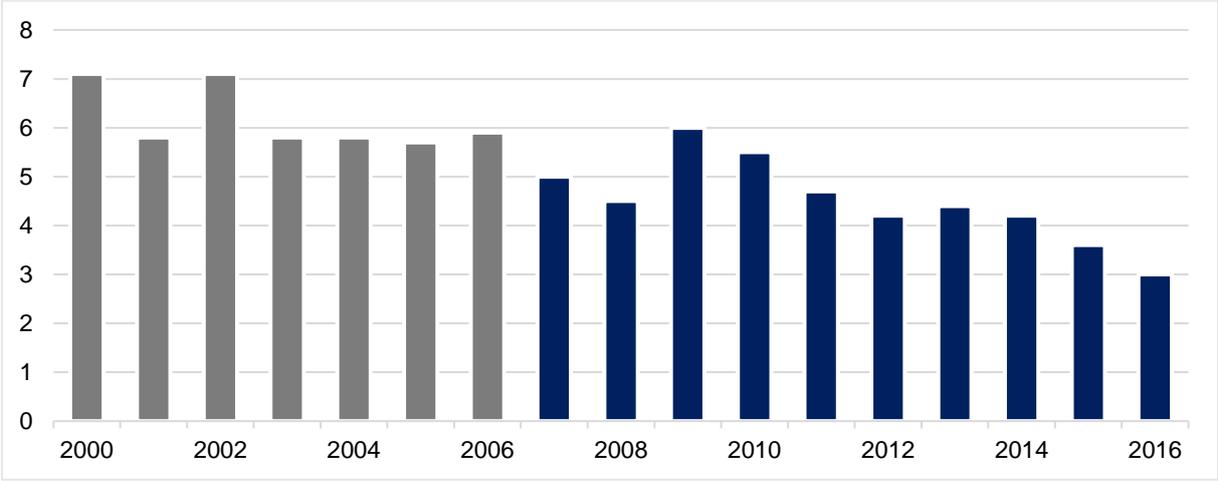Again, y_{rt} is one of the dependent variables GDP per capita or the unemployment rate. $\beta_1 ESIF_{rt}$ is always 0 for Moldova and is the modelled aggregate amount of ESI funding by year for North-East Romania. $\gamma Post2007_{rt}$ is zero for both countries in all years before 2007. From 2007 onwards, it is 1 for both countries. $\lambda ESIF_{rt}xPost2007_{rt}$ is an interaction term, interacting $\beta_1 ESIF_{rt}$ and $\gamma Post2007_{rt}$. In interpreting the results this is the key variable of interest (Lechner, 2011; Columbia University, 2019). $\beta_2 Controls_{rt}$ are the control variables population (log) and the yearly amount of foreign aid disbursed to Moldova. The region (North-East Romania or Moldova) and time (year) are denoted in subscripts 'r' (region) and 't' (time).

4.5. Interview data

In addition to the difference-in-difference analysis, semi-structured interviews were conducted with nine respondents. Furthermore, three respondents answered a list of questions over email. This mixed-methods approach allowed for triangulation of findings and contributed to getting a more complete picture of the impact of ESI funding on North-East Romania (Bryman, 2016). The interviews were conducted in April 2019 during two weeks of fieldwork in Chisinau, multiple cities in North-East Romania, and Bucharest. An interview guide containing a number of broadly formulated questions served as the starting point for the interviews (see Annex 2). The semi-structured

interview approach allowed for validating statements of other respondents, while it left the door open for novel perspectives (Bryman, 2016).

Table 3. Background of consulted respondents.

Organization	Number of respondents
Romania	
Civil servant at county	1
Director at regional development agency	1
Professor / researcher at university	4
Researcher at independent think tank	2
Moldova	
Member of parliament	1
Researcher at independent think tank	3

Notes: All interviews were conducted in April 2019. 9 Face-to-face interviews were conducted. 3 Respondents answered a set of questions by e-mail. In total, 12 respondents were consulted of which 4 women and 8 men.

The respondents were experts on regional (economic) development, with particular expertise on North-East Romania and/or Moldova. Two practitioners were consulted: a representative of the County of Iași and the director of North-East Romania's regional development agency. Targeting respondents with knowledge of and experience in North-East Romania and Moldova, contributed greatly to understanding the local circumstances of the study. Not only did this contribute to gaining a deeper understanding of the impact of ESI funds, but it also provided critical reflections on the research design of the study. The latter will be discussed more in-depth in the conclusion and discussion section. Table 3 presents an overview of the background of the consulted respondents.

5. IMPACT OF ESI FUNDING

This section investigates the impact of ESI funding on North-East Romania, by estimating the difference-in-difference equations presented in section 4 and analyzing the interview data.

Table 4. Differences in the GDP per capita and the unemployment rate.

	Model 1 Log GDP per capita	Model 2 Log GDP per capita	Model 3 Unemployment rate	Model 4 Unemployment rate
Transf. ESIF	0.065***	0.163***	-0.09***	0.007
	(0.007)	(0.048)	(0.03)	(0.230)
Post-treatment	0.964***	0.903***	-2.442***	-2.330***
	(0.102)	(0.093)	(0.462)	(0.444)
Interaction term	-0.019**	-0.041***	0.056	0.073
	(0.008)	(0.011)	(0.036)	(0.052)
Log population size		-1.938**		10.770**
		(0.921)		(4.415)
Transf. foreign aid		0.082*		0.108
		(0.042)		(0.202)
Constant	6.428***	34.15**	7.638***	-157.0**
	(0.078)	(14.08)	(0.354)	(67.480)
Observations	34	34	34	34
R^2	0.922	0.943	0.627	0.693
P(F)	0.000	0.000	0.000	0.000

Notes: The table reports the coefficients and the standard errors in brackets. 'Transf. ESIF' is the inverse hyperbolic sine transformation of the original 'ESIF variable'. The post-treatment period includes all years from 2007 onwards. The 'Transf. foreign aid' variable is the inverse hyperbolic sine transformation of the original 'foreign aid' variable. The 'Transf. foreign aid' controls for foreign aid disbursed to in the 2000-2016 period. The stars indicate significance at a 1% (***), 5% (**), and 10% (*) level.

Table 4 reports the regression outputs. It can be observed that all models are significant as a whole. The dependent variable in models 1 and 2 is GDP per capita. In models 3 and 4 the dependent variable is the unemployment rate. In models 2 and 4 the adjusted R^2 is slightly higher compared to their counterparts without control variables. This was to be expected since more variables are included models 2 and 4

compared to models 1 and 3. Those models are as a whole thus likely to explain a larger part of the variance of the dependent variable (Field, 2013).

Both in model 1 and in model 2, the transformed ESIF variable and the post-treatment variable have a significant relationship with GDP per capita. The positive coefficients indicate that both the transformed ESIF and the post-treatment variable are positively correlated with GDP per capita (log) of both countries over time. The interaction term, the key variable of interest, has a small significant negative effect on GDP per capita in model 1 at a significance level of $\alpha = 0.05$. In model 2, after including control variables, the significant negative relationship between the interaction term and GDP per capita (log) holds. The coefficient decreases further to -0.041 at a significance level of $\alpha = 0.01$. From this, it can be concluded that the 'ESIF treatment' has had a small negative effect on economic growth in North-East Romania. Similar results are found in other studies such as the Eggert et al. (2007) paper.

Model 3 and 4 report the outputs of the regressions estimating the relationship between the transformed ESIF and unemployment. In both models, the interaction of the post-treatment and the transformed ESIF variable have a weak positive, but insignificant, relationship with the unemployment rate. This indicates that ESIF payments have had no effect on the unemployment rate in North-East Romania. This is in line with the findings of Becker et al. (2010).

5.1. Perceived impact of ESI funding

In addition to the quantitative data, multiple key actors have been asked about their perception of the impact of ESI funding on North-East Romania. Although there is

some skepticism too, most interviewees perceive ESI funding to have had a positive effect on the development of North-East Romania. In wider Romania, the funds have among other things contributed to important institutional reforms, better road infrastructure, and improved health and educational infrastructure. One of the Romanian experts mentions the modernization of water distribution and wastewater treatment system in Botoșani County as an important example of a successful project benefitting almost 187,000 people.

Besides anecdotal evidence of successfully implemented projects, institutional reforms in Romania are repeatedly said to be one of the most important explanations for Romania's development compared to Moldova. Moldova itself has had access to large amounts of foreign aid from sources including the EU, the European Bank for Reconstruction and Development, and the United States (Aid Management Platform, 2019). Yet, today's Moldova faces many institutional challenges that Romania has managed to largely deal with: *"It's not just the money, it's also the quality of reforms. And it's also the way a government has succeeded to implement them."* (Moldovan respondent). Among other things, the effort Romania has put in curbing corruption is mentioned as an important institutional step forward. Nevertheless, the degree to which ESI funding fostered reforms of public institutions is hard to estimate. Other factors, such as Romania's EU membership in general, may have also encouraged reforms.

One of the Romanian experts stresses the importance of a well-functioning regional development agency. The development agency is considered an important intermediary in projects related to regional development. In North-East Romania, the

number of people the regional development agency employs is relatively high. The organization employs over 190 employees and engages in a wide variety of activities ranging from life-long learning projects, business development, and supporting organizations and businesses with applying for ESI funding. Through the latter activity, the regional development agency might contribute to the region's administrative capacity, which is often said to be a barrier in accessing ESI funding especially in developing EU members (Zaman and Georgescu, 2009). The importance attributed to the regional development agency relates to Bähr's (2008) argument that decentral government units have information advantages over national or international government bodies which allows them to allocate funds or implement projects more effectively.

5.2. Barriers for ESIF effectiveness

The discrepancy between the regression results and the perceived impact of ESI funding is remarkable. The interviewees do not confirm the quantitative results that ESI funds have negatively affected economic growth and not affected employment. This could be due to biased perceptions or interests of respondents. It may also be explained by the limitations of GDP per capita and the unemployment rate as variables reflecting regional development. Although the majority of the respondents notices positive effects of ESI funding on the region, interviewees do also note that there is room for improvement.

Interviewees identify barriers that hinder ESI funding to be effective, question the effectiveness of funding in certain cases, and provide suggestions for improving the effectiveness of ESI funding. These critiques and questions might partially explain why

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no positive impact on GDP per capita and the employment rate is observed in the regression results. Broadly speaking, the respondents observe two important barriers: 1) a lack of absorption capacity, and 2) poorly allocated funds.

5.2.1. Lack of absorption capacity

As discussed in the literature review, the absorption of ESI funds is a challenge for many EU countries (see e.g. Horvat and Maier, 2004; Zaman and Georgescu, 2009). Many respondents confirm this and consider the absorption of ESI funds to be one of the biggest challenges for North-East Romania and Romania as a whole. Interviewees observe barriers that constrain the financial and administrative absorption capacity of North-East Romania.

First of all, financial absorption capacity is identified as a barrier. Accessing funds often requires co-financing. In some cases, especially in times of economic downturn, this is said to be problematic for Romanian government bodies. Also, multiple interviewees indicate that Romanian government bodies, which often function as an intermediary in ESI funded projects, can be slow in reimbursing the expenses of firms participating in ESI funded projects. As a consequence of such payment lags, some firms have become less keen on applying for ESI funding and seek alternative sources of funding. Secondly, the region's absorption capacity is constrained as a consequence of a lack of administrative knowledge, experience, and capacity among government bodies to apply for funding and manage and implement EU-funded projects. The interview data suggest that this issue is not limited to the governmental domain. Private organizations face similar challenges. These are examples of lacking administrative capacity (Horvat and Maier, 2004). One Romanian interviewee proposes reducing the administrative

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burden and improving technical assistance to improve the administrative absorption capacity of the region. Finally, interviewees point out that the Romanian body of civil servants changes frequently as a result of changes in the coalition. This harms the continuity of the bureaucracy and its experience with applying for ESI funding. One Romanian expert summarizes it as follows: *"The regime of civil servants has been violated, in a more or less transparent manner, by political interventions as a result of changes in the government structure or elections. Therefore many specialists left the system and were replaced by a new political clientele, suffering from lack of knowledge and expertise."*

The hereabove mentioned constraints for North-East Romania's absorption capacity are further reinforced by the perceived complexity and unclarity of the EU's standards, guidelines, and procedures related to applying for ESI funding. One Romanian expert mentions that the requirements for the financial strength of potential beneficiaries are very strict. Tight co-payment rules and rules for non-eligible expenditures, cause difficulties for private organizations. The expert gives an example of several private sector contracts together worth over €500 million that were terminated early as a consequence of what the expert refers to as an *"(…) overvaluation of financial strength."* Another Romanian expert refers to this burden as a: *"(…) exorbitant bureaucracy which discourages potential beneficiaries."*

In summary, the challenge of North-East Romania's absorption capacity seems to have two dimensions. On the one hand, the stakeholders in the region appear to lack the experience and knowledge to fully utilize the potential of ESI funding. Regular changes in the body of civil servants further complicates this. On the other hand, the

strict EU standards and procedures complicate this further and even discourage regional actors to apply for ESI funds.

5.2.2. Poorly allocated ESI funding

In addition to challenges with North-East Romania's absorption capacity, multiple respondents consider poor allocation of ESI funds a constraint for the effectiveness of the funds.

One of the Romanian experts questions the effectiveness of the funds in truly delivering on the economic convergence goal. The expert refers to a paper by Moroşan (2013) which shows that, in the case of the ERDF, most funding was allocated to the more developed counties in North-East Romania, such as Iași and Neamț. Only 7% of the projects were completed in Botoșani and Vaslui, the region's poorest counties in 2011 (see Moroşan, 2013). Also when considering the total value of the projects, Botoșani and Vaslui receive just 5% and 1% of all funding allocated to North-East Romania. The earlier discussed root causes of low absorption rates are again referred to as important explanations for these intra-regional disparities. Poorer counties have less administrative capacity to cope with the administrative requirements. Furthermore, the poorer counties have less financial resources to fulfill the co-financing requirements. Moreover, one of the interviewees argues that even if actors succeed in attracting ESI funds, many projects are terminated when the funding dries up (Romanian expert). In that case, it seems unlikely that projects have a long-lasting positive impact on North-East Romania.

Furthermore, there is general skepticism about how ESI funding is allocated and how ESI funds are implemented. The implementation of ESI-funded projects is often associated with corruption. One of the Romanian experts concludes: *"Educating the population and explaining the benefits offered by European-backed programs might very well lead to more projects being filed and more funds being absorbed."* In line with this, some respondents raise questions about whether the right projects have received funding. Abundant anecdotes are circulating about 'bad projects' having received ESI funding. One of the Romanian experts gives an example of a football field that was constructed on a hill, which was funded with EU money (for the article see Petrovici, 2012). Such projects are unlikely to contribute to regional development in the long run. One of the interviewees gives an explanation for why bad projects may receive funding: *"There's enough money for everyone, it's not like a competition for funds."* (Moldovan respondent). It is hard to estimate how often funding is allocated to bad projects. Examples like these, however, endorse Kálmán's (2002) claim that a combination of rent-seeking behavior and information asymmetries between beneficiaries and the EU will inevitably lead to bad projects also obtaining funds.

One concrete policy theme that should get more attention according to some Romanian experts is infrastructure. One of the experts emphasizes that no highways run through North-East Romania. Another expert confirms this observation: *"One of the most important weaknesses [of the region] is the low accessibility and connectivity. The infrastructure is very poorly developed. Even if we have very good projects in the business sector, the sector will not be very competitive without infrastructure."* In recent years, the airport of Iași has, however, been modernized. But, according to the expert: *"Having an airport is not enough."* A Moldovan expert stresses that, to enhance the

impact of ESI funding, North-East Romania's connection to the more developed parts of Romania should be improved.

Finally, multiple experts critique the general lack of vision on and coherence of how funds are allocated. One of the Romanian experts summarizes it as follows: *"Thus, at the microeconomic level, the projects generated additional revenue for those involved and created jobs. But the project is not always sustainable in the long run."* Another complaint is that the intended impact of previous projects was often unclear or ill-defined. One interviewee points out that this may be because accessing the funds became a goal in itself: *"There is, for example, no strategic vision for development. Our intention was first of all to have a high accession rate of European funds."* (Romanian expert). Yet, the expert's perception is that this attitude is changing in the new programming period (2014-2020). Moreover, some respondents argue that more emphasis on the actual needs of the region, could partially take away the incentive to access the funds with unproductive proposals. One of the Romanian experts emphasizes the importance of ex-ante needs assessments in this regard.

5.3. Directions for improvement

Building on these concerns about constraints for North-East Romania's absorption capacity and poor allocation of ESI funding, the experts bring up directions for improving the effectiveness of ESI funding. Firstly, more bureaucratic support could contribute to increasing the absorption capacity of the region. This is said to contribute to increasing the region's administrative capacity in particular. At the same time, multiple respondents argue that the bureaucracy around ESI funded projects should be reduced. They emphasize the complexity and rigidity of procedures related to the

application for ESI funds. Secondly, a clearer strategic vision for the region could contribute to the coherence between projects. This requires a more careful review of how new projects match existing projects, before the allocation of funds. One way of operationalizing this would be to put more emphasis on ex-ante needs assessments. Some experts suggest focusing the development of the region's infrastructure in particular.

6. CONCLUSION AND DISCUSSION

Economic convergence is a prominent policy goal of the EU. The ESI funds are key vehicles through which this goal can be achieved, but its effectiveness in contributing to economic convergence is controversial (Dall'erba, 2005; Becker et al., 2010; Mohl and Hagen, 2010). This paper has evaluated the impact of ESI funding on economic development and employment in North-East Romania, by employing a difference-in-difference analysis and conducting interviews with key stakeholders. The results provide no unambiguous answer to the question of whether ESI funding has had a positive impact on North-East Romania.

The difference-in-difference analysis indicates that ESI funding in North-East Romania has had a slightly negative effect on economic growth and no effect on unemployment. The interview data challenges these findings. The general perception of key actors is that ESI funding has benefitted North-East Romania. Yet, the interview data also provides insight into two barriers that may explain why the difference-in-difference analysis does not exhibit a positive impact on employment and GDP per capita. Respondents point at barriers that constrain the administrative and financial absorption capacity of North-East Romania. Furthermore, how funding is allocated is questioned by respondents. Those factors may hinder ESI funding to be effective.

Building on these findings, this paper cannot formulate a definite answer to the question of whether, when and where ESI funds, and foreign aid in broader terms, are beneficial for growth and employment. Yet, the findings do contribute to the literature and contribute to unpacking the black box of the impact of ESI funds. First of all, the paper confirms the widely acknowledged complexity of the relationship between

foreign aid and regional development (see e.g. Bourguignon and Sundberg, 2007). Secondly, the findings endorse the idea that its effectiveness may be different in different regional contexts. Finally, the study sheds light on which barriers may hinder ESI funds to be effective.

Generalizing the findings of this paper to other EU regions is likely to be problematic. Not least because previous work has stressed that the impact of ESI funds on economic growth and employment may be region specific (see e.g. Ederveen et al., 2006; Rodríguez-Pose and Garcilazo, 2015; Marcu and Dobrotă, 2016). Moreover, North-East Romania is far from the average NUTS-2 region. North-East Romania is an EU border region, it is one of the least economically developed regions of the EU, and it is located in a country that is not part of Schengen (Eurostat, 2019). Hence, more research is needed to make inferences about the impact of ESI funding on other NUTS-2 regions within the EU.

6.1. Limitations

The results of this study should be seen in light of three limitations: 1) problems with the comparability of Moldova and North-East Romania, 2) potential spillover effects from the treatment group (North-East Romania) and control group (Moldova), and 3) not considering time lags.

Firstly, some of the interviewees challenged the comparability of North-East Romania and Moldova. Especially the respondents on the Romanian side of the border, have emphasized the substantial differences between both regions. One of the experts points out that regional level governments in Moldova have very little bureaucratic

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capacity, while subnational governments in Romania are much more developed. This is, according to the expert, a consequence of the fact that Moldova was part of the centrally organized Soviet Union. Moreover, interviewees point at recent political events that have substantially affected Moldova's economy, such as the bank fraud scandal in 2014 (Whewell, 2015) and the free trade agreement with the EU which took effect in 2016 (EEAS, 2018). These events, whether positive or negative, negatively affect the experimental nature of the study. Such events may have affected the dependent variables of interest: the GDP per capita and the unemployment rate. Another factor which, according to one of the experts, complicates the comparison is that part of Moldova's population is Russian speaking and generally more oriented towards Russia.

Secondly, as discussed in section 4.2., there cannot be spillover effects between the treatment and the control group because this may bias the results. In a quasi-experimental setting assuming there are no spillover effects at all, is most of the time not realistic since people, ideas, and goods cross borders. In this case, however, it may be more problematic. Based on the interview data there is reason to believe that Moldova may enjoy spillover effects of the projects funded on the other side of the river in North-East Romania. One of the experts pointed out that some Moldovan citizens are working in (North-East) Romania. Moreover, there is anecdotal evidence of Moldovan firms participating in ESI funded tenders in North-East Romania. Moldova may enjoy benefits from ESI funds through such mechanisms. Although the exact magnitude of spillover effects is hard to estimate, it is unlikely to be substantial enough to problematize the results of this study completely. Yet, the potential existence of

spillover effects does deserve more scholarly attention. Estimating the magnitude of these effects would be a valuable direction for future research.

Finally, previous studies have found ESI funding to have a delayed effect on employment and economic growth (see e.g. Mohl and Hagen, 2010). Time lags were not included in the model estimated in this paper. This could be another explanation for why the paper finds a negative impact on GDP per capita and no impact on the unemployment rate.

6.2. Theoretical and practical implications

The findings of this paper have implications for future research. The study confirms the idea that effectiveness of ESI funds may be dependent on regional characteristics. Against this background, and given the concerns about transferring the findings of this study to other regions, conducting similar quasi-experimental studies in other regions would be a first valuable addition to the findings of this paper. Secondly, more systemically evaluating the magnitude of the barriers for effectiveness identified in this paper is considered a productive direction for future research. Further attention to the magnitude spillover effects of ESI funding to neighboring regions would be a constructive direction for future research as well. Finally, the literature review and the results of this paper confirm that much remains unknown about the relationship between ESI funding, foreign aid in broader terms, and regional development. Studies aiming to further unravel this black box, by enhancing understanding of the causal mechanisms at play, remain much needed (see also Hagen and Mohl, 2016).

The findings also have implications for policymakers. The results of the difference-in-difference analysis question the legitimacy of the ESI funds in North-East Romania. Just assuming that ESI funding contributes to development is, therefore, ignoring reality. Policymakers should pay closer attention to country-specific traits and the impact of ESI funds in different regional contexts. In this regard, the EU is encouraged to allocate more resources to sound policy evaluations that respect the differences between EU regions.

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ANNEXES

Annex 1. Aims of the European Structural and Investment Funds

Table 5. Aims of the European Structural and Investment Funds (EC, 2019a).

Fund	*Aim of fund*	*Thematic concentration*
European Regional Development Fund (ERDF)	Promotes balanced development in the different regions of the EU.	- Innovation and research; - The digital agenda; - Support for small and medium-sized enterprises (SMEs); - The low-carbon economy
European Social Fund (ESF)	Supports employment-related projects throughout Europe and invests in Europe's human capital – its workers, its young people and all those seeking a job.	- Promoting employment and supporting labour mobility - Promoting social inclusion and combating poverty - Investing in education, skills and lifelong learning - Enhancing institutional capacity and an efficient public ad
Cohesion Fund (CF)	Funds transport and environment projects in countries where the gross national income (GNI) per inhabitant is less than 90% of the EU average. In 2014-2020, this includes Romania.	- Trans-European transport networks - Environment
European Agricultural Fund for	Focuses on resolving the particular challenges facing EU's rural areas.	Fostering knowledge transfer and innovation in agriculture, forestry and rural areas

Rural Development (EAFRD)	• Enhancing the viability and competitiveness of all types of agriculture, and promoting innovative farm technologies and sustainable forest management
	• Promoting food chain organisation, animal welfare and risk management in agriculture
	• Restoring, preserving and enhancing ecosystems related to agriculture and forestry
	• Promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors
	• Promoting social inclusion, poverty reduction and economic development in rural areas

Annex 2 – Interview guide

Introduction

- Brief introduction to the study and word of thanks.

- Could you describe your own role and field of expertise?

- What is the role of your organization?

EU Cohesion Funds and economic development

- Has North-East Romania benefitted from EU funding? If yes, how? If not, why not?

- Has Botoșani benefitted from EU funding? If yes, how? If not, why not?

- What are the most important barriers for EU funds to contribute to regional economic development in North-East Romania?

- Do, in your opinion, the right projects receive EU funding?

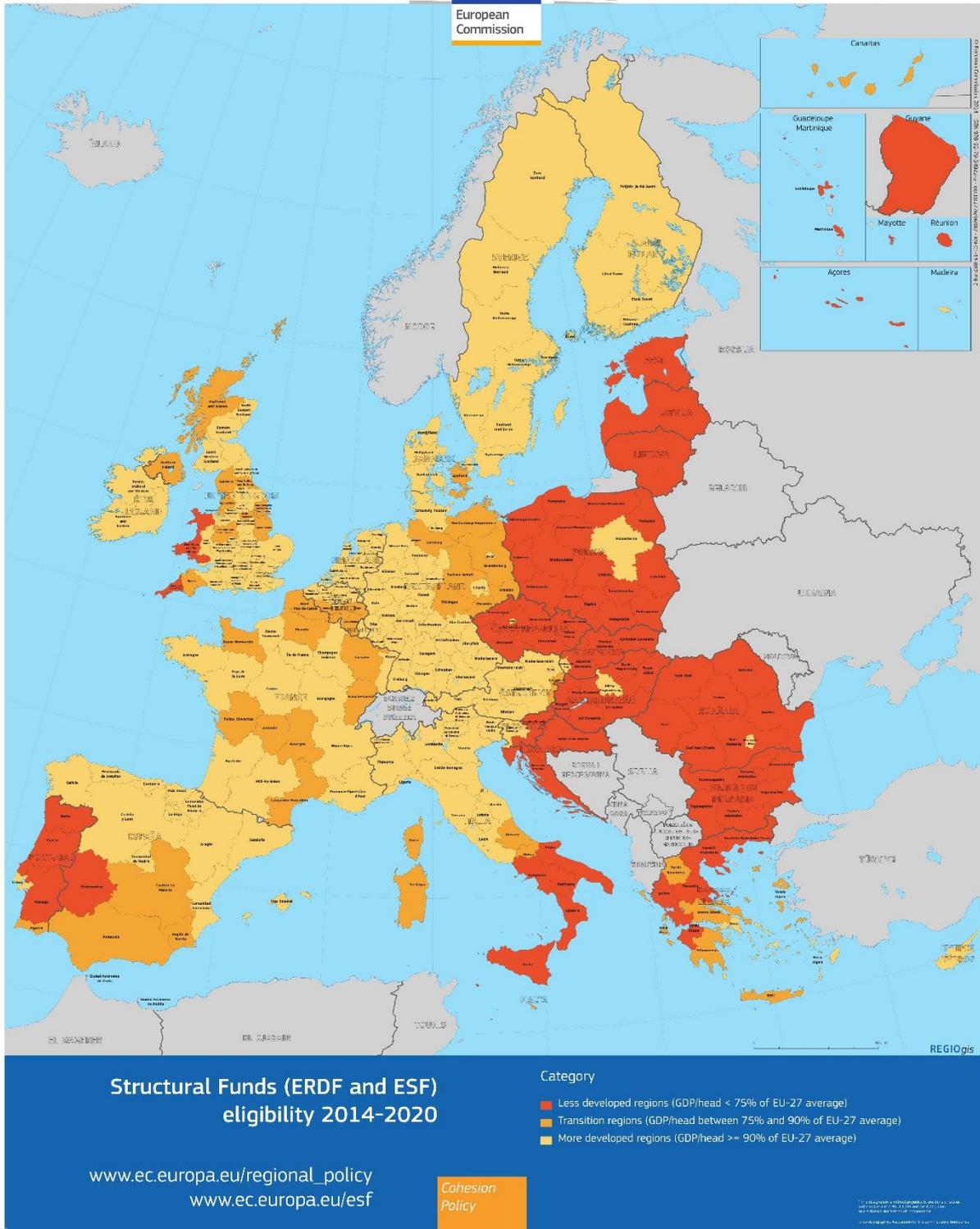**North-East Romania and the Republic of Moldova**

- Have the disparities between North-East Romania and the Republic of Moldova grown, after Romania joined the EU in 2007? If yes, what changed?

- Has the Republic of Moldova benefitted from the EU-funded projects in North-East Romania? If yes, how? If not, why not?
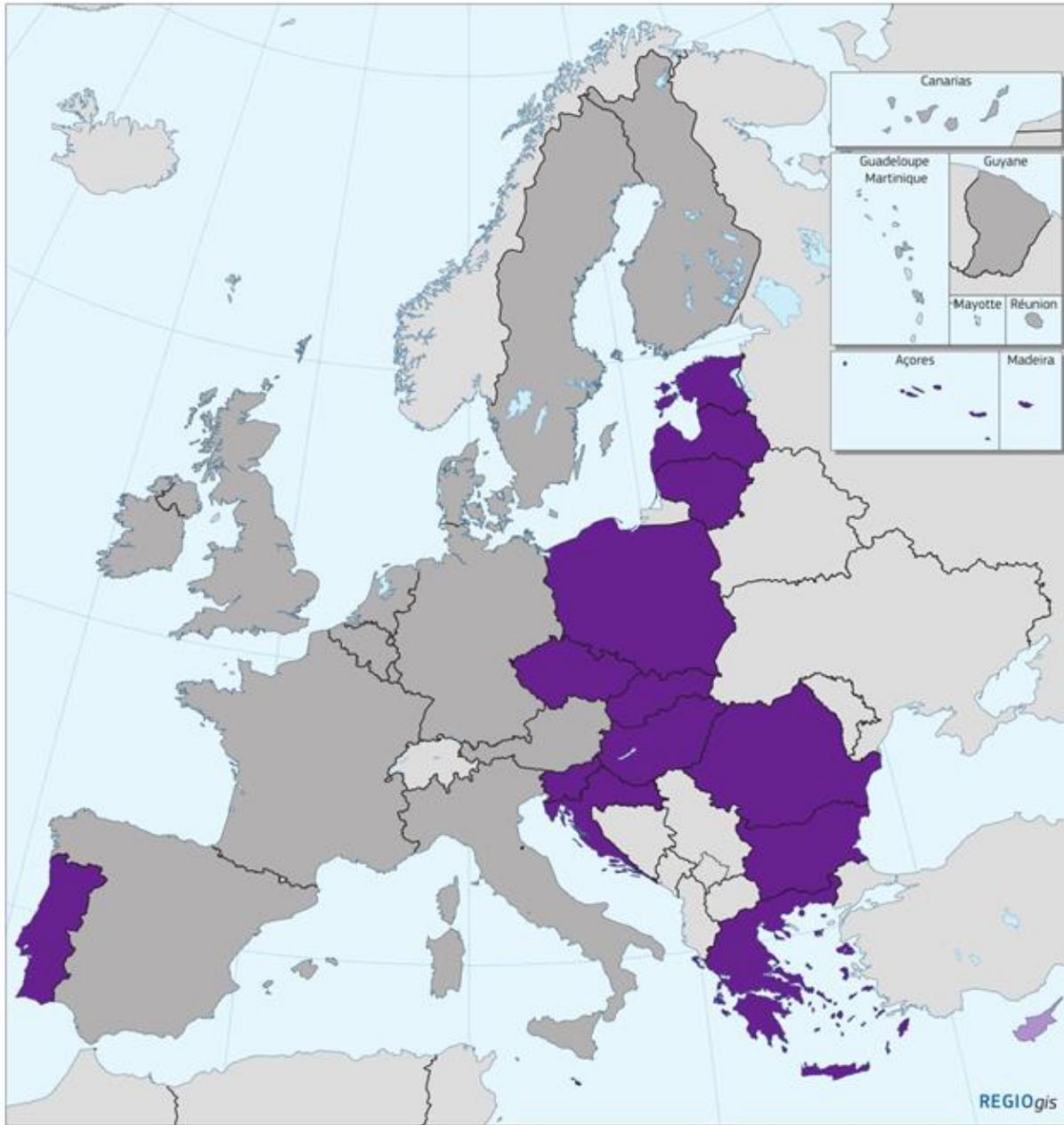

Conclusion

- How could the effectiveness of EU cohesion funding be improved?

- Are there any important topics we have not covered in this interview?

- Do you have any further questions?

Annex 3 – Cohesion Policy eligibility 2014-2020

Eligibility Structural Funds (ERDF and ESF) 2014-2020

Structural Funds (ERDF and ESF) eligibility 2014–2020

Category
- Less developed regions (GDP/head < 75% of EU-27 average)
- Transition regions (GDP/head between 75% and 90% of EU-27 average)
- More developed regions (GDP/head >= 90% of EU-27 average)

www.ec.europa.eu/regional_policy
www.ec.europa.eu/esf

Cohesion Policy

Eligibility Cohesion Fund 2014-2020

Cohesion Fund eligibility 2014-2020

Category

- GNI/head < 90% of EU27 average
- Phasing-out support
- Other Member States

GNI/head figures: average 2008-09-10
Sources: Eurostat, DG REGIO

0   500 Km

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