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## **The EGTC as a New Tool for Interregional and Cross-border Cooperation – A Quantitative Analysis**

**PRELIMINARY VERSION – PLEASE DO NOT CITE WITOUT PERMISSION OF  
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### **Abstract**

The European Grouping of Territorial Cooperation (EGTC) is a novel European legal tool for cross-border, interregional and transnational cooperation. Introduced in 2006, it allows cooperating regional authorities, associations or other public bodies from different nation states to establish a legal entity of its own. The EGTC is meant to improve the governance of territorial cooperation, thus having beneficial economic effects in dealing with cross-border challenges in a variety of policy fields. In this paper, we analyze in how far this legal instrument may contribute to interregional and cross-border development by using a novel data set at the regional level.

We first shortly present the evolution of the EGTC and analyze its institutional design from an economic perspective. We put a special focus on its contribution to internalizing spill-overs and both negative and positive externalities in cross border regions, thus contributing to territorial cohesion as well as economic and social development. In a second step, we provide an original dataset for 281 regions at the NUTS2 level to explore similarities and differences among regions where EGTCs are located. We take a first look at whether and in how far regions with and without EGTCs established on their territories differ in regard to territorial cohesion and economic development. After developing a set of testable hypotheses, we use our dataset to test whether observed differences in regions with and without EGTCs are statistically significant.

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## 1. Introduction

The European Grouping of Territorial Cooperation (EGTC) is a novel European legal tool for cross-border, interregional and transnational cooperation. Introduced in 2006, and extensively amended in 2013, it now allows cooperating regional authorities, associations or other public bodies from different nation states to establish a legal entity of its own. The EGTC is meant to improve the governance of territorial cooperation, thus having beneficial economic effects in dealing with cross-border challenges in a variety of policy fields and for a variety of reasons.

In this paper, we analyze in how far this legal instrument may contribute to interregional and cross-border development by using a novel data set at the regional level. The paper is organized as follows: In section 2, we discuss the evolution and legal design of the EGTC, considering the goal of territorial cohesion and the need for cooperation in order to internalize territorial externalities. The EGTC is presented as an important top-down legal innovation that may complement the earlier bottom-up initiatives for territorial cooperation. In section 3 we derive hypotheses on relevant differences on the regional level, i.e. the NUTS2 level, comparing NUTS2 regions with and without EGTCs, before answering our research question, i.e. whether and in what respect regions with EGTCs differ from those without such groupings. To this end we apply tests for equality of means and medians. Our conclusion and an outlook on further research ends our analysis.

## 2. The EGTC as a Legal Innovation: Evolution and Design

### 2.1 Literature Survey

Regulation (EC) No 1082/2006 of the European Parliament and of the Council is the legal core of EGTCs (European Union 2006). In 2013, several amendments to this regulation were introduced by Regulation (EU) No 1302/2013 (European Union 2013). Thus being still a legal innovation it comes to no surprise that important parts of the literature on the EGTC are qualitative and conceptual analyses. There has been a need for introductions of this new instrument from a legal, economics, or political science perspective (Zapletal 2010; Cucu 2011, Eckardt/Friedrich 2014). Especially, the novel organization had to be classified vis-à-vis earlier developments in European regionalism (Janssen 2009; Spinaci/Vara-Arribas 2009; De Sousa 2013) that paved the way for the legal innovation (Church/Reid 1996; Keating 1998, Perkman 2003; 2007).

Apart from this, possible incentives and obstacles for territorial cooperation that are effective with the new legal situation were analyzed (Dizdarevic 2011, Svensson 2014; Svensson 2015, Eckardt/Okruch 2017). In addition, there exists a body of literature which analyzes the potential of the EGTC as a means to foster regional and thus European integration from a mainly normative point of view. In this context, territorial cooperation among regions in Europe is expected to have several beneficial effects, right up to the aspiration of cross-border cooperation to be “...a kind of Europe closer to the citizens, a bottom-up approach to Europe“ (Pasi 2007, 73). This strand of literature also touches the potential of EGTCs to promote a European Administrative Space (Beck 2015).

While there are numerous contributions to regional cohesion (as one of the goals of EGTCs, cf. Molle 2007; Medeiros 2016) and Territorial Impact Analysis (Medeiros 2015), the quantitative research on EGTCs is still developing. There are, however, some case studies which analyze the impact of a single or a selected number of EGTCs (Medeiros 2013). In a way, the EU Commission’s reports on the application of the EGTC Regulation (European Union 2011; 2018b; 2019) contribute to the growing stock of empirical knowledge about EGTCs. The

same is true for the Commissions's extensive "Cross-border review" (European Union 2017a), also considering EGTCs (European Union 2017b).

In the following paragraphs we will first analyze the economic *ratio legis* of the EGTC, or for any institutional support of territorial cooperation in general. We will then survey the emergence of supportive institutions, like the EGTC, and depict some characteristics of the legal design of EGTCs that are important against the economic backdrop.

## 2.2 Territorial Cohesion and the Need for Cooperation

Article 1 cif.2 of the relevant EU Regulation states the main objective of an EGTC is "to promote in particular territorial cooperation... with the aim of strengthening economic, social and territorial cohesion" (European Union 2013). The legal design of EGTCs is thus meant to (1) reduce existing barriers to territorial cooperation among public actors, and (2) promote territorial cohesion. With regards to the second objective, one of the numerous interpretations of territorial cohesion (Medeiros 2016) is that it "can be seen as a situation whereby people and firms are not unduly handicapped by spatial differences in access to basic services, basic infrastructure and knowledge" (*ibid.* 8, following Molle 2007). Adding a spatial dimension to social and economic cohesion, and integrating territoriality into concepts of growth, development and sustainability (Chilla et al. 2012; Medeiros 2016), the specific problems of peripheral and border regions are focused.

The most basic challenge behind territorial cohesion is the incongruence of political territory on the one hand and the geographical range of a 'problem' that needs collective action on the other. Put differently, there is no "perfect mapping" (Breton 1965) that would match regional citizens' preferences for common goods with the production of such common goods. Arguably, this is especially probable for border regions that consequently may suffer from both static and dynamic inefficiencies. Whereas static inefficiencies are caused by interregional externalities of various kinds (cf. *infra*), the dynamic inefficiencies are related to the absence of innovations, the inability to exploit learning effects or cluster-like effects that would support innovativeness. In many instances static and dynamic inefficiencies are interrelated: if indivisibilities in production exist and the regional supply fails because a critical mass cannot be reached, the inexistence of production necessarily results in the impossibility of learning by doing and similar evolutionary processes. The overall effect of these combined inefficiencies would be a suboptimal level of production and a suboptimal rate of growth. Since static inefficiencies are especially prominent in the provision of common goods, the ensuing dynamic inefficiencies are especially problematic either.

While under-provision of common goods, like "basic services, basic infrastructure and knowledge" (Medeiros 2016, 8) will always be the resulting problem, the spatial dimension of the provision is especially crucial for different 'production technologies' or composition functions of particular public goods (Hirschleifer 1983, Holzinger 2008). Whereas for weakest-link common goods collective action is needed anyway in order to provide a cross-border region with the good, a best-shot common good may be produced in one of the adjacent region (e.g. for legal reasons), exerting a positive external effect on the other region(s). Collective action is needed, once again, for the efficient internalization of such a spill-over.

Since in a world of positive transaction *institutions* are crucial for the internalization for any kind of – positive or negative – externalities, the territorial fragmentation of any possible institutionalization poses a twofold problem:

Legislative power is diluted among at least two bodies in different countries, and the border may also impede decentralized governance. In the former case, *formal institutions* are difficult to implement because the border means a restriction of the scope of legislative influence. In the latter case, the border represents a factual limitation to the emergence of *informal institutions* through ongoing interaction. Borders may impede both bottom-up and top-down institutionalization.

The process of economic integration within the European Union reduces the factual effects of borders, thus may promote decentralized territorial governance. But it cannot solve the governance problem as long as formal institutions are needed. In this context it has been observed that “European integration has had a dual impact on border regions. On the one hand, borders were physically dismantled across most of the EU’s territory (...). On the other hand, border regions have become a fertile ground for territorial cooperation and institutional innovation” (De Sousa 2013, 669). European integration eases the beneficial collective action among regions and hence bottom-up institutionalization, but it also reveals the

### 2.3 The Evolution of Institutions for Territorial Cooperation

The history of territorial cooperation in Europe after WWII can indeed be seen as a sequence of institutional innovations, both from bottom-up and top-down. Bottom-up institutional innovations stem from the various actors of cross-border, interregional, or transnational cooperation in search for appropriate forms of governance. Top-down institutional/legal innovations originate from both the Council of Europe and the European Union.

Right from the start, there has been a search for the appropriate legal form of cross-border cooperation – spanning from purely informal agreements to registered associations in accordance with the law of one of the participating regions’ country (Zapletal 2010, 18).

In 1980, the so-called Madrid Convention sought to promote cross-border cooperation by providing model agreements (Council of Europe 1980). However, the application of the Madrid Convention was impaired by its construction that bi- or multilateral international contracts was a necessary precondition. Some of the subsequent international contracts contain a more general applicable legal form, namely the Local Grouping of Cross-Border Cooperation (LGCC). But since this legal form can only be used by the regional bodies of the contracting parties, LGCCs could not serve as a general solution to the governance problems of territorial cooperation (Engl 2016, 146).

In contrast to the legal innovations by the Council of Europe, the EU started to support territorial cooperation primarily financially. From 1990 on the INTERREG programme led to an increased interest from the regions in territorial cooperation due to the massive financial support INTERREG provided. But exactly the management of those EU-funds in a transnational context made the unsolved governance issues obvious and urging (De Sousa 2013, 670).

It may be surprising how long it took until the EU tackled this institutional/legal issue, although the obvious success of INTERREG supported the trend towards a ‘New Regionalism’ in Europe and helped the EU diversifying the European multi-level governance system. Since from a Public Choice perspective strengthening the regional level (and thereby by-passing the member states) is in the interest of the supranational level, it could have been expected that the EU would be much quicker in breaking down barriers to even more effective support of the regions.

After some earlier (and basically fruitless) attempts to establish European legal forms, finally in 2006 the first draft of what later on became the EGTC was presented. Vis-à-vis the EU-practice of financial support, this initiative was an institutional innovation: “The Regulation triggered a lively debate, since the EU was for the first time ‘legislating’ on the governance and legal structures of regional policy, rather than on usual (and important) business such as the provision of a multi-annual plan and financial framework” (Spinaci/Vara-Arribas 2009, 6).

#### 2.4 The legal design of the EGTC

The EGTC was designed to facilitate and promote cross-border, transnational and interregional cooperation. The EGTC gives regional and local authorities and other public bodies from different member states a legal personality and thus facilitates the internalization of regional and cross-border externalities. If and when the external transaction costs of market-like or political negotiations are too high and impede the internalization of externalities in a decentralized manner, the coordination within a hierarchy is a possible solution. While it is the “nature of the firm” to avoid external (market or political) transaction cost, hierarchies have to incur internal (management) transaction costs. The legal form of a hierarchy is a means to minimize those internal transaction costs.

A legal form provides a partly institutionalized governance mechanism for any kind of team production by delineating the overlapping action spaces of the stakeholders involved. It eases cooperation among the different resource owners by securing their ownership rights through assigning well-defined property rights and decision rights. Besides, it reduces information problems, in particular those resulting from asymmetric information and principal-agent relationships by stating information rights and disclosure duties as well as rules in regard to decision-making. In addition, legal form reduces transaction costs by providing procedural rights and conflict resolution mechanisms. In case of international cooperation, coordination rules, stating the law applicable, also reduce uncertainties. This holds also in case of cooperation among public entities.

To establish an EGTC, members from at least two EU member states must be involved, or from one member state and at least one third country (or overseas territory) member, where the third country shares at least one joint border with one of the countries of the EGTC’s members (art.3 cif.2, art. 3a). Members of an EGTC can be public entities from different levels: member states, national, regional or local authorities, and public undertakings. Private companies which are owned by public entities and carry out operations of general economic interest are also eligible for membership (art.3 cif.1). Since the EGTC has its own legal personality, it can have an own budget (art.11), can hire its own human resources, can sign contracts independent from its members (art.1 cif.4) and has an own (but potentially limited) liability independent from its members (art.12). Its tasks are defined by its members in conformity with the Regulation and in conformity with the competence granted to each member of an EGTC under its respective national law (art.7). Thus, member states still have a say in the competences granted to public entities which are members of an EGTC and can limit the involvement of EGTC members in specific tasks (art.7 cif.3). Besides, member states are free to prohibit registration of limited liability EGTCs on their territory. In addition, any member state can require appropriate insurance or guarantees from limited liability EGTCs.

The relevant legal documents of any EGTC are its convention and its statute. The convention must be accepted unanimously by its members (art.8) and specifies the name of the EGTC, its location of registered office, its

objectives and tasks as well as its duration. It contains a list of its members, its organs and their competences. Besides, it states the applicable Union and national laws and the provisions for adopting and modifying its statute. The statute of an EGTC deals with the provisions necessary for an effective working of the EGTC, like organs, the representatives of the members in the EGTC, the decision-making procedures, its working language(s), procedures for personnel management and recruitment as well as financial contributions by members (art.9). Art.10 states the minimum organizational framework of an EGTC, which is composed by an assembly of its members and a director acting in the name of the EGTC. Additional organs and their competences, like an advisory board, can be laid down in the statute. Besides, the statute should contain provisions for carrying out the tasks laid down in the convention, in particular with respect to personnel management, financial contributions, and budgeting and accounting rules. For financing the tasks of an EGTC, an annual budget has to be established including provisions of running and operational costs (art.11).

Art.4 provides rules for establishing an EGTC. After having reached consensus on the convention and the statute, prospective members have to notify the member state where they are located. Each member state grants approval to the convention for its national members, unless the documents do not conform to the EGTC Regulation, Union law or national law of the respective member state or is in contradiction to the public interest. After its successful approval, the EGTC has to ensure that its establishment is announced in the Official Journal of the European Union to finally gain legal personality (art.5).

Although the EGTC is a supranational legal form for sub-national cooperation (with the exception of transnational cases), the nation/member states still have a lot of say in regard to the set-up and operation of EGTCs. The legal form, in other words, reflects the complex European multi-level system. This is particularly true for the member state where an EGTC has its registered seat (art.2). Member states have to implement procedures for the working of EGTCs with a registered seat under their jurisdiction. They are also responsible for controlling the management of public funds (art.6). Besides, member states might prohibit any activity of an EGTC on its territory, if this endangers its “provisions on public policy, public security, public health or public morality” (art.13).

All in all, the EGTC Regulations seem to provide a workable framework for setting up a legal form for public entities from different member and non-member states with its own legal personality to provide common goods to their citizens. The internal transaction costs of an EGTC seem to be reasonable and legitimized by the necessary transparency and accountability.

### 3. The Regional Dimension of EGTCs

#### 3.1 Hypotheses and Variables

Following the discussions in section 2, it became clear that the raison d'être for the EGTC is to promote European integration. The EGTC provides two avenues to further this overall objective: (1) by reducing still existing barriers to economic cooperation and (2) by promoting territorial cohesion in particular for structurally disadvantaged and economically weak regions.

The EGTC contributes to *reduce barriers for economic cooperation*. While the four freedoms implemented a common market producing and distributing goods and services for private enterprises, there are still barriers for the public provision of goods and services. They are particularly pronounced in border regions, since

administrative barriers restrain cross-border cooperation in the provision of public goods and services. With the EGTC there is a tool available to exploit benefits from increased division of labor as well as economies of scale and scope via cross-border, interregional or transnational cooperation. In this way, the EGTC improves economic integration in particular in border regions, where borders limit administrative cooperation among adjoining areas. Thus, it contributes to allocative efficiency.

In addition, the EGTC should promote *European territorial cohesion* with a strong focus on regional development in structurally disadvantaged and economically weak regions. Once again border regions typically suffer from their peripheral position. The EGTC is a tool to enable (especially public) actors in such areas to improve economic development on the regional level. By exploiting benefits from cross-border, transnational and interregional cooperation dynamic efficiency can be improved. Besides, by applying for and administering EU territorial funding the EGTC is an instrument for regional distributional policy.

If this is true, then NUTS2 regions where EGTCs are located should differ in a number of respects from NUTS2 regions where no EGTCs are located. To see whether this statement holds, we derive a number of hypotheses which are empirically tested in the following subsection.

#### *Promoting cross border cooperation and furthering allocative efficiency*

**Hypothesis 1:** The *share of NUTS2 regions along national borders* is higher for NUTS2 regions with EGTCs than for NUTS2 regions without EGTCs.

The EGTC is a tool which directly aims at overcoming barriers to cooperation for public actors in cross-border regions. Thus, NUTS2 regions with EGTCs should show a higher share of regions along national frontiers compared to NUTS2 regions without EGTCs.

**Hypothesis 2:** NUTS2 region with EGTCs are larger *in relation to population size* than NUTS2 regions without EGTCs.

While EGTCs are targeted to increase allocative efficiency by reducing the costs for cross border, transnational or interregional cooperation, setting up and operating an EGTC also involves costs (cf. supra). The larger NUTS2 regions are in regard to population size, the better these costs can be distributed among citizens. Thus, savings from better division of labor and from economies of scale and scope can be expected, implying that NUTS2 regions with EGTCs are larger in population size than NUTS2 regions without EGTCs.

#### *Promoting structurally weak and economically disadvantaged regions*

**Hypothesis 3a:** NUTS2 region with EGTCs show a higher *share of households living in rural or intermediate areas* than NUTS2 regions without EGTCs.

**Hypothesis 3b:** NUTS2 region with EGTCs show a higher *share of households living in intermediate areas* than NUTS2 regions without EGTCs.

**Hypothesis 3c:** NUTS2 region with EGTCs show a lower *share of households living in urban areas* than NUTS2 regions without EGTCs.

Border regions often show a peripheral position, thus suffering i.a. from agglomeration disadvantages. This shows in a low population density. Accordingly, hypothesis 3a should hold. The same resp. the reverse argument holds for hypothesis 3b and hypothesis 3c.

**Hypothesis 4:** NUTS2 region with EGTCs are economically weaker and thus have a lower *GDP per capita* than NUTS2 regions without EGTCs.

EGTCS are targeted to structurally disadvantaged and economic weak regions. If this holds, NUTS2 regions where EGTCs are located should differ from NUTS2 regions where no EGTCs are located.

While hypothesis 4 uses an outcome indicator for economic development, the following hypotheses 5 to 7 refer to the main inputs affecting economic growth that is, labor, capital, and technological progress.

**Hypothesis 5a:** NUTS2 region with EGTCs *utilize their labor endowment as measured by lower employment per capita* less than NUTS2 regions without EGTCs.

**Hypothesis 5b:** NUTS2 region with EGTCs *utilize their labor endowment as measured by a higher regional unemployment rate* less than NUTS2 regions without EGTCs.

Hypotheses 5a and 5b imply that the utilization of the regional labor endowment is positively correlated with economic performance. Both hours worked per capita (hypothesis 5a) and unemployment rates (hypothesis 5b) are proxies for the utilization of the regional labor endowment. The lower the degree of utilization, the less thriving the regional economy is. As a consequence the incentives for public actors to establish EGTCs to acquire EU funding for regional development and to promote regional development should be stronger. Accordingly NUTS2 regions with EGTCs should utilize its labor endowment less than NUTS2 regions without EGTCs.

**Hypothesis 6:** NUTS2 region with EGTCs have a lower *capital endowment as measured by lower gross fixed capital formation per GDP* than NUTS2 regions without EGTCs.

Capital is another important input for economic growth. The capital accumulated in an economy is positively related to its production potential. Accordingly the lower the capital endowment of the regional economy is, the lower is economic performance. Again, the incentives for public actors to establish EGTCs to promote regional development and to acquire EU funding for this purpose should be stronger. Accordingly NUTS2 regions with EGTCs should show a lower capital endowment than NUTS2 regions without EGTCs.

**Hypothesis 7a:** NUTS2 region with EGTCs show less *technological progress as measured by lower expenses in research and development (R&D) per capita* than NUTS2 regions without EGTCs.

**Hypothesis 7b:** NUTS2 region with EGTCs show less *technological progress as measured by lower expenses in research and development (R&D) per GDP* than NUTS2 regions without EGTCs.

Innovation plays a prominent role for economic development. Accordingly, there is a positive relationship between investment in R&D and economic performance. Expenses for R&D are an input factor in the innovation process, thus they are a proxy for the extent of innovation activity in a region. The more innovative the economy of a NUTS2 region is, the better its economic performance and vice versa. Accordingly, the same reasoning as regarding hypotheses 5 to 6 holds. The incentives for public actors to establish EGTCs to promote regional development and to acquire EU funding for this purpose should be stronger in economically disadvantaged regions.

Accordingly NUTS2 regions with EGTCs should show lower R&D spending than NUTS2 regions without EGTCs.

So far, we looked at structural or economic indicators which are related to the status quo in order to derive hypotheses about differences among NUTS2 regions with and without EGTCs. However, the overall objective behind the EGTC is to further European cohesion by promoting economic development in structurally weak and economically disadvantaged regions. Our last hypothesis takes this into account.

**Hypothesis 8:** NUTS2 regions with EGTCs have a higher *growth rate of GDP per capita* than NUTS2 regions without EGTCs.

If EGTCs promote European territorial cohesion, then NUTS2 regions with EGTCs should show a higher growth rate since this indicates catching up of poorer regions.

*Table 1* below summarizes the hypotheses developed, the variables used as well as the results of the tests discussed. In the next section we discuss methodology, data, and results.

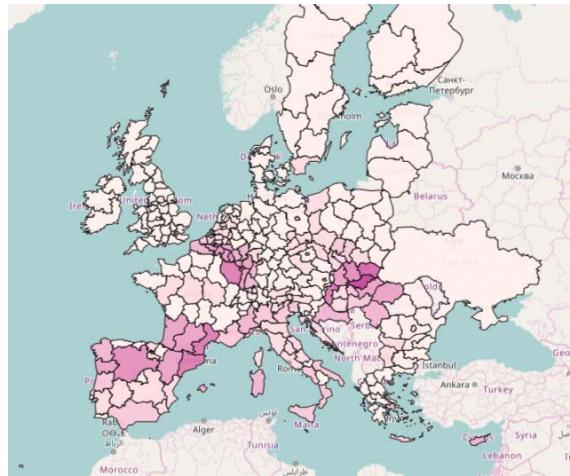
### 3.2 Methodology, Data and Discussion of Results

To test whether the observed differences between NUTS2 regions with and without EGTCs are statistically significant we performed t-tests for equality of mean and Mann-Whitney U-tests for equality of median, with the exception on hypothesis 1. In this case we performed a Chi Square test for equality of proportions.

We use the EU 2016 NUTS2 classification in this paper (Eurostat 2018). Data are from EU sources, they all refer to 2015. For definition, measurement and sources see *Appendix Table 1*. To identify NUTS2 regions with and without EGTCs located there, we use data from the Committee of the Regions (2019). *Figure 1* shows the density of EGTCs at the NUTS2 level. The darker the color the more EGTCs are located in a NUTS2 region. We used these data provided by the Committee of the Regions to us to code NUTS2 regions with and without EGTCs.

Of the 281 NUTS2 regions for the EU-28, three fifth have no EGTC located there ( $n = 170$ ) compared to two fifth with at least one EGTC ( $n = 111$ ). Besides, there are Member States without any EGTCs. With the exception of Malta, they are all from Northern Europe, like the UK and Ireland, but also Sweden, Finland, the three Baltic States and Denmark. Regarding the other 20 Member States, there are 6 Member States where in each NUTS2 region at least one EGTC is situated, while 14 Member States have both NUTS2 regions with and without EGTCs.

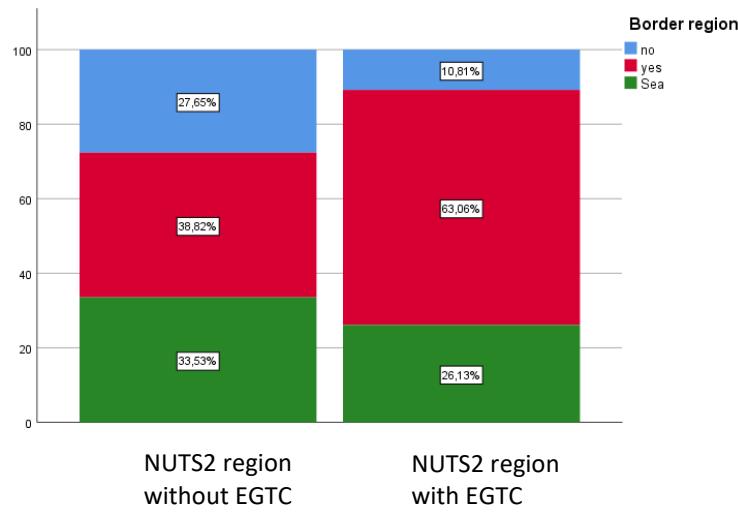
Figure 1: NUTS2 regions with and without EGTCs



Source: Committee of the Region (2019)

Hypothesis 1 refers to the objective that EGTCs should promote allocative efficiency via cross border cooperation. Accordingly it states that we should find the share of border regions to be higher for NUTS2 regions with EGTCs. To test this hypothesis we calculate the share of NUTS2 regions which are located along national borders and compare it to the share of NUTS2 regions which are surrounded by domestic NUTS2 regions or which border the sea. As Figure 2 shows, of all NUTS2 regions with EGTCs, 63 % are border regions compared to only 39% of all NUTS2 regions without EGTCs. A Chi Square test on equality of proportion confirms that this difference is statistically highly significant (Pearson's Chi Square = 18,421, p-value 0,000).

Figure 2: NUTS2 regions with and without EGTCs according to border (in percent)



Source: Own Calculation

For all other hypotheses we perform both tests for equality of mean and median. For a summary on hypotheses, variables and results see *Table 1* below, for the detailed statistics see *Appendix Table 2*. As *Table 1* shows, for all hypotheses the applied t-tests for equality of means have the expected signs and are highly significant, with the exception of hypothesis 6 regarding capital endowment of NUTS2 regions with and without EGTCs. As the distribution of a number of variables used is not normally distributed but skewed, we also test for equality of

medians by applying the Mann-Whitney U-test. Its results are similar with most hypotheses being confirmed, but with the exception of hypotheses 2 on population size, hypotheses 3b on the share of households living in towns and suburbs and again of hypothesis 6 on capital endowment.

*Table 1:* Hypotheses, variables and results

Hypotheses	Variables	Expected sign	Result of t-test / U-test
<b>Promoting cross border cooperation and furthering allocative efficiency</b>			
<b>Hypothesis 1:</b> The share of NUTS2 regions along national borders is higher for NUTS2 regions with EGTCs than for NUTS2 regions without EGTCs.	Border region	pos.	pos.*** (a)
<b>Hypothesis 2:</b> NUTS2 region with EGTCs are larger in relation to population size than NUTS2 regions without EGTCs.	Population size	pos.	pos.**/ n.s.
<b>Promoting structurally weak and economically disadvantaged regions</b>			
<b>Hypothesis 3a:</b> NUTS2 region with EGTCs show a higher share of households living in rural or intermediate areas than NUTS2 regions without EGTCs.	Degree of urbanization: rural areas	pos.	pos.**/ pos.**
<b>Hypothesis 3b:</b> NUTS2 region with EGTCs show a higher share of households living in intermediate areas than NUTS2 regions without EGTCs.	Degree of urbanization: towns and suburbs	pos.	pos.**/ n.s.
<b>Hypothesis 3c:</b> NUTS2 region with EGTCs show a lower share of households living in urban areas than NUTS2 regions without EGTCs.	Degree of urbanization: urban areas	neg.	neg.***/ neg.***
<b>Hypothesis 4:</b> NUTS2 region with EGTCs are economically weaker and thus have a lower GDP per capita than NUTS2 regions without EGTCs.	GDP per capita	neg.	neg.***/ neg.***
<b>Hypothesis 5a:</b> NUTS2 region with EGTCs utilize their labor endowment as measured by lower employment per capita less than NUTS2 regions without EGTCs.	Employment per capita	neg.	neg.**/ neg.**
<b>Hypothesis 5b:</b> NUTS2 region with EGTCs utilize their labor endowment as measured by a higher regional unemployment rate less than NUTS2 regions without EGTCs.	Unemployment rate	pos.	pos.***/ pos.***
<b>Hypothesis 6:</b> NUTS2 region with EGTCs have a lower capital endowment as measured by lower gross fixed capital formation per GDP than NUTS2 regions without EGTCs.	Gross fixed capital formation per GDP	neg.	n.s. / n.s.
<b>Hypothesis 7a:</b> NUTS2 region with EGTCs show less technological progress as measured by lower expenses in research and development (R&D) per capita than NUTS2 regions without EGTCs.	R&D per capita	neg.	neg.***/ neg.***
<b>Hypothesis 7b:</b> NUTS2 region with EGTCs show less technological progress as measured by lower expenses in research and development (R&D) per GDP than NUTS2 regions without EGTCs.	R&D as share of GDP	neg.	neg.**/ neg.*
<b>Hypothesis 8:</b> NUTS2 regions with EGTCs have a higher growth rate of GDP per capita than NUTS2 regions without EGTCs.	Growth rate of GDP per capita	pos.	pos.***/ pos.***

(a) Chi Square test for equality of proportions.

Source: Own compilation.

#### 4. Conclusion and Outlook

Our research contributes to the developing quantitative research on EGTCs, or territorial policy in general. Although the analysis of our dataset is still work in progress, important results can already be derived: According to our analysis, most of our hypotheses concerning differences between NUTS2 regions with and without EGTCs can be confirmed. This indicates that the EGTC actually meets the needs of its target groups that is, public actors in border regions and in regions with weak economic performance. However, identifying differences between regions with and without EGTCs does not allow to draw any conclusions on whether EGTCs also have the desired positive impact on economic development and territorial cohesion. For this, additional econometric analysis has to be carried out.

But all in all, our research strongly supports the idea that “Boosting growth and cohesion in EU border regions” (European Union 2017b) needs indeed appropriate institutional innovations, like the EGTC, and that tackling remaining barriers to cooperation (European Union 2018a) is a promising endeavor.

#### List of references

- Beck, Joachim (2015), Cross-Border Cooperation and the European Administrative Space – Prospects from the Principle of Mutual Recognition, in: International Public Administration Review, pp. 9-32, SSRN: <https://ssrn.com/abstract=2675986>.
- Breton, Albert (1965), A Theory of Government Grants, in: Canadian Journal of Economics and Political Science 26, pp. 175-187.
- Chilla, Tobias / Evrard, Estelle / Schulz, Christian (2012), On the Territoriality of Cross-Border Cooperation: “Institutional Mapping” in a Multi-Level Context, in: European Planning Studies 20, pp. 961-980.
- Church, Andrew / Reid Peter (1996), Urban Power, International Networks and Competition: The Example of Cross-border Cooperation, in: Urban Studies 33, pp. 1297-1318.
- Committee of the Regions (2019): European Grouping of Territorial Cooperation > Register and Map > Interactive Map, Level 2, <https://portal.cor.europa.eu/egtc/CoRActivities/Pages/egtc-map-2.aspx>, (10.04.2019)
- Council of Europe (1980), European Outline Convention on Transfrontier Co-operation between Territorial Communities or Authorities (<https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/106>, 09-10-2017).
- Cucu, Anca-Adriana (2011), Enhancing the Performance of Cross Border Cooperation Governance through Legal Community Instruments: the Case of the European Group of Territorial Cooperation (EGTC), in: Eurolimes, Supl. 3, pp. 201-212.
- De Sousa, Luis (2013), Understanding European Cross-border Cooperation: A Framework for Analysis, in: Journal of European Integration 35, pp. 669-687.
- Dizdarevic, Nermin (2011), The European Grouping of Territorial Cooperation (EGTC). To what Extent should the EGTC be Considered a Rational Choice for Organising Cross-border Cooperation?, Master in EU Studies (Cife & University of Cologne), <https://portal.cor.europa.eu/egtc/SiteCollectionDocuments/Dizdarevic%202011%20EGTC.pdf>.
- Eckardt, Martina/Friedrich, Peter (2014), European Grouping of Territorial Cooperation (EGTC) as a Legal Form to Realize Cross-Border FOCJ, in: Friedrich, Peter, Greiling, Dorothea, Haldma, Toomas (Hrsg.): Public Sector in Transition, Tartu, pp. 106-141.
- Eckardt, Martina/Okruch, Stefan (2017), Kooperation im Systemwettbewerb: der Europäische Verbund für Territoriale Zusammenarbeit, in: List Forum für Wirtschafts- und Finanzpolitik, 43, pp. 251-275.
- Engl, Alice (2016), Bridging Borders through Institution Building: the EGTC as a Facilitator of Institutional Integration in Cross Border Regions, in: Regional & Federal Studies 26, pp. 143-169.
- European Union (2006), Regulation (EC) No 1082/2006 of the European Parliament and of the Council of 5 July 2006 on a European Grouping of Territorial Cooperation (EGTC), Official Journal L 210, pp. 19-24.

- European Union (2011), The application of the Regulation (EC) No 1082/2006 on a European Grouping of Territorial Cooperation (EGTC), COM(2011) 462 final.
- European Union (2013), Regulation (EU) No 1302/2013 of the European Parliament and of the Council of 17 December 2013 amending Regulation (EC) No 1082/2006 on a European Grouping of Territorial Cooperation (EGTC) as Regards the Clarification, Simplification and Improvement of the Establishment and Functioning of Such Groupings, Official Journal L347, pp.303-319.
- European Union (2017a), Easing legal and administrative obstacles in EU border regions: Final Report, Brussels.
- European Union (2017b), Boosting growth and cohesion in EU border regions, COM(2017) 534 final.
- European Union (2018a), Proposal for a Regulation on a mechanism to resolve legal and administrative obstacles in a cross-border context, COM(2018) 373 final.
- European Union (2018b), Report on the application of Regulation (EC) No 1082/2006 on a European Grouping of Territorial Cooperation (EGTC) as amended by Regulation (EU) No 1302/2013 as regards the clarification, simplification and improvement of the establishment and functioning of such groupings COM(2018) 597 final.
- European Union (2018c), Commission Staff Working Document, SWD(2018) 395 final.
- European Union (2019), Commission Delegated Regulation (EU) 2019/247 of 16 October 2018 laying down the list of indicators for the report on the application of Regulation (EC) No 1082/2006 of the European Parliament and of the Council on a European grouping of territorial cooperation (EGTC), Official Journal L 42, pp.1-4.
- Eurostat (2018): Regions in the European Union, Nomenclature of territorial units for statistics, NUTS 2016/ EU-28, Edition 2018, Luxembourg, doi:10.2785/475524
- Hirshleifer, Jack (1983), From Weakest-Link to Best-Shot: The Voluntary Provision of Public Goods, in: *Public Choice* 41 (3), pp. 371-386.
- Holzinger, Katharina (2008), Transnational Common Goods: Strategic Constellations, Collective Action Problems, and Multi-level Provision, New York.
- Janssen, Gerold (2009), European Groupings of Territorial Cooperation (EGTC) – Experiences and Prospects, in: Kilper, Heiderose (Hrsg.), *New Disparities in Spatial Development in Europe*, Berlin/Heidelberg, pp. 177-181.
- Keating, Michael (1998), The New Regionalism in Western Europe: Territorial Restructuring and Political Change, Northampton.
- Medeiros Eduardo (2013), Euro – Meso – Macro: The New Regions in Iberian and European Space, in: *Regional Studies* 47, S. 1249-1266.
- Medeiros Eduardo (2015), Territorial Impact Assessment and Cross-Border Cooperation, in: *Regional Studies, Regional Science* 2 (1), pp. 97-115, DOI: 10.1080/21681376.2014.999108.
- Medeiros, Eduardo (2016), Territorial Cohesion: An EU concept, *European Journal of Spatial Development* 60. Available from: <http://www.nordregio.se/Global/EJSD/Refereed articles/refereed60.pdf> (02.04.2019).
- Molle, Willen (ed.) (2007), *European Cohesion Policy*, London.
- Pasi, Paolo (2007), Euroregions as Micro-models of European Integration, in: Langer, Josef (ed.), *Euroregions – the Alps–Adriatic Context*, Frankfurt am Main, pp. 73-79.
- Perkmann, Markus (2003), Cross-border Regions in Europe: Significance and Drivers of Regional Cross-border Co-operation, in: *European Urban and Regional Studies* 10, pp. 153-171.
- Perkmann, Markus (2007), Policy Entrepreneurship and Multilevel Governance: a Comparative Study of European Cross-border Regions, in: *Environment and Planning C: Government and Policy* 25, pp. 861-879.
- Spinaci, Gianluca/Vara-Arribas, Gracia (2009), The European Grouping of Territorial Cooperation (EGTC): New Spaces and Contracts for European Integration?, in: *EIPASCOPE* 2009/2, pp. 5-13.
- Svensson, Sara (2014), Forget the Policy Gap: why Local Governments Really Decide to Take Part in Cross-border Cooperation Initiatives in Europe, in: *Eurasian Geography and Economics* 54, pp. 409-422.
- Svensson, Sara (2015), The Bordered World of Cross-border Cooperation: The Determinants of Local Government Contact Networks within Euroregions, in: *Regional & Federal Studies* 25, pp. 277-295.
- Zapletal, Jirka (2010), The European Grouping of Territorial Cooperation (EGTC): A New Tool Facilitating Cross-Border Cooperation and Governance, in: *Quaestiones Geographicae* 29, pp. 16-26.

Appendix Table 1: Definition and Sources of Data

Variable	Definition	Source
NUTS2 region with and without EGTC	Dummy variable with 1 = NUTS2 region with at least 1 EGTC, 0 otherwise	Committee of the Regions (2019)
Border region	Nominal variable with 1 = NUTS2 region along national border, 2 NUTS2 region with sea border, 0 = NUTS2 region surrounded by domestic NUTS2 regions	Own compilation following Eurostat (2018)
Population size	Continuous variable measuring population size in 2015	Eurostat [demo_r_d2jan], updated 18.03.2019, download 18.03.2019
Degree of urbanization: rural areas	Share of households in rural areas	Own calculation based on Eurostat [lfsr_r_lfsd2hh], updated 18.03.2019, download 18.03.2019
Degree of urbanization: towns and suburbs	Share of households in towns and suburbs	Own calculation based on Eurostat [lfsr_r_lfsd2hh], updated 18.03.2019, download 18.03.2019
Degree of urbanization: urban areas	Share of households in urban areas	Own calculation based on Eurostat [lfsr_r_lfsd2hh], updated 18.03.2019, download 18.03.2019
GDP per capita	Continuous variable measuring GDP per capita at current market prices in EURO in 2015	Eurostat [nama_10r_2gdp] updated 26.02.2019, download 17.03.2019
Employment per capita	Continuous variable measuring employment per capita in hours worked in 2015	Own calculation based on Eurostat [nama_10r_2emhrw], updated 26.02.2019, download 18.03.2019 and Eurostat [demo_r_d2jan], updated 18.03.2019, download 18.03.2019
Unemployment rate	Continuous variable measuring unemployment rate in 2015 in %	Eurostat [tgs00010], updated 11.03.2019, download 18.03.2019
Gross fixed capital formation per GDP	Continuous variable measuring gross fixed capital formation per GDP in 2015	Own calculation based on Eurostat [nama_10r_2gfcf], updated 29.02.2019, download 18.03.2019 and Eurostat [nama_10r_2gdp], updated 26.02.2019, download 19.03.2019
R&D per capita	Continuous variable measuring R&D expenditure (Euro per inhabitant) in 2015	Eurostat [rd_e_gerdreg], updated 07.03.2019, download 18.03.2019
R&D as share of GDP	Continuous variable measuring R&D expenditure (% GDP) in 2015	Eurostat [rd_e_gerdreg], updated 07.03.2019, download 18.03.2019
Growth rate of GDP per capita 2015	Continuous variable measuring growth rate of GDP per capita at current market prices in EURO between 2015 and 2016	Own calculation based on Eurostat [nama_10r_2gdp] updated 26.02.2019, download 17.03.2019 and Eurostat [demo_r_d2jan], updated 18.03.2019, download 18.03.2019

Appendix Table 2: Statistics for t-test and Mann-Whitney U-test

	Valid cases		T-test for equality of mean			Mann-Whitney U-test for equality of median		
	NUTS2 regions with EGTCs	NUTS2 regions without EGTCs	NUTS2 regions with EGTCs	NUTS2 regions without EGTCs		NUTS2 regions with EGTCs	NUTS2 regions without EGTCs	
	N	N	Mean	Mean	Sig. (2-tailed)	Median	Median	Sig. (2-tailed)
Population size	111	170	2046258	1655209	pos. **	1477202	1441543	n.s.
Degree of urbanization: rural areas	111	169	0,3408	0,2881	pos. **	0,3700	0,3000	pos. **
Degree of urbanization: towns and suburbs	111	169	0,3523	0,3103	pos. **	0,3200	0,3000	n.s.
Degree of urbanization: urban areas	111	170	0,3072	0,4052	neg. ***	0,2791	0,3470	neg. ***
GDP per capita	111	170	23497	31446	neg. ***	22900	31350	neg. ***
Employment per capita	105	156	702,9082	749,6212	neg. **	704,5700	738,7855	neg. **
Unemployment rate	111	169	11,8937	7,9320	pos. ***	9,5000	6,5000	pos. ***
Gross fixed capital formation per GDP	105	156	0,2041	0,2044	n.s.	0,2000	0,2018	n.s.
R&D per capita	97	144	403,556	652,760	neg. ***	213,300	459,850	neg. ***
R&D as share of GDP	97	144	1,3964	1,7045	neg. **	1,1500	1,4900	neg. *
Growth rate of GDP per capita 2015	111	170	0,022087	-0,002906	pos. ***	0,021687	0,017037	pos. ***

1) \*\*\*, \*\*, \* significant on the 99, 95, 90 percent level

Source: Own calculation.