



**Extended abstract**

## EXTENDED ABSTRACT

### **Title: ECONOMIC DEVELOPMENT AND SPATIALLY-CONSTRAINED CORRUPTION SIMILARITY: EVIDENCE USING A PANEL DATA**

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#### **Abstract:**

This paper proposes a spatial approach to investigate how simultaneous effects arising from different types of connectivity structures, based on geographical proximity and corruption similarity between country pairs, may drive economic development in a particular country. Our findings indicate that a country income level is strongly influenced by the interactions that take place between physically near countries that are similar in corruption levels.

Differences in income level across countries have been widely examined by economic literature. In recent years, scholars have gone beyond the classical growth determinants (physical and human capital, technology, institutions) and now the emphasis has been put on other aspects related to the competing “deep” factors of economic development, such as the role of spatial location and the institutional factors<sup>1</sup>(e.g. Ketterer and Rodríguez-Pose, 2018).

On one hand, a strand of empirical growth literature has focused on the relevance of spatial dependences across countries (see Abreu et al., 2005 or Arbia, 2006, for a review). Countries can interact strongly with each other, or in spatial terms, through several channels, such as trade, technological transfers, labour migrations, capital inflows, similar norms and institutions (e.g. Fingleton and López-Bazo, 2006; Ahmad and Hall, 2017). Accordingly, a country’s economic development could be affected by the economic development in other countries<sup>2</sup>. The majority of empirical studies, including spatial effects, have defined the spatial dependences with respect to

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<sup>1</sup> Among other reasons, the renewed interest in the role of institutions as a determinant of economic development is derived from the improvements on econometric methods. These advances have allowed to tackle problems such as endogeneity, reverse causality, etc. (Bhupatiraju & Verspagen, 2013).

<sup>2</sup> Rey and Montouri (1999) were one of the first to specifically include spatial effects in empirical growth literature. They find that income in a particular country is correlated with those of neighboring countries.



geographic notion of distance (e.g. Beck et al., 2006)<sup>3</sup>. Therefore, from this perspective, the effects of income level in one country may spill over into other countries with an intensity that should diminish with geographical distance (among others, Márquez et al., 2015)<sup>4</sup>. The reason for this is that information and resources can flow more easily among nearby countries (Wang, 2018). Then, country's income level could be influenced by the structure and strength of spatial connectivity among countries, as well as own national and neighboring national characteristics (LeSage and Fischer, 2008). Omission of these spatial dependences can lead biased results and misleading conclusions in a standard growth model (see for example Anselin and Bera, 1998, Anselin, 2001; Arbia, 2006; Ganau, 2017). Additionally, from the spatial econometric point of view, the nearby concept, based on geographical closeness, has been usually taken due to its time-invariance and exogeneity advantages (among others, Beck et al., 2006; Plaigin, 2009; Arbia et al, 2010).

On the other hand, a second strand of literature has put the focus on understanding the relationship between corruption and country's economic performance. The level of corruption is closely associated with institutional environment (Salinas and Salinas, 2007; de Vaal and Evven, 2011). It has sometimes been argued that corruption, in the case of inefficient economic systems, with excessive regulations and weak institutions, can be economically beneficial. It may act to "grease the wheels" of institutional decision-making and hence promote growth the economy (Leff, 1964; Huntington, 1968, Braguinsky, 1996). In contrast, most empirical studies stress that corruption may provide a great barrier to economic growth and development (Kaymak & Bektas, 2015; Alvarez et al., 2018). It may act as a "grabbing hand", causing an additional cost of doing business and therefore reducing the incentives to invest abroad and producing inefficiencies and distortions (Mauro, 1995; Gupta et al., 1998; Rose-Ackermann, 1999; Wei, 2000; Habib & Zurawicki, 2002).

Corruption is a complex phenomenon. Recently, a new area that investigates the possible spread of corruption among countries has emerged. While some authors indicate that geographic boundaries serve as a channel of corruption due to the hosts' demonstration effect on neighboring countries (Accinelli and Sánchez, 2012; Donfouet et al., 2018); others such Atila (2008) and Márquez et al., (2011) posit that corruption is not a contagious phenomenon although neighboring countries tend to show similar levels of corruption, since they face analogous institutional environments. By contrast, some scholars argue that countries with no shared border may have contagious corruption with each other (Feng et al., 2017, Sui et al., 2018). This may be because, under the background of the globalization, frequent economic trade makes easier business contacts between multinational corporations and government officials, encouraging cross-country corruption (Becker et al., 2009; Kaymak and Bektas, 2015).

Retaining the focus on economic performance-corruption and the possibility of "contagion and infection" corruption, one should consider corruption similarity among

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<sup>3</sup> The notion of neighborhood, based on geographical closeness, has been delimited by contiguity measures, some physical distant function, a choice of k-nearest neighbors or by some combination of these options.

<sup>4</sup> The geographical distance is widely used as a natural proxy for transportation costs and technological transfers.



countries as a channel of spatial dependences<sup>5</sup>. In line with Ahmad and Hall (2017), it can be reasonably assumed that countries with similar level of corruption, even with no shared borders, may show to have higher economic interactions with each other and possibly to reach approximate income levels. The idea is that countries characterised by similar corruption can face lower transaction cost and trade barrier, close conditions to the knowledge diffusion, similar ways of doing business, as well as easier economic collaboration (Plaigin, 2009; Ganau, 2017). These characterizations are mainly induced by the decisions taken by socioeconomic agents (Feng et al., 2017). As a result, these countries could provide the same incentives to lead to comparable economic development. Then, the income level of a particular country could be also influenced by the effect of spatial connectivity among countries based on the corruption proximity. By studying these spatial interdependences, this analysis will also provide a better understand of forces underlying national economic development. To our best knowledge, corruption similarity as a channel of spatial dependence has not been explored in the previous empirical growth literature.

Despite both geographical and non-geographical factors may be relevant determinants in shaping the economic relationships across space, so far, no consensus has arisen from the literature about which one plays a most important role or whether these factors operate additively or interacting (Rodrik et al., 2004; Ketterer and Rodríguez-Pose, 2018). The empirical literature has usually examined these two elements in a separate manner. A few studies have dealt with both of them jointly by using a formal spatial econometrics approach (Bosker and Garretsen, 2009; Arbia et al., 2010; Ahmad and Hall, 2017). However, it is noteworthy that these previous works are concentrated on other different dimensions of institutional framework; specifically, the property rights' protection or the rule of law, instead of the similarly corruption among countries as a channel to foster national income levels. Besides, they only contemplate different spatial dependences among geographically closer countries, ignoring the possibility of interactions between other physically distant countries which could share similar institutional environments. Thereby, Bosker and Garretsen (2009), find out that institutional quality in neighboring countries to be significant for understanding cross-country income differences. Similarly, Arbia et al. (2010) and Ahmad and Hall (2017) point out that two regions/countries geographically near and with institutional similarities reinforce the spatial spillovers from one region/country to other<sup>6</sup>. Then, these previous studies take both interactions into account simultaneously but they only contemplate a single type of spatial interactions, that is, the traditional spatial dependence between proximate neighbors (both geography and institutions). Then, these approaches fail to disentangle alternative types of spatial dependences derived from these two different channels of interactions.

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<sup>5</sup> An emerging and heterogeneous literature considers that spatial relations and the connections among countries are not only derived of geographical proximity. There could be other non-geographical factors, and then, additional forms of proximity as complementary or alternative to physical distance (Erthur and Kock, 2011; Basile et al., 2012).

<sup>6</sup> These authors consider that connectivity among units of observations could be a function of institutional distance, as well as geographic proximity, combining both criteria. They refine the physical distance among observations taking account their institutional characteristics. Whereas Arbia et al. (2010) hold the geographical distance fixed and similar institutions in regions belonging to the same country, Ahmad and Hall (2017), incorporate a new measure of countries' dependence based on the institutional proximity concept with the geographical distance in an additive manner.



In this sense, some scholars such as Hazir, Lesage and Autant (2016) point out the possibility to define structure connections between spatial units through a combination of matrices. Then, the weight matrix could be composed by metrics that reflect the different specifications of neighborhood and compare different mechanisms through which spatial dependence works.

In this paper, following Hazir et al. (2016), it is proposed a spatial approach to assess how different combinations of various interactions based on corruption similarity and spatial proximity country pairs lead the income per capita in a particular country. As under the background of globalization, the networks of interactions enable interdependences between distant and proximate countries, neighbor countries may be separated into three components: geographically near countries that are distant in corruption levels; geographically near countries that are similar in corruption; and geographically distant countries that are similar in corruption.

This proposal allows us to identify the proper combination of various interactions between geography and institutional proximity driving economic development. Put differently it let us to capture simultaneously various types of dependence structures between countries, weighting the relative importance of them. To pursue this aim, we use a spatial balanced annual panel with 98 countries for the period from 2005 to 2015. We rely on a spatial Durbin model specification (SDM). Our results suggest that national economic development is strongly influenced by the interactions that take place between physically near countries and that are also similarly corruption levels.

This paper makes several important contributions to the existing growth literature by improving the knowledge on the driving economic development. First, it provides the similarity in the level of corruption among countries as a channel of interdependences for income level. Second, the approach proposed represents an improvement with respect to previous contributions considering different dimensions through which neighbor effects could impact on the economic performance. Then, it is capable of catching more pure structures of interactions among countries, weighting the relative importance of them. Finally, according to LeSage and Pace (2009) as well as Elhorst (2010), the SDM specification let us to capture the direct and indirect effects of changes in national characteristics on own country and others country economic performance.

**Keywords:** *Corruption similarity, Spatial Spillovers, Spatial Econometrics, Economic Development, Interactions*

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