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Full cities, empty territories

Universidad Autónoma de Madrid



## ABSTRACT

**Title:** Technology, geography, and institutions: revisiting evidence for economic development and inequality in European Union

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2. *Desigualdad y pobreza de los territorios*

**Abstract:** *(minimum 300 words)*

The interplay between technology, geography and institutions has been proved to affect not only the ongoing process of globalization, but also past events of profound economic change (Sachs, 2020), and these factors have been alleged to impact on economic development. This fact may be particularly crucial at the regional level, especially for the case of Europe, where several institutional efforts have been taken to reduce disparities between European countries. However, we still find salient and pronounced differences between core and periphery regions between and within



European Union Member States. These differences have been widely studied and explained by factors related to geography, recognizing the importance of accessibility, factor endowments, and being closer to the economic core to explain the growth and economic development of the regions (e.g., Krugman, 1991; Fujita et al., 1999). Digital technologies, which can be applied to low-productivity sectors by small and medium enterprises, and improvements in social inclusion for European citizens are among the drivers that can reduce territorial inequalities (European Commission, 2018, 2020). Finally, it has also been recognized that there exist sharp differences in the quality of government at the regional level (Charron et al., 2014), and that government quality play is an important role in regional prospects (Ketterer and Rodríguez-Pose, 2018).

Despite identifying these determinants, the dynamics of regional inequalities in the European Union tend to persist over time. The most recent report on the effect of national policies and cohesion in the European Union has found between and within-country inequalities that persist in the European Union and different drivers to reduce these inequalities (European Commission, 2017). The traditional and dominant strategies to address territorial inequalities have considered physical and human capital, together with technology, but this has not been successful in reducing territorial inequalities (Rodríguez-Pose, 2020). The simultaneous consideration of technology, institutions, and geography at the subnational level can shed light on how to understand regional development dynamics. In parallel, inequality is particularly relevant, as it may constitute a threat to political stability and social cohesion at the regional level (Iammarino et al., 2019). Concerning previous studies, we acknowledge that the impact of technology (Martínez and Rodríguez, 2009), and geography and institutions (Ketterer and Rodríguez-Pose, 2018, Rodríguez-Pose and Ketterer, 2020) has been studied separately and restricting to economic growth. The literature on regional inequalities in the European Union usually neglects the impact of information and communication technologies (Perugini and Martino, 2008; Royuela et al., 2019), even though the impact of ICT on inequality has been recognized to depend on the type of ICT and the measure of inequality at country level (Richmond and Triplett, 2018). This statement is even more important for subnational level, given the pronounced differences between developed and lagging regions (McCann and Ortega-Argilés, 2015). These findings suggest that evidence is far from conclusive and demand to consider them to shed light on the dynamics of regional development.



This study follows a holistic approach integrating previous studies by assuming that technology, institutions, and geography affect regional economic development and regional inequalities. We use panel data econometric techniques to analyze the determinants of economic growth and study which determinants of regional economic prosperity are also related to the risk of poverty or social exclusion, which constitutes a relevant measure of inequality.

Using a sample of 273 European regions during the period 2006–2018, we find that both the diffusion and quality of information and communication technologies, the quality of institutions, and the geography foster economic development and decrease the risk of social exclusion. Our results reinforce the importance of place-based policies to reduce the rising inequality in peripheral regions since their lower endowments of information and communication technologies, institutional quality, and accessibility affect aggregate performance and may be considered among the sources of the higher level of inequality and social exclusion.

**Keywords:** Regional development, regional inequality, information technology, institutional quality, European Union

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