

The geographic visualization of financial inclusion and exclusion in Mexican municipalities¹

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Abstract

In this paper we present a gridded population cartogram illustrating a recently constructed financial inclusion index for Mexico 2020 (Dircio-Palacios-Macedo et al., 2023). Its importance relies in that it allows us to identify the municipalities with different levels of financial inclusion in a geographical disaggregated manner, which can be used for the ultimate goal of relevant policy analysis.

Financial inclusion (FI) has been widely recognized as essential to promote growth and development of countries and regions in the world, and to reduce inequality between regions (Allen, Demirgüç-Kunt, Klapper and Martínez Peria, 2016; Beck, Demirgüç-Kunt and Levine, 2007; Demirgüç-Kunt, Klapper and Singer, 2017; Levine, 2005). Therefore, any efforts to measure it adequately, and to identify geographically different degrees of inclusion are especially important. In addition, it has been recognized that FI is a multidimensional phenomenon, comprising different variables of access, usage and quality. This means that for an individual to be financially included it should have nearby access to infrastructure and should also dispose of an adequate range of financial services. Proximity of financial services has been considered also crucial, especially for retail banking services, which are the ones usually considered as FI indicators (Brevoort and Wolken, 2009)². For these reasons, a multivariate indicator of FI is very important. The issue of proximity also reflects how important the issue is in geography and regional science (see, for instance, Hegerty, 2020; Joassart-Marcelli and Stephens, 2009; Bernad et al., 2008).

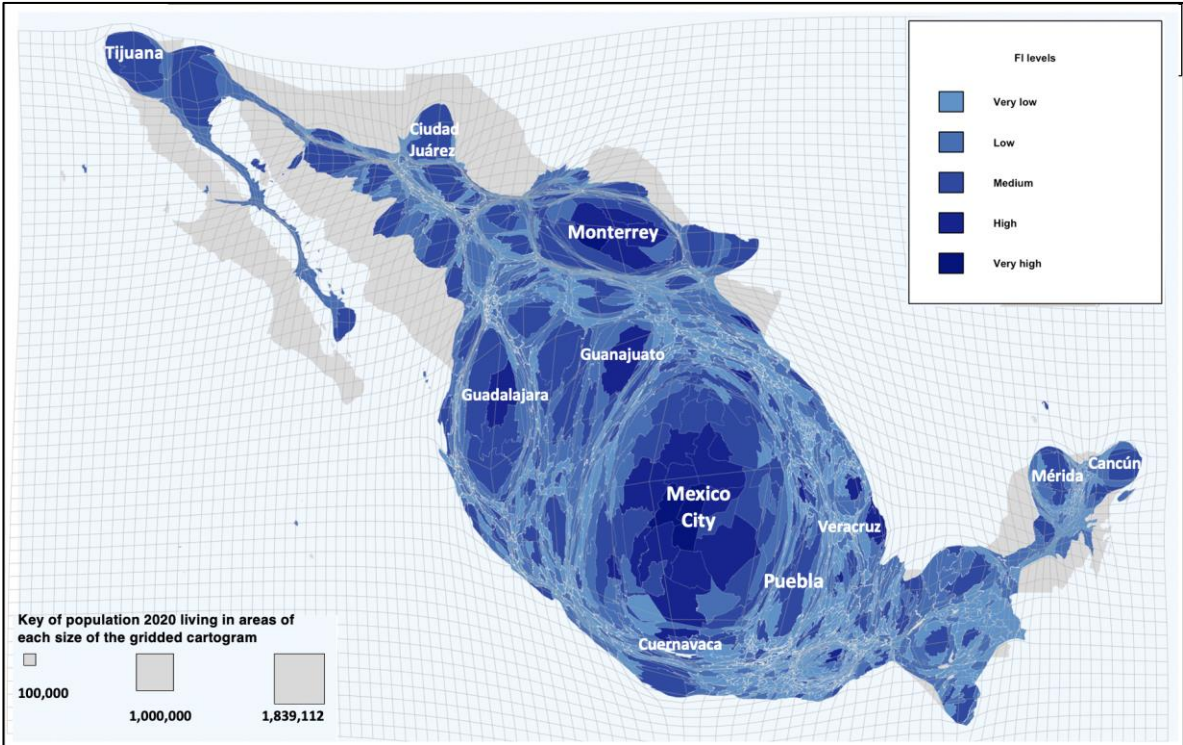
The choice of Mexico for the geographic study is of major interest, as the country is very heterogeneous in terms of its geographic FI. In this context, we present a gridded population

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² Proximity and availability of financial infrastructure is a necessary condition but a sufficient one (see Hernández-Trillo and Martínez-Gutiérrez, 2022).

cartogram that illustrates the FI of Mexican municipalities for the year 2020, using a previously constructed multivariate index (Dircio-Palacios-Macedo et al., 2023)³. The gridded population cartogram is constructed using a method developed by Hennig (2012), building on Gastner/Newman’s density-equalizing cartogram algorithm; and is colored by gradients showing the different FI levels of the municipalities, stratified using Jenks natural breaks. This is presented as Map 1, which allows us to appreciate at first glance some areas and municipalities in Mexico that have very high levels of FI, along with numerous municipalities with very low levels. Population and population density have been demonstrated to be important variables explaining FI (Cruz-García et al., 2021). This is illustrated by the Map 1, in which municipalities of very high FI are mainly those highly populated municipalities, enlarged by the Gastner/Newman’s algorithm, that also generally have high economic or touristic importance. In order to improve the FI, the policy lesson is that digital banking services needs to be promoted in those low populated areas where economic activity is shallow and hence physical infrastructure is weak.

Map 1. Gridded population cartogram with financial inclusion levels of Mexico 2020.



Source: Own elaboration, Index calculated by Dircio-Palacios-Macedo et. al. (2023).

³ This is an index that comprises 26 variables of financial inclusion, grouped in subdimensions.

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