

## Identifying left-behind places through MCDA methods: a municipal approach

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### ABSTRACT

Voices from postindustrial, peripheral cities, and rural environments, alongside regional political movements across Europe, have emerged in recent years, drawing attention to the so-called “left behind places”. Even though this term has not been clearly defined, it has nonetheless become a prominent topic of discussion in the regional science literature. Researchers have studied both the causes and consequences of such a phenomenon, highlighting the need for strategic public policies that foster integration of these places with their surroundings, mitigating the adverse effects on the local population. This article proposes a multi-criteria decision analysis (MCDA) methodology, using the Technique for Order of Preference by Similarity to Ideal Solution, TOPSIS, method and its unweighted variant, for systematically identifying and studying these places. This MCDA allows us to create a ranking of municipalities based on a set of variables such as economic activity, employment, educational attainment, among others, thereby identifying those left behind. To achieve this, data from the last two censuses across 17 European countries have been collected at the municipal (LAU 2) level. This approach not only enriches the existing literature by presenting a specific identification tool but also establishes groundwork to inform and guide regional policy in these areas. Additionally, the presented method offers an innovative framework for future research in other regional contexts, opening new avenues to understand and tackle regional development inequalities.

**Key words: Local data, left-behind, regional inequalities, MCDA.**

### RESUMEN

Ha surgido, en los últimos años, un extenso campo de investigación en la literatura centrado en la definición e identificación de “lugares que se quedan atrás”. La ciencia regional ha analizado las causas y consecuencias de tal fenómeno, destacando la importancia de formular políticas públicas que promuevan la convergencia de estos lugares con el resto de su entorno y que mitiguen, a su vez, los efectos adversos en la población local. Este artículo introduce, por primera vez, la metodología de análisis de decisión multicriterio, basada en el método TOPSIS y su variante sin pesos, en la identificación y estudio de estos lugares,. Valiéndonos de una serie de indicadores económicos y sociodemográficos, la metodología propuesta permite identificar de manera más precisa y sistemática los municipios rezagados. Para ello, se han recopilado datos de los dos últimos censos a nivel municipal para 17 países europeos. Este enfoque enriquece la literatura existente presentando una herramienta específica de identificación y estableciendo bases sólidas para informar y guiar las estrategias de política regional en estos lugares. Asimismo, el método presentado ofrece un marco adaptable para futuras investigaciones en otros contextos regionales, abriendo nuevas vías para comprender y abordar las dinámicas de desarrollo regionales.

What is a left-behind place? Voices from postindustrial, peripheral cities, and rural environments, alongside regional political movements across Europe, have emerged in recent years, drawing attention to this concept. Populist political groups from each side of the spectrum have tried to incorporate it in their agenda, seeing them as an Overton window. This happens even though there is no formal and widely accepted definition of what a left-behind place is. In the first part of the article, therefore, a review of the literature and the state of the art regarding this concept is carried out. We show how this political movements have seen a rise in Europe in general and in Spain in particular, in the form of new regional political movements (“Teruel exists”, “Soria now!”) and concepts (“Emptied Spain”).

The second part presents a systematic tool for identifying left-behind places. For doing so, we used a Multi-Criteria Decision Analysis method, in particular a modified version of the Technique for Order of Preference by Similarity to Ideal Solution, TOPSIS, in its unweighted variance, UW-TOPSIS. This methodology, first developed by Liern & Perez-Gladish (2022), allow us to use TOPSIS as a function, this is, the weights are not determined *a priori* but as a result of an optimization problem, in which the weights are the decision variables. By proceeding this way, we aim for maximize the relative proximity to the ideal solution. The main idea behind the use of this MCDA is to avoid falling into the potential problem of subjectively determining *a priori* weights for each of the variables that will be introduced in the analysis, since determining those wights in an exogenous way is both problematic and complex for this case.

For the analysis, we use a range of variables and rates from different topics, i.e. elderly rate, higher education rate and foreigner rate, among others, varying from housing to economic ones. The units of analysis are the 8131 Spanish municipalities. The data comes from the last two censuses, 2011 and 2021.

Using our wide data base and the methodology proposed by Liern & Perez-Gladish (2022, 2023), we first build a series of rankings with all the municipalities of the country, based on every weight possible that each criterion can take, this allows us, on a second instance to identify those municipalities who consistently are in the last positions, this is, the ones who are left-behind.

Based on the results obtained by the proposed method, we draw conclusions that contribute to the existing literature and establish a scientific method to identify this type of places, also contributing to new lines of research such as. Given that each place is unique, the correct identification of those places that are left behind will help design tailored territorial policies that allow creating roadmaps to overcome these situations.