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# New methods to define and measure rurality in Latin America and their impact on public policies: the cases of Mexico and Panama

by  
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## Abstract

The official definition for determining which areas are urban and which are rural in the countries of Latin America and the Caribbean continues to be characterized by dichotomous criteria based mainly on the number of inhabitants. This fails to consider either the changing and highly diverse context of rural areas or their increasing productive diversification and interaction with urban and intermediate areas. A fresh measure of what constitutes rurality will sharpen understanding of territories and strengthen public policies directed toward these areas, where the most pronounced disadvantages for meeting the 2030 Agenda Sustainable Development Goals are encountered. This article summarizes the main findings of a joint technical project between the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) and International Fund for Agricultural Development (IFAD) in Mexico and Panama, which aimed to generate new methods for defining and measuring rurality. Two index proposals are presented for the two studied countries: the relative rurality index and the contiguity of areas of similar densities. This research provides: (i) a methodological approach for the construction of alternative rurality scenarios; (ii) cartographic and statistical information for the socio-economic characterization and analysis of territories; and (iii) applied analysis for strengthening development policies for rural areas in Mexico and Panama within the framework of the United Nations 2030 Agenda for Sustainable Development.

# 1. Introduction

In recent decades, rural areas have been transformed in economic, social and cultural terms, a process that has led to talk of a “new rurality” approach that defines the conceptual elements needed for a new understanding of such areas (ECLAC, 2011; Grajales Ventura and Concheiro Bórquez, 2009). Conventional instruments for the characterization and measurement of rurality have displayed limitations on integrating the flows and interactions that define rural areas. Patterns of production, consumption and both social and labour mobility have changed profoundly, revealing the need to reposition rural areas at the centre of public policy agendas for growth and development (Gaudin and Padilla Pérez, 2023; Rodríguez and Saborío, 2008; Ávila Sánchez, 2005).

At present, the prevailing approaches to measuring rurality in Latin America and the Caribbean tend to be dichotomous, defining the characteristics of rurality through a process of elimination in relation to an urban-centric conception. Rurality tends to be understood through a set of normative prejudices, exclusively associating rural areas with agriculture, socio-economic gaps and the scant opportunities that these areas provide for growth and development. Measuring rural areas and their interactions with other areas makes it possible to adopt an alternative methodology to characterize territories and show what has been made invisible by the conventional and dichotomous approach to addressing the question of rurality (Dirven and Candia, 2020; Fernández et al., 2019; Dirven et al., 2011).

This paper aims to provide a critical analysis of the scope and limitations of prevailing methods for measuring rural areas in two Latin American countries: Mexico and Panama. Based on that analysis, alternative methods are proposed for redefining rural areas in such countries. This paper also aims to examine the implications of the new definitions in terms of both socio-economic analysis and public policies oriented to promote rural and territorial development.

These countries were selected as case studies because of the availability of statistical information needed for the analysis, and because they represent two different examples for applying the new methods. Mexico is a large country with significant regional differences and large distances, while Panama is a small country with most of its population concentrated around the Panama Canal.

Previous studies have designed and proposed new methods for defining rurality in Latin American countries, for instance Dirven et al. (2011) and Rodríguez and Saborío (2008). This paper moves a step forward and examines the implications of the new definitions for both socio-economic analysis and public policy design and monitoring. The evidence presented results from collaboration with public organizations in the two studied countries and incorporates their visions and country-related characteristics.

This type of analysis opens an expansive spectrum of opportunities for the design and implementation of public policies for rural development and for closing structural gaps between areas and territories. A more precise knowledge of the socio-economic characteristics of geographic spaces<sup>1</sup> opens possibilities regarding the allocation of public and private funds for development, the strategy for fostering coverage of public goods and services and, more generally, a reduction in inequality in growth and development towards achievement of the 2030 Agenda Sustainable Development Goals (SDGs).

The main contributions of this research are: (i) a methodological approach for the construction of alternative rurality scenarios; (ii) cartographic and statistical information for the socio-economic characterization and analysis of territories; and (iii) applied analysis for strengthening development policies for rural areas in Mexico and Panama within the framework of the United Nations 2030 Agenda for Sustainable Development. This paper summarizes some of the main findings of the project “New Narratives for Rural Transformation in Latin America and the

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<sup>1</sup> In the context of this paper, the term “space” is used to designate an extension of land in its exclusively geographical dimension while the term “area” will be favoured to designate the socio-economic phenomena that participate in defining it (rural areas, lagging areas, etc.).

Caribbean”, implemented by the subregional headquarters in Mexico of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), with financial support provided by the International Fund for Agricultural Development (IFAD).<sup>2</sup>

This paper is divided into six sections, including the introduction. Section 2 provides a historical retrospective on the concept of rurality and its different comprehension and measurement schemes. Section 3 examines the contributions of the new rurality approach for the purpose of advancing toward alternative measurement methods. The fourth section presents alternative methods for measuring rurality applied to the cases of Mexico and Panama that consider the socio-economic analyses derived from these new ways of mapping rurality. Section 5 presents public policy implications that could derive from these exercises and, lastly, the conclusions are presented in section 6.

## 2. Historical perspective of rurality in Latin America

In recent decades, rural areas in Latin America and the Caribbean have experienced profound changes manifest in demographic, economic and environmental spheres as well as in social and cultural ones. However, these transformations have not been accompanied by an evolution of the ways in which public authorities charged with promoting rural development understand, measure and characterize such areas (Gaudin and Padilla Pérez, 2023; ECLAC, 2018; Dirven et al., 2011). The ways in which rurality is measured and defined is not neutral in public policy terms; it largely impacts decisions over which geographical spaces should benefit in the territorial distribution of the public budget and the characteristics of the intervention instruments, among many other factors. For that reason, it is necessary to question the conventional patterns of understanding of rural areas in Latin America and the Caribbean.

### 2.1. Conventional definitions of rurality in Latin America

The conventional approach to define rurality has been based on four main ideas: (i) low population density; (ii) the agricultural sector's importance; (iii) the relationship between the rural population and the natural environment; and (iv) the strong social relationships established among its inhabitants, marked by belonging to a small and relatively stable community (Dirven and Candia, 2020; Araujo, 2018; Romero, 2012; Sancho Comíns and Reinoso, 2012).

These considerations are the result of anthropo-historical processes. In the history of humanity, the major civilizations expanded through the rise of cities, a process encouraged by the generation of agricultural surpluses. Rural areas were conventionally set aside to provide raw materials for the cities' development in which a sectoral pattern of understanding rurality was privileged (Fernández et al., 2019; Gaudin, 2019; Rodríguez and Saborío, 2008; Ávila Sánchez, 2005; Baldwin et al., 2003; Glaeser, 2003; Spielvogel, 2003; Fujita and Thisse, 2002).

There is also a prevalence of views that regard rural areas as backward and archaic spaces, owing to a lower endowment of productive capital.<sup>3</sup> These approaches conceive rural areas and their inhabitants as a residual segment of globalized economies geared toward competitiveness and urban technological innovation. Historically, these considerations were forged in large urban centres, and reflect a certain lack of understanding of rural areas on the part of urban elites and policymakers (Gaudin, 2019; Araujo, 2018; Picciani, 2016; Romero, 2012; Dirven et al., 2011; Echeverri, 2011; Rodríguez, 2011; Urcola, 2011; Ávila Sánchez, 2005; Entrena Durán, 2004; 1998; Lipton, 1977).

Additionally, and paradoxically, rurality tends to be perceived as a preserved and immaculate area in which a lifestyle prevails that is both healthy and rooted in nature. This results from a vision that contrasts with the saturated and polluted character of major cities, in which individualism

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<sup>2</sup> See <https://www.cepal.org/es/proyectos/fida-nuevas-narrativas> for further information on and results of the project.

<sup>3</sup> Abstracting from environmental capital, which is assuming greater importance considering climate and environmental transformations.



predominates and the pace of life is far removed from the basic needs of populations. The perception of rural areas as natural and preserved tends to be more acute as the consequences of human activity on the climate and environment become increasingly evident, especially in urban areas (pollution, heatwaves and water scarcity, among other phenomena) (Gaudin, 2019; Fierros Hernández, 2014; Vigarello, 1985).

Rural measurement methods largely arise out of collective perceptions and beliefs that cannot always be supported from a conceptual or empirical perspective. Although shared sentiments of belonging to areas exist, populations do not always share the identity that a given method assigns to them. In the continuum from densely populated and well connected to sparsely populated and remote, perhaps only its extremes can be considered within the dichotomic characterization of “urban” versus “rural”. The problem arises when these two categories are assigned to existing areas in an arbitrary way (e.g. using a population threshold). There are no exclusive identities but rather shared ones; areas and their inhabitants are neither exclusively urban nor rural. Instead, they tend to share characteristics due to multiple interactions, thereby evidencing the obsolete character of dichotomous, sectoral and static approaches to understanding rurality (Gaudin, 2019; Berdegué and Fernández, 2014; Sabalain, 2011; Méndez Sastoque, 2005).

The dichotomous form of measuring rurality predominates in Latin America and the Caribbean. It is defined by employing residually based criteria once urban areas are defined. Moreover, it leaves no conceptual and methodological spaces in which to consider the diversity of what constitutes rural and urban in the form of so-called intermediate areas. The concept of the “diffuse city”<sup>4</sup> arises out of an interpretive complication of areas and translates as a complex and dynamic reality composed of diffuse areas. This concept opens the possibility of overcoming the dichotomous approach to understanding rural and urban areas (Delgado, 2008; Arias, 2005; Cruz Rodríguez, 2005).<sup>5</sup>

There is extensive literature on the concept of intermediate areas that testifies to the diffuse character of the city. Some of the most prominent concepts are those of peri-urban, suburban and rural-urban areas. Many authors have developed their own nomenclature for areas and have their own definitions for characterizing such intermediate areas (OECD, 2015; Ávila Sánchez, 2011; Entrena Durán, 2004).

An understanding of the heterogeneity of the territories resulting from the intensification of interactions between them opens opportunities for the design of public policies for territorial development and for closing structural<sup>6</sup> gaps (Bebbington et al., 2016; Ávila Sánchez, 2015; 2005; Modrego and Cazzuffi, 2015; Sabalain, 2011).

The static approach to measuring rural areas consists of analysing a given area through indicators that show its characteristics in isolation and at a specific point in time; for example, a municipality’s population or the proportion of a locality’s land devoted to agriculture (sectoral focus). In contrast, the dynamic or systemic approach consists of analysing the area characteristics through the interactions with other localities and how they evolve over time; for instance, the intensity of labour, commercial or cultural interactions with other localities, or the evolution of the production structure (Fernández et al., 2019; Gaudin, 2019; ECLAC, 2012; Dirven et al., 2011; Rodríguez and Meneses, 2011; Chomitz et al., 2005).

The conventional way to measure rurality is largely the result of the theoretical markers of rural development policies in the region that throughout the 20<sup>th</sup> century consisted of regarding the rural sphere as essentially agricultural and backward, and held that development opportunities lay in

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<sup>4</sup> The diffuse city concept refers to urban sprawl engulfing rural areas, which creates urban areas constructed with characteristics of both types of areas because of urban sprawl (Gómez Mata and Rosas Chavarría, 2018; Indovina, 2009).

<sup>5</sup> Although this paper presents official statistical information on areas in Latin America and the Caribbean using the dichotomous approach, it proposes alternative scenarios that characterize the territories of Mexico and Panama, going beyond this conventional approach.

<sup>6</sup> “A gap is understood as a bottleneck that impedes sustainable and inclusive development in terms of social and economic equality.” (Gaudin and Pareyón Noguez, 2020 p. 23).

industrialization and urbanization. This pattern fails to consider the transformations that Latin American and Caribbean countries have experienced recently (Appendini and Torres-Mazuera, 2008; Rodríguez and Saborío, 2008; Trpin, 2005; Echeverri and Ribero, 2002; Gómez, 2002; Pérez, 2001). The new rurality approach offers a new look at contemporary rural reality, opening methodological spaces for its measurement.

## 2.2. Current measurement of rurality in Latin America

A wide variety of methods exists for measuring rurality in Latin America and the Caribbean. The United Nations considers that, owing to international differences in the characteristics that distinguish urban areas, there is no single definition that can be applied to all the countries of the world or even to the countries within a single region. It is up to each country to establish its own definition in accordance with its needs and its own political and geographic characteristics (Dirven and Candia, 2020).

Between the second half of the 20<sup>th</sup> century and the beginning of the 21<sup>st</sup> century, four criteria for measuring rurality have been favoured in Latin America and the Caribbean: (i) demographic criteria based on population size or density; (ii) access to infrastructure for the provision of public services; (iii) economic criteria related to the productive activity of the economically active population; and (iv) political-administrative hierarchy (Padilla Pérez, 2017; ECLAC, 2012; Rodríguez and Meneses, 2011; Faiguenbaum and Namdar-Irani, 2005). These criteria result from the conventional framework of rural understanding described in the previous section. Table 1 lists the different classifications and the census definitions of urban and rural in Latin America and the Caribbean during the second half of the 20<sup>th</sup> century.

**Table 1.** Latin America: classification of urban and rural census definitions, 1950-2000

Criteria	Population size	Infrastructure and basic public services	Productive activity	Political-administrative hierarchy
Population size	Argentina Bolivia (Plur. State of) Mexico Puerto Rico Venezuela (Bol. Rep. of)	Chile (1970) Cuba (1970, 1981, 2002) Guatemala (1950) Honduras (1961, 1974, 1988, 2001) Nicaragua (1963, 1971, 1995, 2005) Panama	Chile (1992, 2002) Nicaragua (1963, 1971)	Colombia (1964, 1973) Nicaragua (1995 and 2005) Peru (1972, 1981, 1993, 2007) Guatemala (2002)
Infrastructure and services	Cuba (1953)			El Salvador (2007)
Landscape	Chile (1982)	Chile (1960)		
Political-administrative hierarchy	Peru (1940)	Costa Rica Paraguay (1962) Peru (1961)	Chile (1952)	Brazil Colombia (1951, 1985, 1993) Dominican Republic Ecuador El Salvador (1950, 1961, 1971, 1992) Guatemala (1964, 1973, 1981, 1994) Haiti Honduras (1950) Jamaica Nicaragua (1950) Paraguay (1950, 1972, 1982, 1992, 2002) Uruguay

**Source:** Own elaboration based on information from Latin America and Caribbean Demographic Centre (CELADE) and Rodríguez (2002).

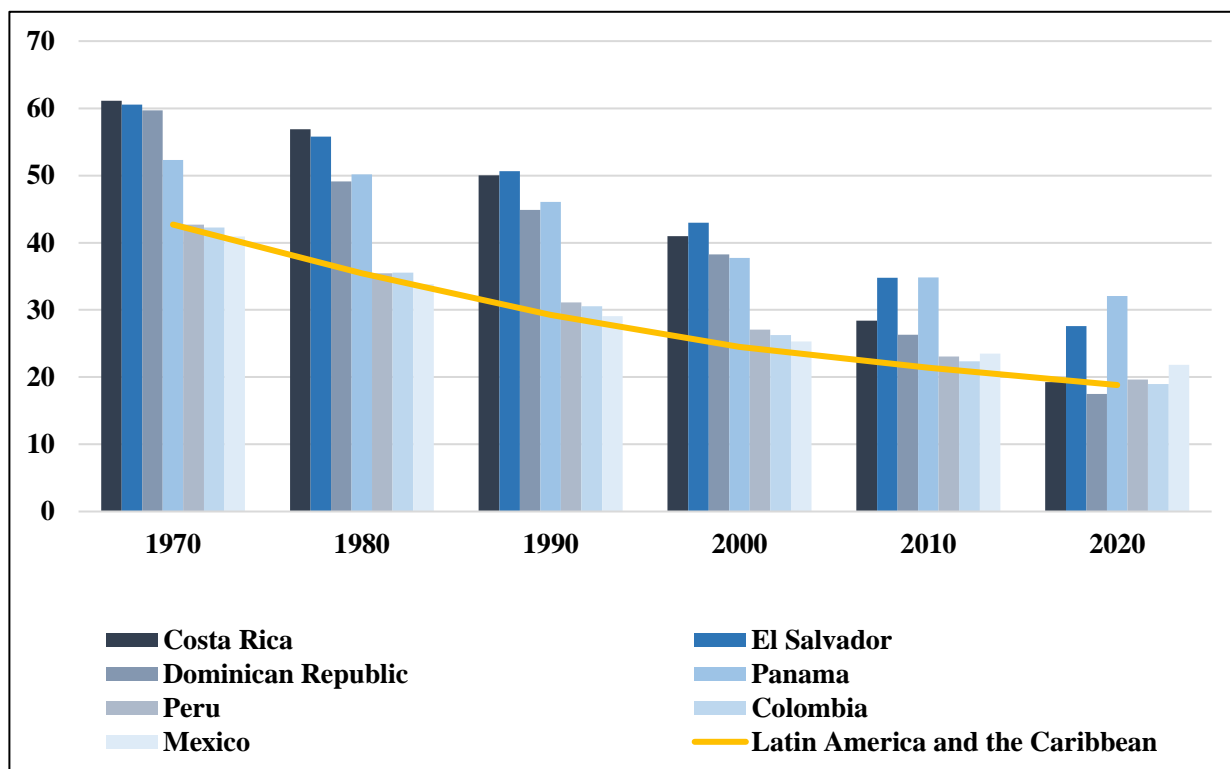
Many of the main sources used for measuring what is rural are found in population censuses, in which rural is defined by demographic and populational characteristics, such as the number of inhabitants per locality and population density. Regarding the number of inhabitants, depending on national criteria, urban areas can be municipalities, localities, boroughs, administrative regions known as communes or parishes with a minimum of 1,000, 1,500, 2,000 or 2,500 inhabitants, or areas in which adjoining houses are observed. The population density criterion tends to be employed in the study of urban clustering with whatever is left over with a dispersed population density regarded as rural (ECLAC, 2012; Dirven et al., 2011; Rodríguez and Meneses, 2011).

According to the infrastructure criterion for the provision of basic public services, areas in which inhabitants have access to a school, dispensary or post office, or where dwellings are connected to a sewerage system are regarded as urban. Some countries regard people that live within 5 km of one of these public services to be urban.

A municipality can also be considered urban or rural based on its productive activities and the proportion of its economically active population working in the agricultural sector. Certain countries use the political-administrative criterion, regarding the municipal capitals as the only ones classified as urban by essence, while the other localities are defined as rural through a process of elimination. Some countries use composite indicators to measure rural areas more precisely, so they can associate different kinds of indicators (Dirven and Candia, 2020; ECLAC, 2012; Dirven et al., 2011; Rodríguez and Meneses, 2011).

Even within the great diversity of methods of measuring what is rural, a generalized trend can be observed toward an increase in the proportion of the population living in urban areas (see Figure 1). More than 40 per cent of the population of Latin America and the Caribbean was considered rural in 1970, a figure that declined to less than 20 per cent by 2020 amid significant differences between countries. Although each country uses different methodologies to measure rurality, a general trend can be observed towards a decrease in the rural population when measured using a dichotomous approach.

**Figure 1.** Latin America and the Caribbean (selected countries): rural population as a percentage of total population, 1970-2020

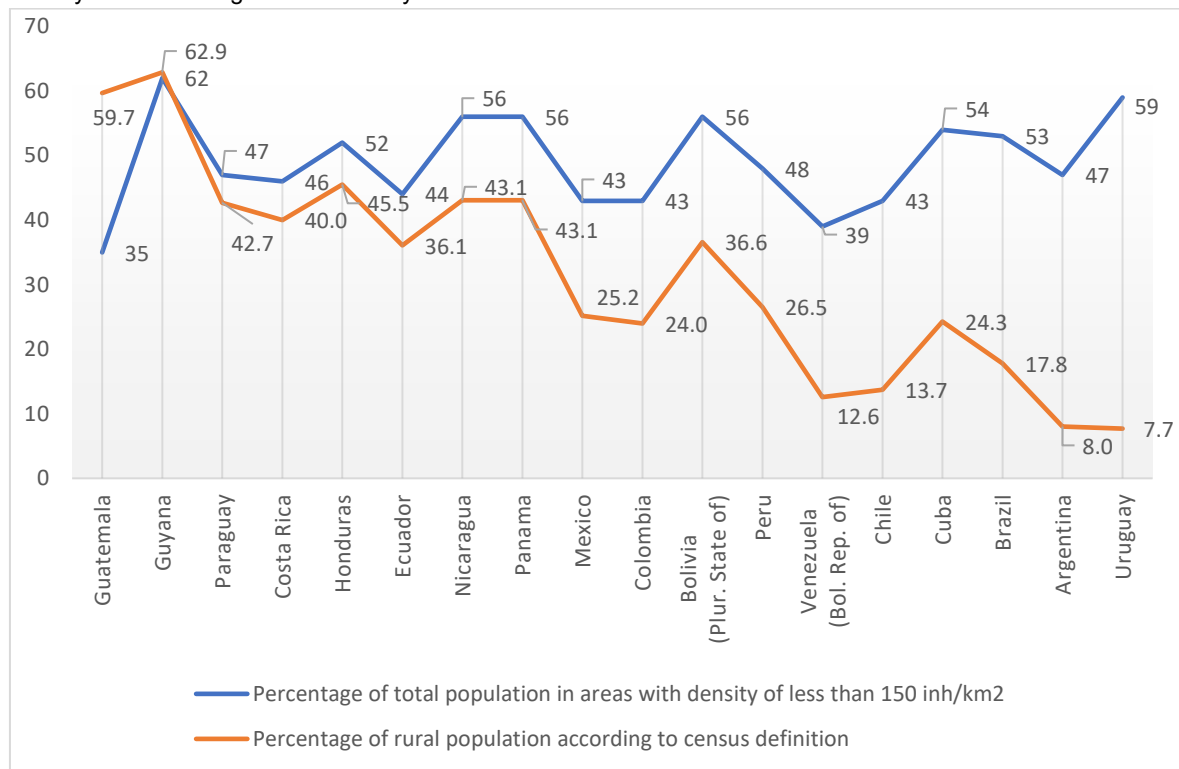


**Source:** Own elaboration based on ECLAC database.

**Note:** Information on Latin America and the Caribbean represents a simple average calculated using information from 18 countries.

Figure 2 shows how the proportion of the rural population can vary depending on the chosen measurement methodology. Current methods in Latin American and Caribbean countries tend to underestimate the proportion of the rural population compared to the methodology used by the Organisation for Economic Co-operation and Development (OECD), which regards any locality with a population density of less than 150 inhabitants per square km as rural (OECD, 2011).<sup>7</sup> The orange line shows the percentage of the rural population according to the different country census definition, while the blue line shows the percentage based on the OECD methodology. The difference is more than 50 percentage points in the case of Uruguay.

**Figure 2.** Latin America and the Caribbean (18 countries): percentage of rural population by population density and according to each country's census definition in 2002



**Source:** Dirven and Candia (2020) based on Chomitz, Buys and Thomas (2005).

The conventional and current forms of understanding and measuring rurality allow for a reduced understanding of contemporary rural reality and limit the capacities of decision-makers in the design of public development strategies. The approach of the new rurality, which is shown below, lays the conceptual foundations for new methodologies to aid understanding, measurement and characterization of rural areas, highlighting their great diversity (Pittí, Gaudin and Hess, 2021; Sánchez et al., 2021; Soloaga et al., 2020; Dirven and Candia, 2020; Fernandez et al., 2019; Matijasevic Arcila and Ruiz Silva, 2013; Sabalain, 2011; Dirven et al., 2011; Rodríguez, 2011).

### 3. The new rurality in Latin America

Starting in the second half of the 20th century, rural areas have undergone profound demographic, social, economic and cultural transformations. These transformations are characterized by increasing rural-urban interaction, greater economic integration of rural areas and profound cultural changes, among other phenomena (Grajales Ventura and Concheiro Bórquez, 2009; Echeverri and Ribero, 2002; Gómez, 2002). New considerations of rurality arose out of these transformations, which led to talk of a conceptual and analytical paradigm called “new rurality” that

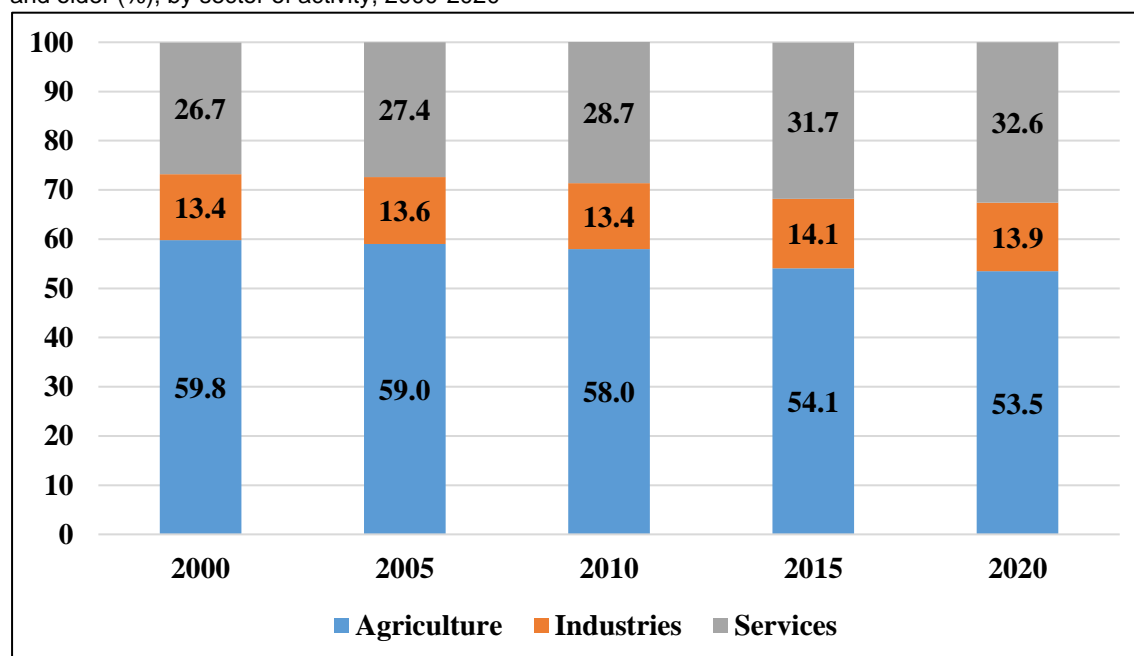
<sup>7</sup> OECD considers three types of areas: predominantly urban, intermediate and predominantly rural. This graph does not argue in favour of adopting the methodology proposed by OECD but aims to show that the method used to measure rurality can highlight very different realities.

stresses the need to rethink rural measurement patterns. The new rurality approach is the conceptual basis for new methods to measure and characterize rurality.

### 3.1. Conceptual contributions

The new rurality approach consists of a set of concepts about rurality derived from the recent transformations these areas have experienced. The first observation arises out of the growing multifunctionality of rural areas in which rural is becoming less and less synonymous with agriculture. The development of infrastructure and communication technologies has allowed for a reduction in the relative isolation of rural areas in which interactions with urban areas have become more accentuated, which has resulted in productive diversification and greater rural integration into national and international value chains (Appendini and Torres-Mazuera, 2008; Dirven et al., 2011, Teubal, 2001). Figure 3 depicts the continuous character of this trend in Latin America and the Caribbean. In 2000, 59.8 per cent of the rural employed population (defined according to official criteria) was engaged in agricultural activities, a figure that had fallen to 53.5 per cent in 2020.

**Figure 3.** Latin America and the Caribbean (18 countries): employed rural population aged 15 years and older (%), by sector of activity, 2000-2020



**Source:** Own elaboration based on ECLAC database.

**Note:** Simple average of values of 18 Latin America and Caribbean countries.

According to the World Bank, agricultural value added declined from 9.8 per cent of global gross domestic product (GDP) in 1970 to 4.4 per cent in 2020. Latin America and the Caribbean<sup>8</sup> followed a similar trend with agricultural value-added declining from 12.0 per cent of regional GDP in 1970 to 6.5 per cent in 2020. In 2020, this value was well below the regional average in some countries of the region, such as Panama (2.8%), Mexico (3.8%), Chile (4.1%) and Costa Rica (4.4%).

This productive and employment shift is one of the recent transformations observed in rural areas. Table 2 summarizes the principal transformations rural areas have experienced and that underpin the conceptual framework of the new rurality.

<sup>8</sup> The Latin American and Caribbean average includes 42 countries. Weighted average or World Bank-calculated approximations in case of missing data. For more details, see: <https://datahelpdesk.worldbank.org/knowledgebase/articles/198549-what-methods-are-used-to-calculate-aggregates-for>.

**Table2.** Recent changes in the rural paradigm

Sectoral
Reduced share of employment and agricultural value added in rural economic activity
Greater interdependence between agriculture and other sectors
Increasing importance of learning and innovation processes
Greater complexity of agri-food systems
Greater productive linkages and upscaling possibilities
Widening of the gap separating highly productive sectors from disadvantaged ones in rural areas
Demographic
Population reduction in rural zones
Changes arising out of population displacement within rural zones
Feminization and aging of rural population
Shorter travel times to urban centres
Territorial
Changes in perception of rural
Increasing valorization of local resources
Changes in productive structure that imply a reorganization of areas
New actors and forms of coordination
Increasing interaction with urban areas

**Source:** Own elaboration based on Fernández et al. (2020); Dirven and Candia (2020); Gaudin (2019); Padilla Pérez (2017); OECD (2006).

In one of its most recent and comprehensive documents on the progress and challenges of socio-economic development in Latin America and the Caribbean (2018), *The Inefficiency of Inequality*, the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) emphasizes that the new rurality constitutes a new paradigm for understanding rurality. It also describes a conceptual framework for global and systemic analysis in which rurality ceases to be an isolated component concentrated in the agricultural sector and is studied as a complex set of norms and interactions that closely link rurality with society. The main empirical elements that give rise to the new rurality approach are presented below (Gaudin, 2019; Grajales Ventura and Concheiro Bórquez, 2009; Appendini and Torres-Mazuera, 2008; Rojas López, 2008; Trpin, 2005; MAPA, 2004; Echeverri and Ribero, 2002; Gómez, 2002; Pérez, 2001):

- Functional, sectoral and productive diversification of the countryside along with a reduction in the relative weight of primary value added.
- Connections and interactions between rural and urban areas due to increased mobility of people, goods and information.
- Renewed attraction to the rural area for residence, recreation, tourism, entrepreneurship and investment.
- Changes and relative standardization of lifestyles, habits and social customs.
- Valorization of natural resources and care for the environment.
- Decentralization of public decision-making with greater powers given to local bodies and increased involvement of new actors.

The new rurality approach highlights the rural sphere as an area of new opportunities. Fernandez et al. (2019) emphasize rural demographic dynamics in Latin America and the Caribbean and the importance of the ecosystem services that rural areas can provide at a time of profound and growing climatic and environmental transformation. New rurality lays the conceptual foundations for a new understanding of rurality and allow the development of innovative methodological tools for its measurement and characterization freed from normative biases.

### 3.2. Methodological approaches: how to measure rurality?

The dynamic approach to understanding rural areas opens the possibility of analysing the so-called "rural-urban continuum" and the different interactions between areas that comprise a complex area (see Table 3).

**Table 3.** Static and dynamic criteria for measuring rurality and constructing rural-urban continuum gradients

Static criteria	Dynamic criteria
Population density by area	Daily or weekly labour commutes
Presence of public services	Tourism, commercial flows
Importance of agricultural activity	Origin of an area's new inhabitants

**Source:** Gaudin (2019).

Different analytical approaches have arisen from the conceptual rethinking afforded by the concept of new rurality, although none of them can be considered as a complete methodology for measuring and characterizing rurality.

#### Population and demographic approach

This focus consists of measuring and characterizing rural areas based on their demographic characteristics. This can be calculated as the amount of population per locality or population density per geographic unit. It can also be assessed by measuring the levels of population concentration or dispersion in each geographic unit using an index such as the Herfindahl-Hirschman index.<sup>9</sup> The demographic approach is used widely as statistical information is readily accessible and allows for international comparisons. However, it presents conceptual restrictions linked to the limits of the area of study, and the population threshold or density that subjectively distinguishes rural areas from urban areas (Dirven and Candia, 2020; Goerlich et al., 2016; Gallego, 2005).

#### The functional approach

This characterizes the rural through its operational, normative role, and its economic, social and cultural functions. While it regards agricultural production as not being an exclusive function of rurality, it recognizes that agriculture has forged a collective rural identity marked by a peculiar relationship with the environment (Gómez Oliver and Tacuba Santos, 2017; Padilla Pérez, 2017; Dirven et al., 2011; Echeverri, 2011; Rodríguez, 2011; Navarro Garza, 2005; Bonnal et al., 2004; Echeverri and Ribero, 2002; Pecqueur, 2002).

Berdegú et al. (2015) define "functional territories" as those with a high frequency of economic and social relations among their inhabitants, organizations and enterprises. More specifically, they use commuting flows between pairs of municipalities as reflected in census data to define functional territories. Alternatively, how far a rural population is located from a network of roads that are transitable all year makes it possible to define degrees of rural interaction and accessibility, indicators pertinent for measuring rurality in a dynamic manner (Dirven and Candia, 2020; Soloaga et al., 2020; Fernández et al., 2019).

The functional approach assumes the development of non-conventional rural functions that originate in productive diversification. It opens conceptual and methodological spaces for a systemic comprehension of the new functions of geographical spaces, considering that no space has a single identity and function (Picciani, 2016; González Arellano and Larralde Corona, 2013; Rodríguez, 2011; Méndez Sastoque, 2005; Navarro Garza, 2005).

<sup>9</sup> The Herfindahl-Hirschman index measures and provides a geo-referenced account for each locality in a given country of the levels of population concentration or dispersion. In this way, the relationships between land occupation and population concentration can be analysed to define new patterns of rurality in light of the contributions of the new rurality approach.

The rural-urban continuum: a dynamic definition of rural areas through intermediate areas and hybrid figures

The “rural-urban continuum” concept was proposed by sociologists Sorokin and Zimmerman (1929) for the purpose of surpassing the rural-urban duality. At that time, the authors proposed the existence of areas they called “gradients”, which are not exclusively rural or urban, and which are intermediate areas or hybrid figures that share characteristics of both rural and urban areas. Geographical spaces are also considered through their dynamics, flows and interactions; this offers opportunities for defining an infinite quantity of areas (Dirven and Candia, 2020; Gaudin, 2019; Rodríguez, 2011; Arias, 2005; Navarro Garza, 2005; Delgado, 2003; Entrena Durán, 1998; Clout, 1976; Pahl, 1966).

Sabalain (2011) states that no natural line or breakpoint exists that would clearly distinguish rural from urban, thereby making it necessary to analyse areas as hybrid figures. The construction of gradients creates lines and breakpoints between areas, the scope of which can become restrictive and subjective.

### The territorial approach

This consists of a framework of systemic analysis and interpretation of all social, cultural and economic dimensions and phenomena that constitute and give identity to a territory. The approach includes the global analysis of rurality in a territorial framework that is global and complex, dynamic and shaped by interactions between areas (Berdegué and Soloaga, 2018; Ávila Sánchez 2015; Berdegué, et al., 2015; Berdegué, Escobal and Bebbington, 2015; Echeverri, 2011; Trpin, 2005; MAPA, 2004; Schejtman and Berdegué, 2004).

Under this approach, territory is defined as “the set of social relations that give rise to and at the same time express an identity and a sense of shared purposes” (Schejtman and Berdegué, 2004, p. 5). Rural is conceived as a complex area, “structured and changing, made up of social groups settled on a base of natural resources whose attributes give rise to an economic structure and social relations of production, which at the same time condition the development of institutions, networks and power structure, on which the processes of social formation are based” (Sepúlveda et al., 2005, p. 76).

This concept of “complex territorial systems” breaks with the conventional paradigms of understanding and measuring rurality. It opens spaces for the analysis and design of innovative rural development policies because it seeks to act on the totality of social phenomena occurring in territories. It offers conceptual and methodological advantages for the design of innovative rural development public policies. First, it offers the possibility to build territorial social coalitions that provide great options for promoting endogenous and democratic dynamics for territorial development. Second, it considers that a territory should be defined based on geographic limits defined by its own dynamics rather than being defined “from above” using administrative boundaries. The redefinition of the recipient areas of development policies through their own characteristics constitutes a significant conceptual and methodological advance (Fernández et al., 2019; Berdegué and Soloaga, 2018; RIMISP, 2017; 2016).<sup>10</sup>

## 4. Construction of alternative rural scenarios

Based on the review of the literature indicated above, it can be said that there is both a need and an opportunity to operationally redraft a definition of rural and urban environments.<sup>11</sup> It should be

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<sup>10</sup> Also see Berdegué and Favareto, 2019; Bebbington et al., 2016; Pérez et al., 2016; Berdegué, Carriazo, Jara, Modrego and Soloaga 2015;; Berdegué and Fernández, 2014; Fernández and Asensio, 2014; Hollenstein and Ospina, 2013; RIMISP 2012; 2010; Dirven et al., 2011; Echeverri, 2011; Rodríguez, 2011; Rodríguez and Saborío, 2008; Agnew, 2005; Fernandes, 2005; Sepúlveda et al., 2005; Schejtman and Berdegué, 2004; Echeverri and Ribero, 2002; Veiga, 2002; Tacoli, 1998.

<sup>11</sup> ECLAC has recently presented proposals for this reworking for four Latin American countries: Costa Rica, El Salvador, Mexico and Panama. Extensive documents are available in Spanish that describe these proposals at <https://www.cepal.org/es/proyectos/fida-nuevas-narrativas>.



noted here that the proposals are based on both the availability of data and the intentionality of the index constructed. As mentioned, collaboration with public organizations responsible for regional planning, agricultural policy, social development and national statistics was very important to incorporate specific needs and characteristics in each country.

#### 4.1. Measuring rurality in Latin America and the Caribbean: the cases of Mexico and Panama

The new proposals for measuring rurality used official information published with some regularity by the statistics offices of the countries, choosing the lowest possible number of variables and applying a form of aggregation that was relatively easy to understand and communicate. This paper argues that conventional definitions of rurality are outdated and stereotyped. Two proposals are presented, which incorporate concepts of the new rurality approach and overcome the conventional dichotomous approach. The first follows a continuous approach (a rural-urban continuum), while the second is discrete and comprises seven categories of rural-urban areas.<sup>12</sup>

##### Index of Relative Rurality

A review of the literature revealed four main dimensions for conceptualizing rural and urban areas: population size, population density, land use and distance from certain basic services.<sup>13</sup> To construct the index, it is necessary to have an area over which to calculate both density and the percentage of land with buildings on it. The Index of Relative Rurality (IRR) minimum level of aggregation will then be given by the minimum geographic area over which the statistical institutes provide information on the population.

The IRR employs the four dimensions to define a multidimensional urban-rural continuum. It starts by selecting the variables appropriate to represent each of the dimensions, then rescales the variables to make them comparable with one another, then performs the aggregation with the geometric average of the rescaled variables.

Because the variables are at different scales, the logarithmic transformation of population size and density is obtained to correct for asymmetric distributions and the geometric mean is used as a linked function. This is the formulation used by the United Nations Development Programme (UNDP) to calculate the Human Development Index as of 2010 (UNDP, 2010). In this way, advances or setbacks observed in a single variable are smoothed (in the extreme, if one variable is zero, the entire index is zero regardless of the level of the other variables), which is appropriate for a rurality index.

The variables on which the IRR are based are population size, population density, the percentage of land with buildings and the distance to the nearest urban area that provides essential health, education and administrative services, as well as markets for inputs and products. With respect to this last variable, it is generally estimated that a locality of at least 50,000 inhabitants has these characteristics. Clearly this criterion depends, among other things, on the level of development and territorial occupation of each country. In the exercises shown below, a threshold was selected of at least 50,000 inhabitants for the case of Mexico and at least 10,000 inhabitants for the case of Panama. These thresholds were established based on the demographic characteristics of the two countries, respecting the proportions based on the different population thresholds per locality proposed in Berdegué et al. (2015) for the cases of Chile, Colombia and Mexico.

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<sup>12</sup> For the case of Panama, Soloaga et al. (2022a) also developed the Environmental Rurality Index and the Demographic Rurality Index, which are not presented here for reasons of space. Soloaga et al. (2022b) presents the IRR, the Accessibility Index and the alternative measurement of rurality based on spaces, population and land use for Mexico.

<sup>13</sup> Note that agricultural production is explicitly left out as a component of rurality, given that this characteristic, in a context of growing pluriactivity in rural areas, has lost the capacity to clearly identify rurality.

As indicated, these variables are rescaled to the interval from 0 to 1 to aggregate them. To obtain a higher score for the localities that are relatively more rural, the distance variable to an urban locality of a given size is rescaled as follows:

$$X_{irescaled} = \frac{X_i - X_{min}}{X_{max} - X_{min}} \in [0.1] \quad (\text{Equation 1})$$

For the other three variables, the rescaling is performed in the following manner:

$$X_{jrescaled} = \frac{X_{max} - X_j}{X_{max} - X_{min}} \in [0.1] \quad (\text{Equation 2})$$

The IRR aggregates these four categories with the geometric average of the four rescaled variables. Thus, for geographic area  $i$  we have:

$$IRR_i = (X_{Population_i} * X_{Density_i} * X_{Area\ Built\ on_i} * X_{Distance_i})^{1/4}$$

The index thus constructed then varies in the interval [0.1], showing a continuum from the most urban (IRR=0) to the most rural (IRR=1).

These calculations were performed at the Basic Geostatistical Area (BGA) level for the case of Mexico and at the Comarca level for the case of Panama.<sup>14</sup> IRR results and their relation to key socio-economic variables of the two countries are shown below.

## OECD methodology

An alternative method is based on OECD et al. (2021), which resulted from a joint effort by OECD, the European Commission, Food and Agriculture Organization of the United Nations, United Nations Human Settlements Programme (UN-Habitat), International Labor Organization and World Bank. This document presents a harmonized methodology for facilitating international statistical comparisons and classifying the totality of a country's territory along an entire urban-rural continuum. The urbanization classification defines cities, towns, semi-dense zones and rural zones.

The OECD methodology is based on population size and densities and on the contiguity of areas of similar densities. To that end, it considers a 1 square km partition of territory, which allows for both international comparisons on a homogeneous basis and comparisons over time for the same country.

As a first step, three levels of spatial units are identified in the 1 square km partitions (it can also be calculated for grids of 200, 100 and 50 square metres):

- A. Urban centres** (areas with high population density)
- B. Urban clusters** (intermediate areas with lesser population density)
- C. Rural clusters** (low population density areas)

This first step is complemented by taking the administrative units or statistical areas (for example, BGAs in the case of Mexico). The spatial units of 1 square km and the population density are used to define whether these administrative units or statistical areas are:

- i. **Cities** (high population density areas), comprising one or more administrative units or statistical areas in which at least 50 per cent of the population belongs to an urban centre.
- ii. **Urban clusters** (medium population density areas), comprising one or more administrative units or statistical areas in which at least 50 per cent of the population belongs to an urban centre and no more than 50 per cent of the population belongs to rural clusters. These urban clusters can also be classified as urban, semi-dense urban, suburban and peri-urban.

<sup>14</sup> The national statistics of Mexico and Panama have different structures. In Mexico, the more disaggregated information is at the BGA level, that is a geographical area occupied by a set of blocks perfectly delimited by streets, avenues, walkways or any other easily identifiable features on the terrain. In Panama, the more disaggregated statistical information is at the Comarca level, which is a political division.

- iii. **Rural clusters** (low population density areas), comprising one or more administrative units or statistical areas in which more than 50 per cent of the population belongs to rural clusters. These rural clusters can, in turn, be classified as low density rural and very low density rural.

While step 1 above clearly identifies cities according to population size, the other two categories are heterogeneous and therefore a second step (level 2) is required, in which population density information is combined with different population thresholds (Table 4). Clearly there is a degree of arbitrariness in the definition of density thresholds (first column) and population thresholds (columns 2 to 4). These thresholds could be defined in each country based on, for example, the degree of access to basic services (health, education, institutional, among others) and to input and output markets provided by each type of classification, a task that remains for future research.

**Table 4.** Level 2 classification of degrees of urbanization

		Grid cluster population thresholds (population size)			Lacking population criteria
		≥ 50 000	5 000–49 999	500–4 999	
Population density of grids (inhabitants per square km)	≥ 1 500	Urban centres	Dense urban clusters		
	≥ 300		Semi-dense urban clusters <sup>1/</sup>	Rural clusters	Suburban or peri- urban grids
	≥ 50				Low density rural grids
	< 50				Very low density rural grids

**Source:** Own elaboration based on European Commission (2021).

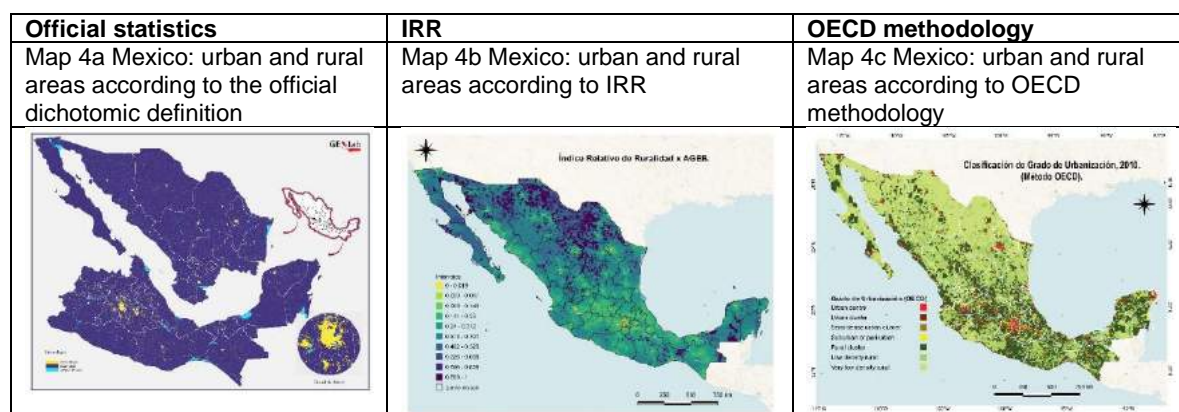
**Note:** Semi-dense clusters can have a population exceeding 49,999 inhabitants.

## 4.2. Results

When applying both the IRR and OECD methods to the cases of Mexico and Panama, a classification of urban and rural is encountered that is very different from that arising from the official dichotomous information. The proposed methods (the rural-urban continuum and the seven categories of the OECD approach) better represent the socio-economic characteristics of what are usually considered rural and urban areas. In Figure 4, the official definition for the case of Mexico is shown in map 4a, while the classification of rural areas according to the IRR gradient or that of the OECD methodology can be seen in maps 4b and 4c, respectively. For Panama, the same exercises are shown in Figure 5: maps 5a (official definition), 5b (IRR) and 5c (OECD methodology). For both countries, the IRR and OECD methods display different realities from those of official classifications, with a continuum extending from the most urban environments to the most rural ones.

As shown in map 4a, Mexico is divided into three principal colours in keeping with the official definitions. Dark blue corresponds to rural areas, yellow to urban areas and light blue to water fields (such as lakes and rivers). This segmentation contrasts markedly with that of map 4b, which offers IRR results, and in which Mexico is classified into 10 intervals or gradients ranging from yellow (the most urban) to dark blue (the most rural). Map 4c illustrates the country's segmentation according to the OECD methodology, which distinguishes seven colours or types of territories. A similar situation is observed in Figure 5 (maps 5a, 5b and 5c) for the case of Panama. The relevance of these results for the socio-economic characterization of territories and public policy is shown in the following section.

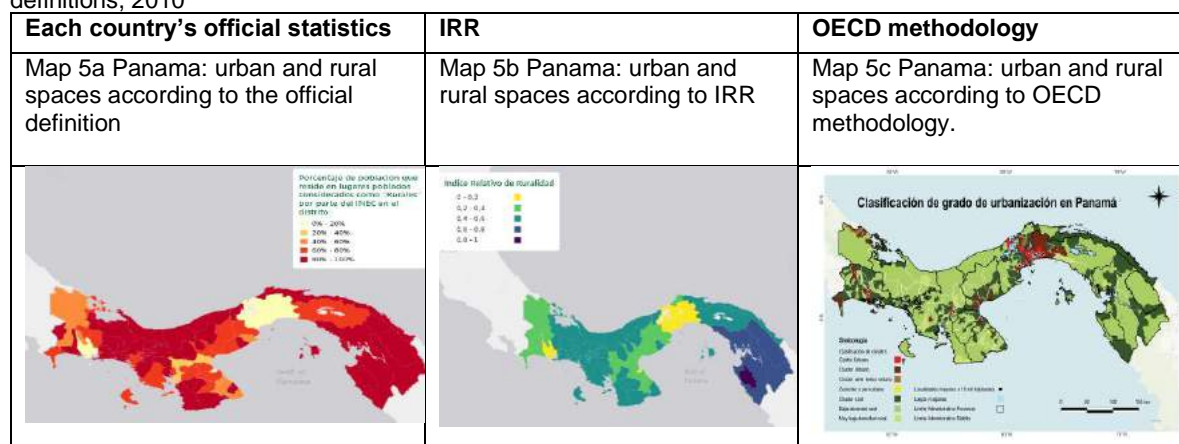
**Figure 4, maps 4a, 4b and 4c.** Mexico: comparisons between the official definition of rurality and alternative definitions, 2010



**Source:** Own elaboration based on data from the Mexico National Institute of Statistics and Geography (INEGI).

**Note:** These maps are available at: <https://www.cepal.org/es/proyectos/fida-nuevas-narrativas>. The maps have interactive features to compare the current official definition with the ones proposed by the ECLAC-IFAD project.

**Figure 5, maps 5a, 5b and 5c.** Panama: comparisons between the official definition of rurality and alternative definitions, 2010



**Source:** Own elaboration based on data from the Panama National Institute of Statistics and Census (INEC) and Open Street Map.











**Note:** These maps are available at ECLAC webpage: <https://www.cepal.org/es/proyectos/fida-nuevas-narrativas>. The maps have interactive features to compare the current official definition with the ones proposed by the ECLAC-IFAD project.

### 4.3. Implications for socio-economic characterization

A new classification for urban and rural areas could provide a better diagnostic tool for public policy. This is illustrated for Mexico and Panama by contrasting the statistics obtained by using the official definitions of rural and urban areas with the alternative classification provided by the IRR. This could be an important issue in the new era of development policies that use targeted programmes to fight poverty. In most countries (certainly in Mexico and Panama) many anti-poor programmes were initially targeted “to the poorest rural areas” (Stampini and Tornarolli, 2017), using the official definition of rurality. This implied that localities with a population just above the official rural threshold were left out. Certainly, a better definition of rurality would enhance the targeting capacity of public policy. The proposals put forward in this paper gain relevance against this benchmark.

In the case of Mexico, the official definition of rural and urban environments showed 65 per cent of the rural population living in poverty in 2010, while the same indicator estimated 40 per cent for the urban population in the same year. Table 5 shows an IRR-based alternative classification. It shows there is a gradient in poverty levels ranging from 34 per cent in the most urban areas to 62 per cent in the most rural.

**Table 5.** IRR and multidimensional poverty levels in Mexico, 2010

Degree of rurality (IRR)	Colour in map 2	Number of inhabitants (million)	Number of persons living in multidimensional poverty (million)	Incidence of poverty (%)
Totally urban (IRR=0)		53.9	18.3	34
<b>Rural-urban continuum</b>				
Level 1 (IRR between 0.001 and 0.025)		2.1	0.7	34
Level 2 (IRR between 0.026 and 0.050)		4.1	1.6	39
Level 3 (IRR between 0.051 and 0.075)		4.9	2.1	43
Level 4 (IRR between 0.076 and 0.100)		5.9	2.8	47
Level 5 (IRR between 0.101 and 0.125)		7.2	3.7	52
Level 6 (IRR between 0.126 and 0.150)		8.3	4.6	55
Level 7 (IRR between 0.151 and 0.175)		7.8	4.6	59
Level 8 (IRR between 0.176 and 0.200)		6.4	3.9	61
Level 9 (IRR above 0.200) (four colours)		10.7	6.5	62
<b>Total</b>		<b>111.3</b>	<b>48.9</b>	<b>44</b>
Comparison: population and incidence of poverty based on the official classification of rural/urban				
Urban (localities with 2,500 inhabitants or more)		88	35.6	40
Rural (localities with less than 2,500 inhabitants)		26.6	17.2	65
<b>National</b>		<b>114.5</b>	<b>52.8</b>	<b>46</b>

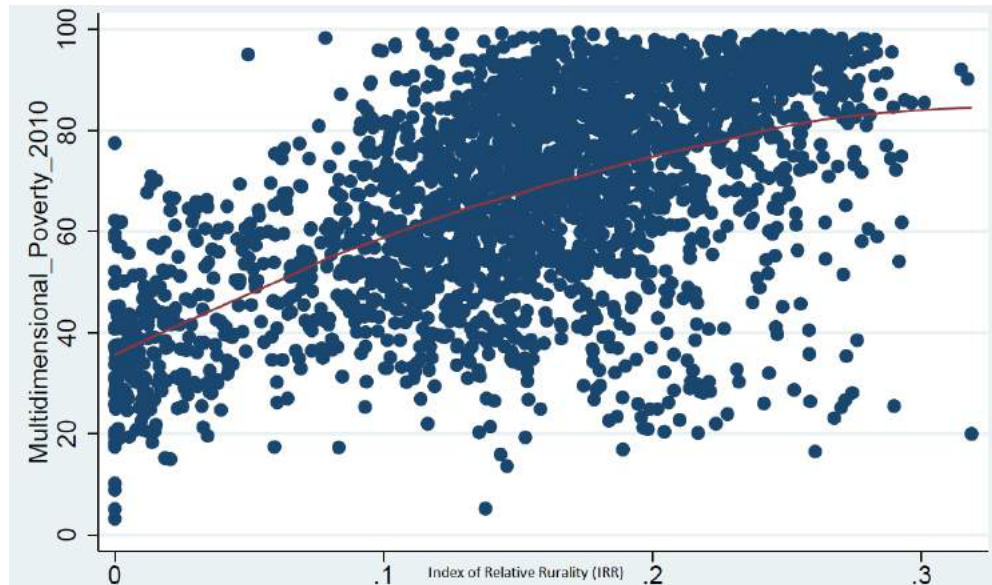
**Source:** Own elaboration based on official INEGI statistics.

**Note:** Due to some missing data, total population used to calculate IRR is 3.2 million short of the official figure (111.3 million versus 114.5 million). Totals may not add up because of rounding errors.

Figure 6 highlights the relationship between multidimensional poverty and IRR at the municipal level in Mexico. It shows that low levels of IRR correspond to low poverty levels. It shows also that higher levels of IRR could be compatible with relatively low, but also relatively high levels of poverty, as shown by the fact that poverty levels could be as low as 20 per cent or as high as almost 100 per cent for IRR values between 0.2 and 0.3.

Figures 6 and 7 show that in both countries there is a positive and continuous relationship between levels of IRR and multidimensional poverty, which, for instance, contrasts with the official estimates shown at the bottom of Table 5 for Mexico.

**Figure 6.** Multidimensional poverty levels and IRR at the municipal level: Mexico, 2010



**Source:** Own elaboration based on INEGI.

**Note:** The red line shows a non-parametric regression for the relationship between multidimensional poverty levels and IRR at the municipal level.

For the case of Panama, the official classification is contrasted against the IRR-based one, grouping IRR segments that encompass an equal number of townships (64 for the first category and 63 for the remaining 9 categories). While 65 per cent of the population lives in urban areas according to the official classification, Table 6 shows that the figure is only 59 per cent when identified by the IRR as the most urban segment. It also shows that the population living in the more rural areas is decreasing, with 12 per cent of the total living in the second classification of the IRR and 2 per cent in the last.

It is also illustrative to note that the percentage of the population employed in the primary sector increases in keeping with the level of rurality shown by the IRR, as does the percentage of houses without access to electricity. Lastly, it can be observed that according to the official classification, 25 per cent of the urban population and 11 per cent of the rural population have completed secondary school. An alternative classification provided by the IRR shows these percentages are much higher for the decidedly urban townships (54%) and much lower for those townships with increasing levels of rurality: the average number of people with secondary schooling ranges from 20 per cent for the 63 townships in the second IRR classification to 7 per cent of the population in the 63 townships with the highest IRR levels.

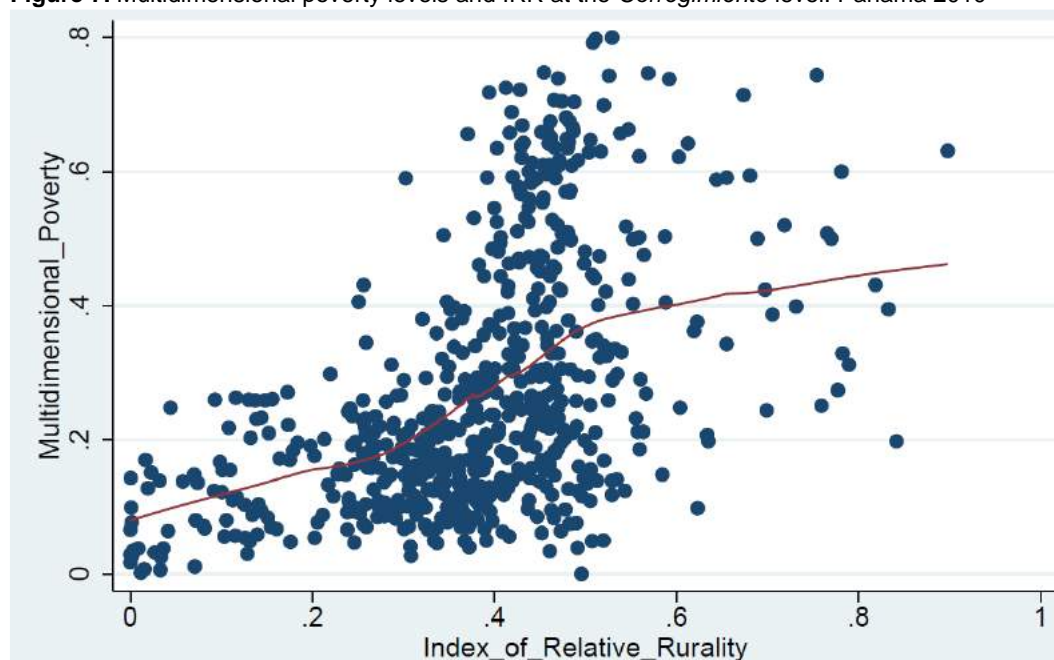
**Table 6.** Socio-economic analysis based on IRR: Panama, 2010

Degree of rurality at the corregimiento level (IRR)	Number of corregimientos	Percentage of total population	Percentage of population engaged in primary sector	Percentage of population aged 15 years and older completed secondary education (2020)	Percentage of houses lacking electricity
<b>Rural-urban continuum</b>					
Level 0 - IRR : [0 to 0,176]	64	59	1	54	2
Level 1 - IRR : [0,176 to 0,282]	63	12	15	20	10
Level 2 - IRR : [0,282 to 0,331]	63	7	23	17	15
Level 3 - IRR : [0,331 to 0,367]	63	4	32	14	27
Level 4 - IRR : [0,367 to 0,394]	63	4	43	10	39
Level 5 - IRR : [0,394 to 0,427]	63	3	51	9	53
Level 6 - IRR : [0,427 to 0,454]	63	3	61	7	66
Level 7 - IRR : [0,454 to 0,480]	63	3	59	8	56
Level 8 - IRR : [0,480 to 0,526]	63	3	59	6	65
Level 9 - IRR : [0,526 to 0,898]	63	2	58	7	51
<b>Official definition</b>					
Urban		65	2	25	1
Rural		35	41	11	38
National			12	21	14

**Source:** Own elaboration based on data from INEC and Open Street Maps.

As in the case of Mexico, Figure 7 shows the correspondence between low levels of IRR and low poverty levels, and that higher IRR levels could be compatible with low as well as with high relative levels of poverty, as shown by the relationship found at the centre of Figure 7 (values for IRR close to 0.4).

**Figure 7.** Multidimensional poverty levels and IRR at the *Corregimiento* level: Panama 2010



**Source:** Own elaboration based on INEC.

**Note:** The red line shows a non-parametric regression for the relationship between multidimensional poverty levels and IRR at the *Corregimiento* level.

## 5. Implications for public policy

Urban-rural statistics have several uses in the design and monitoring of public policies; for example, the allocation of public funds for investment projects, the determination of salary incentives for public employees, and land-use planning policies and rules for electing representatives in popular elections, among others. Therefore, the decision to change the criteria for measuring the rural population or the boundary between rural and urban has implications for the design and evaluation of public policies (Dirven and Candia, 2020; ECLAC, 2011).

Modification to the measurement of rural areas may have important implications in terms of the reality revealed, hiding territorial characteristics that are visible under conventional measurement methods. The alternative socio-economic characterization of a country would imply the definition of new patterns for the allocation of public funds for development and territorial planning, and would guide private investment differently based on the new rural reality revealed. It may also have implications for democratic representation by distributing the electoral weight of each area of a national community in an alternative manner. The way in which rural life is measured has implications for all components of life in society, including housing, public goods and services, public safety and environmental preservation. It is therefore necessary to carefully balance the advantages and disadvantages of introducing changes to the methodology for measuring and characterizing rural areas (Dirven and Candia, 2020; Soloaga et al., 2020; Gaudin, 2019; Dirven et al., 2011).

The project "New Narratives for Rural Transformation in Latin America and the Caribbean", implemented by ECLAC with financial support from IFAD, makes it possible to define and test new scenarios of rurality to highlight the socio-economic characteristics of the territories that were concealed by the dichotomous methods of measuring rurality. It shows that rurality is heterogeneous and diffuse, being part of territorial dynamics through its interactions with intermediate and urban areas. The methodology allows the construction of different gradients of rurality, thus opening spaces for the design of public policies focused on the characteristics of each. In addition, the ECLAC-IFAD project worked with the governments of Mexico and Panama to explore the implications of the new definitions of rurality for public policy.<sup>15</sup>

Two of the main findings of this research (presented above) are a methodological contribution for the construction of alternative rurality scenarios, and cartographic and statistical results for the socio-economic characterization of territories. The third finding relates to the implications for development policies for rural areas in Mexico and Panama within the framework of the United Nations 2030 Agenda. The results of this research coincide with the main results of the ECLAC-IFAD project, which are: (i) creation of new technical instruments; (ii) analysis of their implications for the design and implementation of public policies; (iii) promotion of inter-institutional dialogue; and (iv) strengthening national and regional capacities.

The rurality indices presented as part of this research, for both Mexico and Panama, are exploratory exercises that aim to highlight the existing territorial diversity with its different socio-economic characteristics. This detailed knowledge of the territories has been welcomed by the public authorities of Mexico and Panama for the definition of better targeted public policies. Exploratory exercises were carried out to demonstrate the potential of this tool for creating an alternative rural scenario in a great diversity of public policies.

First, in the case of Mexico, different rurality scenarios were presented to the Ministry of Economy along with cartographic evidence showing the soundness of the methodology applied to specific policies, such as the promotion of information and communication technologies in rural areas, and support for small and medium-sized enterprises in the country's different territories. This work opens opportunities for the design of public policies that are more in touch with the specific needs of each of the country's localities and territories, such as for the allocation of public funds, attraction of private investment, and territorial coverage of public goods and services. For example, a national strategy to promote rural entrepreneurship can be significantly enriched if rural areas are understood in terms of their own heterogeneous and dynamic characteristics. Thus, the elements of the public strategy should consider the great variety of socio-economic and demographic characteristics of the country's territories, such as poverty, access to public goods and services, and entrepreneurship, among others.

Second, also in the case of Mexico, ECLAC worked with the Specialized Technical Committee on Cadastral and Registry Information to develop an innovative proposal for the characterization of urban and rural areas, based on the Urban-Rural Territorial Index (ITUR). This index uses a set of territorial

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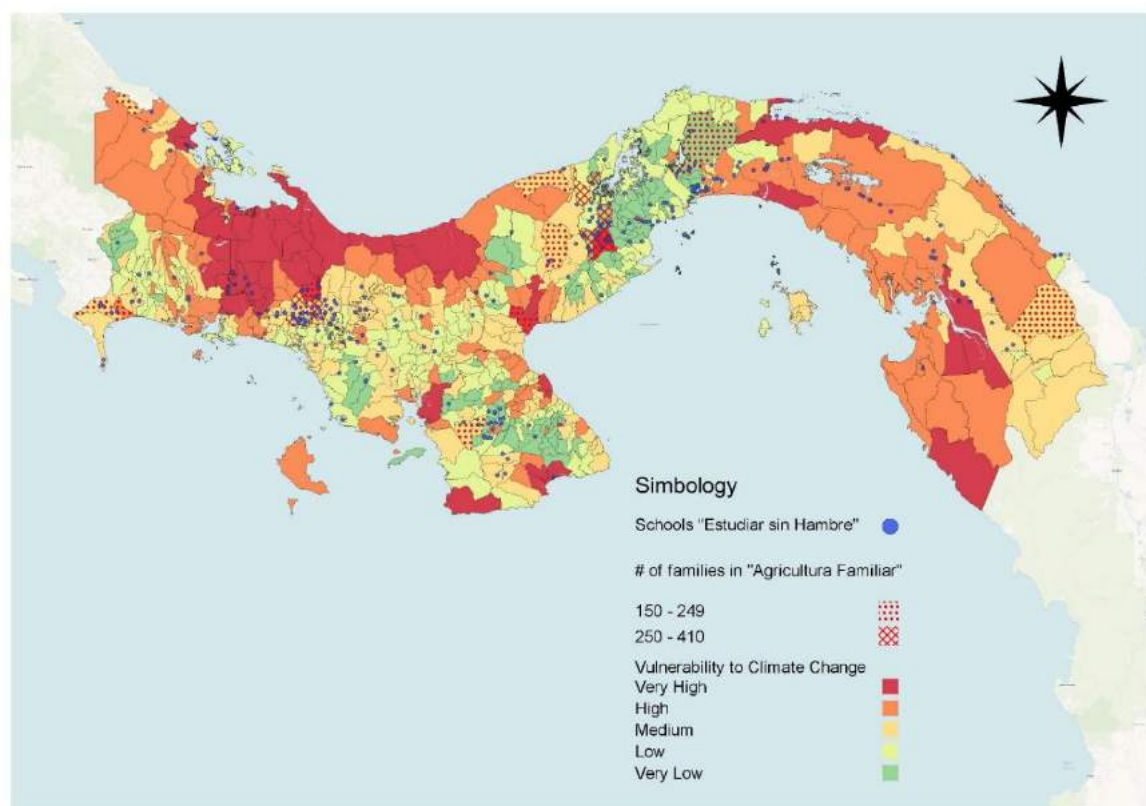
<sup>15</sup> The documents that summarize the main results (new indicators to measure rurality, socio-economic analysis and policy implications, maps and databases) are freely available at: <https://www.cepal.org/es/proyectos/fida-nuevas-narrativas>.



variables, including the four variables contained in the IRR, with a similar form of aggregation. This exercise will provide statistics that make it possible to characterize the localities in a precise and detailed way. Based on this new territorial classification, public policies for rural development will be able to comprehend and characterize rural areas from a renewed perspective. The ECLAC-IFAD project contributed to this exercise by providing methodological inputs and technically sound empirical evidence to enrich the inter-institutional dialogue.

Third, in the case of Panama, ECLAC and IFAD worked with the Ministry of Agriculture to develop new tools for a better understanding of the country's geographic spaces, with a view to strengthen the ministry's territorial development policies. To that end, rurality maps were prepared for different public policy purposes, with emphasis on, for example, the allocation of public funds to promote family agriculture and support the regions most affected by climate change and natural disasters. For example, the open access software Quantum Geographic Information System (QGIS) was used to prepare different maps and identify in a geo-referenced manner the Corregimientos with the greatest climate vulnerability, school enrolment under the "Study without Hunger" programme, and households participating in the "Family Farming" programme, among others (see Figure 8).

**Figure 8.** Panama: geo-referenced representation of climate change vulnerability, "Study without Hunger" schools and number of households in "Family Farming", by Corregimiento



**Source:** Own elaboration, based on Ministerio de Ambiente (2021).

Fourth, the IRR, prepared for and proposed to the Panamanian authorities, has been included in the latest draft of Law 855 (article 4.24) of Panama, which establishes the guidelines of state agri-food policy. The law characterizes rural territories as: "the territories that are included in the areas defined according to the map of Panama's Relative Rurality Index, prepared with the socio-demographic and economic statistics prepared by the Institute of Statistics and Census of the Comptroller General of the Republic" (National Assembly of Panama, 2022). These are expected to be the first steps towards materializing the usefulness of this new way of looking at Panama's rural environments by relating them to the application of specific public programmes.

Lastly, ECLAC and IFAD elaborated an analysis for the technical secretariat of the Ministry of Social Development. This allows for the socio-economic characterization of the 300 townships addressed in the framework of the "Plan Colmena" for the purpose of highlighting and defining the existing development gaps separating the different territories of Panama. Maps showing these gaps were generated using the 14 indicators employed by the technical secretariat and UNDP to calculate the Multidimensional Poverty Index (MPI) at the district and township levels, based on Panama's population and housing census.

## 6. Conclusions

Analysis resulting from the dichotomous definition of rurality conceals the true picture. Conversely, alternative rurality scenarios inspired by the new rurality approach highlight a new territorial reality that is both complex and dynamic. Alternative measurements of the degree of rurality in Mexico and Panama, such as the IRR and the OECD methodology, go beyond this dichotomous classification and can be used as more appropriate mechanisms for targeting public policies.

This redefinition of rural and urban environments provides an analytical framework that can aid both understanding of the new rurality and analysis of the structural gaps between territories, the persistence of which inhibits efforts to reduce rural poverty and inequality. In both countries studied, going beyond the dichotomous pattern of measuring rurality and moving to a gradient analysis offers a new geo-referenced socio-economic vision. In particular, the work highlights the diversity of rural areas and therefore the need to define a new public agenda in terms of rural development funding. The methods proposed for this redefinition are based on available official information and constitute a first step in promoting policy dialogue processes on the new rurality.

A more detailed definition of rurality that captures the heterogeneity existing in the territories and promotes a new operationalization of rural-urban areas is a necessary condition for improving the focus of public actions and updating the collective impression of what “rural” means in Latin America and the Caribbean, as evidenced by the cases of Mexico and Panama. The definition of rural and urban is not neutral in terms of the design and implementation of public policies. With this effort, ECLAC and IFAD have created a range of opportunities to measure and characterize rural areas in a flexible and adaptable manner and for different public policy purposes.

Three main areas of future work are identified. First, is the incorporation of data and statistics that will allow for intermediate or intercensal updates. Innovative information sources, such as night-time satellite imaging for illumination patterns, enable the publication of complementary information. Second, to use the experience of the countries covered by the ECLAC-IFAD project to carry out exercises in other countries in Latin American and the Caribbean, but also in other regions. Third, to construct a common index for all the countries of Latin America and the Caribbean to facilitate intra-regional comparisons.

The results of the project “New narratives for rural transformation in Latin America and the Caribbean” constitute an important step forward for the design and implementation of public development policies that are in line with the different rural realities and their transformation. It also offers lessons for strengthening public policies for different development purposes and for achieving the SDGs for the rural population in the different territories of Latin America and the Caribbean.

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