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Economic Research-Ekonomska Istraživanja

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rero20

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To cite this article: María del Carmen Pérez González, María de la O Barroso González & Natalia Vladimirovna Lutsak Yaroslova (2023) Exploring the assessment of territorial potential for social innovation: an indicator system applied to a region in Ecuador, Economic Research-Ekonomska Istraživanja, 36:2, 2179503, DOI: 10.1080/1331677X.2023.2179503

To link to this article: https://doi.org/10.1080/1331677X.2023.2179503

Published online: 11 May 2023.

ECONOMIC RESEARCH-EKONOMSKA ISTRAŽIVANJA
2023, VOL. 36, NO. 2, 2179503
https://doi.org/10.1080/1331677X.2023.2179503

Exploring the assessment of territorial potential for social innovation: an indicator system applied to a region in Ecuador

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ABSTRACT

One of the key elements in territorial dynamics processes is Social Innovation since we can improve our regional sustainable systems from the relationship and participation among territorial agents. However, this concept is still poorly explored and does not currently have a commonly-agreed definition and a complete assessment system, based on which strategies for improvement might be designed to guarantee regional sustainability. As a result, it has limited capacity for contributing to development. In accordance with the above, the main aim of this article is to explore the concept of Social Innovation and to asses it, designing a system of indicators capable of measuring territorial potential for social innovation, applicable to any region and adapting to its specificities and necessities. This work also aims to use a case study application, using a Ecuadorian region, to design an indicator assessment tool for social innovation, which integrates the main Social Innovation dimensions. This article makes contribution to the international debate on Social Innovation since it offers real input, potentially encouraging social change and the improvement of society's wellbeing.

ARTICLE HISTORY
Received 10 December 2021
Accepted 6 February 2023

KEYWORDS
Social innovation; social indicators; territorial potential

JEL CODES
O12; O18; O35; O54

1. Introduction and theoretical framework: social innovation and its contribution to territorial development

Social innovation (SI) is not an end in itself. Rather, it is a tool or process for generating or revitalizing development by using different initiatives and practices to address the challenges posed by the immediate environment, respond to stakeholders' demands and tackle social issues. Its role in this regard is widely recognized by

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international organizations (BEPA, 2011; CEPAL & Kellogg, 2017; ECLAC., 2022; European Commission, 2017).

SI plays a role in stimulating sustainable territorial development. Therefore, despite a lack of consensus as to its definition in the literature, it is important to analyze its social, economic, institutional, environmental and cultural components, among others, in order to enable this type of development.

Our first objective in this study is to conceptualize SI and its potential contribution to territorial development from an integral perspective. After setting out the conceptual framework and analyzing the indicator systems applied in the current literature, this article reveals the absence of a system suitable for analyzing SI from the territorial perspective proposed here.

Based on this systematization of the concept of SI, the second objective of this study is to design a comprehensive system of indicators which is able to measure the territorial potential for SI present in a particular place, taking its unique characteristics into consideration.

SI may be considered a quasi-concept (Addarii & Lipparini, 2017; Caroli et al., 2018; Edwards-Schachter, 2021; Howaldt et al., 2018; Pelka & Terstrip, 2016; Teasdale et al., 2021) in a field of study essentially fragmented into two main currents in a pre-paradigm phase -democratic and technocratic- (Moulaert & Mehmood, 2020) which contend with one another for dominance in the field (Kuhn, 1962).

Since the 1980s, research and thematic development in the field of SI has gained momentum with the emergence of numerous suggested definitions (Avelino et al., 2019; Edwards-Schachter, 2021; Jenson & Nagels, 2022; Schubert, 2021) and studies by public and private organizations (Center for Research on Social Innovations, University of Quebec at Montreal, Canada; National Endowment for Science, Technology and Arts-NESTA-United Kingdom; Seventh Framework Program of the European Union, 2014–2017; University of Twente-Netherlands; University of Minho-Portugal; University of Oklahoma in the United States; University of Wollongong School of Economics, Australia; and the University of Córdoba in Spain, among others).

However, consensus has yet to emerge on the definition of SI, its cause-effect relationships and the problems it addresses, as well as the policies adopted to promote it, among other topics (Caroli et al., 2018; Eichler & Schwarz, 2019; Moulaert & Mehmood, 2020; Oeij et al., 2019).

This article first seeks to define SI as a component of integral development (comprising social, environmental, economic and institutional development). It then aims to apply the concept to a specific regional context, proposing a system of indicators capable of quantifying these elements in a systematic manner.

To do this, we reviewed SI measurement tools, drawing on a set of multiple indicators that allow social innovation case studies and socially innovative regions or countries to be examined, as well as the environments and factors that favor their creation.

A number of widely substantiated methods for measurement are available, which have been created for different purposes and have addressed this challenge at the local, regional, national or global level (Anheier et al., 2015; Benedek et al., 2016;

Bloch et al., 2009; Dainienė & Dagilienė, 2016; Dancause & Longtin, 2014; EIU, 2016; FMK-UDD, 2014; Innobasque, 2013; Unceta et al., 2016; Van Wijk et al., 2019).

Measuring a multidimensional phenomenon such as social innovation is a complex task that is frequently hindered by challenges relating to the availability of data, adaptation to different regional contexts and adjustment to the research subject (Anheier et al., 2015). The state of the art of research on SI includes numerous visible and prominent methodologies, where various authors and international organizations propose indicators (Dancause & Longtin, 2014; ECLAC., 2022; Leadbeater, 2010), indicator systems (Alkire & Deneulin, 2009; Heiskala, 2015; Klein & Tremblay, 2013) and indices (CIVICUS, 2019; EIU, 2016; FMK-UDD, 2014) that allow this phenomenon to be measured, depending on their fields of application and research objectives.

However, despite identifying and analyzing the most consensual and useful instruments, especially the systems of indicators or indices at the territorial level, it can be highlighted that none allows SI to be measured in such a way that the line of territorial capacities for SI can be addressed. This research aims to contribute to this new approach.

An analysis of different proposals for social innovation indicators and existing measurement methods at the micro, meso and macro level reveals some important contributions made in this area, but further empirical research is needed to feed the theoretical framework with new knowledge and overcome the numerous measurement challenges present (Bund et al., 2015; Dancause & Longtin, 2014; Van Wijk et al., 2019). Although the most widely accepted, useful instruments have been identified and analyzed (especially indicator systems and meso-level indicators), it is worth noting that none of them allow SI to be measured in such a way as to satisfactorily fulfill the objectives of this study, which focuses on regional potential for stimulating SI.

In view of the potential and shortcomings of the SI measuring tools available and based on the conceptualization of social innovation underpinning this study, we have developed a new indicator system in line with the research objectives, which may be applied to any region, with particular relevance in less developed areas. The results were validated by a pilot experiment carried out in Planning Area 7 in Ecuador, a disadvantaged region in Latin America.

2. Methodology

In order to address the first objective of the study, SI and territorial potential were defined through a systematic review of the existing literature and a bibliometric analysis of the field. Given the lack of an agreed definition, common elements present in the various studies were identified. In terms of our contribution to the conceptual literature, this study proposes a new definition of SI and its regional potential from a territorial perspective. In this way, we can progress towards an understanding of SI as a transversal discipline with a far-reaching regional impact.

To address the second objective, a comprehensive indicator system was created to reflect the two main paradigms present in SI (technocratic and democratic), taking the interrelated dimensions of the model into consideration: the economic,

institutional, social and, above all, environmental dimensions. In this way, society is given a prominent role in stimulating SI.

The indicator system proposed here is designed to evaluate territorial potential for social innovation (TP_SI) and is based on three main conditions. While some of these may be present in other studies, they have not been considered jointly within a single measurement system: a comprehensive approach addressing social, economic and institutional aspects; analysis at the aggregate, territorial level; and a focus on framework conditions and results. These form the basis of the proposed measurement model, which has been developed as a strategic way of closing social and territorial gaps and generating fairer, more equitable development.

The model's approach requires the concept of SI to be operationalized. In other words, once it has been defined, the abstract concept must be converted into observable indicators or metrics that allow the concept of territorial potential for SI to be applied in practice. This process involves identifying the elements to be measured, selecting and integrating indicators and sub-indicators, components and dimensions, and finally, presenting them in a logical order.

In line with Alkire and Deneulin (2009), identification of the dimensions and components in the model is based on a combination of three methods: literature review, official data and expert opinion, with unstructured interviews providing feedback.

The logical structuring of the indicators is dependent upon the conceptual framework on which they are based. In this regard, Innobasque (2013) identify five non-exclusive classification criteria, which are present in many of the available indicator systems in various forms: innovation value chain; distinction between internal and external factors; institutional vision of the innovation system; functional vision of the innovation system, and finally, input-output or framework-performance ordering using process logic, differentiating between inputs or framework conditions and results or innovation performance. The latter was used in this study and is the most commonly employed structuring approach. The effects or impact (outcome) were added to these indicators (Innobasque, 2013).

The methods chosen to construct the model were based on quality sources and appropriate IT tools at each stage of the research. The first stage was to systematize knowledge of the instruments and methods used to measure social innovation. VOSviewer software was used to statistically process the relevant content and represent it on two-dimensional maps for visualization, exploration and interpretation, facilitating understanding and assimilation of the information generated.

Following this, the data relevant to the study were compiled using official regional statistics, which were validated using SPSS 24.0 software. The empirical indicators and sub-indicators related to the indicators for the TP_SI model were statistically validated via a multivariate analysis to quantify the confidence level of a measurement scale for the unobservable magnitude (indicator), constructed using the n variables observed (sub-indicators) and applying Cronbach's Alpha.

For the validation of the indicator model proposal built from the approaches and theoretical developments available to date, a collaboration of 16 experts from 5 Ibero-American countries -Chile, Spain, Colombia, Ecuador and Peru- has been requested. The experts are teacher-researchers in the field of socio-economic development and

Table 1. Methodology used in model construction.

Operationalization of TP SI concept	Method	Sources	IT tools
Selection and integration of measures *Dimensions-components-indicators -sub-indicators*	• Theoretical basis *Available instruments and measuring proposals* • Collection and analysis of existing data *Censuses, surveys, summary statistics, administrative registers* • Expert validation *Surveys and unstructured interviews*	• Work published in high-impact journals indexed in WoS and Scopus • Official social, economic and institutional statistics at the regional level • International scholars and specialists in SI	• VOSviewer software *for visualizing and systematizing specialized scientific knowledge* • SPSS 24.0 software package *for indicator quality study* • Professional online survey software (OnlineEncuesta)
Logical structuring of measurement set *From a process approach*	• Input-output-outcome • Framework-performance *Empirical assumptions on cause-effect relationships between indicators*	• Results obtained in selection and measurement integration stage	• SPSS 24.0 software package *for multivariate analysis* • Tableau Public software *for visualization and interpretation of results*

Source: the authors.

innovation with an outstanding track record in this area, embodied in publications in impact magazines. The validation was carried out for two months, through an online questionnaire (Appendix A), whose objective was to verify the degree of relevance of the components and indicators for the measurement of the five dimensions of the model of Territorial Potential for Social Innovation. The observations and feedback from the experts through the comments have allowed the model to be validated obtatining its latest version.

Finally, once the set of indicators had been structured logically, the system was used to conduct a situational analysis of the region. Real-life application and analysis using Tableau Public software was an important test of the model and its structure, confirming its practical relevance in the study of social innovation (Table 1).

As a result of this process, we propose a new indicator system of a global nature, which can be applied to any region and adapted to reflect its unique characteristics. Planning Area 7 in Ecuador was chosen for a pilot test to validate the system.

Ecuador, a Latin American country with a population of 17,023,000 and a 2018 Multidimensional Poverty Index value of 36.6% (INEC, 2019, 2020), lags significantly behind other countries in the region with respect to key development indicators such as 'economic performance' and 'innovation' (WEF, 2019, 2020). Despite making some progress, it continues to face significant challenges, which are reflected in the gaps, disparities and imbalances that are commonly observed in the country (ECLAC., 2022; INEC, 2019).

Change in Ecuador is therefore imperative and there is a pressing need for improvement of the factors that influence its capacity for innovation, which is key to the country's development. Ecuador urgently requires better use of its territorial resources, greater economic specialization, transformation of the productive matrix and endogenous development (Planifica Ecuador, 2020). All regions must be stimulated, with a particular focus on the most at-risk areas. In this respect, 89 of the country's 221 cantons have been designated as vulnerable (Senplades, 2011), many of which may be described as economically depressed.

In this context, Planning Area 7 stands out in particular, with 70% of its cantons designated as depressed despite its strategic location for international trade in close proximity to Peru. The high concentration of vulnerable and depressed cantons in Planning Area 7 reflects the significant economic and social problems present in the region. It is here that mechanisms to support social innovation initiatives must be implemented and strengthened, interaction among stakeholders stimulated and a more efficient use of resources applied.

On the basis of these characteristics, the region was chosen for a pilot experiment to validate the new indicator system proposed in this article, especially suited to disadvantaged regions.

This article thus seeks to contribute to social innovation processes by applying this new measurement system to decision-making and development strategies in Planning Area 7.

3. Results and discussion

3.1. Definition of social innovation and territorial potential

Social innovations are closely related to the socioeconomic context in which they are applied and are determined by or even dependent upon a concrete reality, which they seek to improve and/or transform (Moulaert & Mehmood, 2020). Social innovation thus comprises multiple, varied practices and initiatives in pursuit of different socioeconomic objectives with diverse territorial stakeholders (Howaldt et al., 2018).

This explains the current abundance of definitions, with each study drawing on and explaining its use of the concept according to the approach, analysis and nature of the application used (Jenson & Nagels, 2022).

In order to navigate this complex, diffuse and fragmented field, we must systematically identify the most common characteristics and differentiating elements of social innovation. It is also relevant to highlight the dual nature of SI, which relates to both 'innovation' and 'society'. As an 'innovation', SI is characterized by novelty, efficiency, economic sustainability, scalability and replicability (Krlev et al., 2014). The 'social' component refers largely to the expected impact of an innovation, understood as the social change brought about in the place where it is applied. This may be interpreted as meeting the needs of vulnerable populations and sectors of society (Krlev et al., 2014; Leadbeater, 2010, Mulgan, 2012); solving problems (Donaldson & Mitton, 2022; Schubert, 2021; Tiwari & Herstatt, 2022); or bringing about change in relationships and social transformation (Heiskala, 2015; Jenson & Nagels, 2022; Klein & Tremblay, 2013; McGowan et al., 2021; Moulaert & Mehmood, 2020; Nicholls et al., 2015).

Based on a review of the literature on SI and its measurement, this study proposes its own definition of SI, which echoes its role as a catalyst for regional development: *social innovation* is a process driven by territorial stakeholders in a collective search for novel solutions to demands, needs and opportunities with a view to improving quality of life for vulnerable groups and society as a whole and working towards social transformation and integral territorial development.

In our definition, the SI process is conceptualized as a set of multiple, simultaneous, collective actions taking place in a context of uncertainty, where territorial

stakeholders operate at the intersection between three areas of activity—social, economic and institutional. This contributes to short and medium-term social transformation, with territorial development as the ultimate long-term objective.

The first objective of this study has therefore been addressed: we have set out a integral conceptual framework for SI that considers its regional impact.

It is relevant to note that the SI process gives rise to new social relationships in different areas, which may be commercial or territorial in scope, creating opportunities for active citizen participation to address problems and generate substantial change to transform society (Jessop et al., 2013; Martin et al., 2017; Teasdale et al., 2021). New roles emerge, enhancing society's capacity to resolve problems and promoting more efficient use of assets and resources (Edwards-Schachter, 2021; Martin et al., 2017). There is an emphasis on civic engagement and community involvement for collective impact, especially in post-pandemic times (Anheier et al., 2015; Donaldson & Mitton, 2022; Jaeger-Erben et al., 2015; Jessop et al., 2013). The density of the networks of alliances between territorial stakeholders that operate at different levels (local and regional), both vertically (local stakeholders and government) and horizontally (intersectoral), depends on the structure of the social fabric. Development processes thus take on a more social character, with broad participation from diverse organizations (Cloutier, 2003; Nicholls et al., 2015).

In this context, 'popular' or 'frugal' social innovation plays an important role. This type of innovation, implemented in conditions where materials and financial resources are scarce, focuses on creating inexpensive yet good quality solutions and may have a significant social impact on more sustainable, inclusive development (Fraunhofer ISI, 2017; Tiwari & Herstatt, 2022). It is particularly applicable to developing countries with scarce resources and low incomes where relevant public policies are needed to stimulate this kind of development in terms of both commercial activities and territorial scope.

On the one hand, therefore, the role of SI in territorial development is central in influencing spatial dynamics. On the other hand, territorial specificities may in turn determine the possibilities for generating and stimulating SI, which is dependent upon the quality of the context in which it emerges and develops.

In order to stimulate SI, the region must be profiled in terms of its *territorial potential*, which is underpinned by social, economic and institutional conditions and the ability of territorial stakeholders to mobilize, strengthen, expand and capitalize on improvements to existing conditions. In the short and medium term, this creates socially innovative environments that will drive integral territorial development.

Whereas SI is a process, territorial potential for social innovation (TP_SI) is a dynamic set of framework conditions.

Here, territorial development is approached as a integral, sustainable process. In order to fulfill its key role in promoting this type of development, SI requires a set of framework conditions based on territorial potential for social innovation that takes social, economic, institutional and environmental aspects into consideration.

3.2. Proposal for a new indicator system

The indicator system for measuring territorial potential for SI proposed here is one of the outcomes of the research conducted for this study and is based on five

dimensions. The first three -Organized and Participatory Society (OP_S), Democratic and Pluralist Economy (DP_E) and Institutionalization of Social Innovation (I_SI)- identify the conditions and resources available for SI in a region. The fourth dimension -Socially Innovative Environments (SI_E)- reflects how effective the use of the existing conditions has been in generating SI. The fifth dimension -Integral Territorial Development- refers to the context in which the effects of SI should be seen in the long term.

One of the innovative contributions of the model is that it adopts a territorial approach. In other words, SI is measured and studied in terms of the two main perspectives currently used to study the phenomenon (commercial and territorial).

It is therefore suggested that, at the territorial level, SI should be measured with a focus on the interlinkages between social, institutional and economic factors in order to develop a integral approach to the interaction between SI and territory.

This study uses framework-performance logic to structure the different metrics—dimensions, components, indicators and sub-indicators -within the system. The framework conditions encompass three dimensions: social, economic and institutional. Meanwhile, the results (performance) dimension is represented by Socially Innovative Environments and the impact (outcome) dimension is represented by Integral Territorial Development.

Another innovative aspect of the proposed system is that it focuses on Socially Innovative Environments, measured in terms of the territorial revitalization and social and territorial cohesion resulting from existing social, economic and institutional conditions present in the region. Within this framework, the three basic dimensions determine the region's capacity for developing innovative social dynamics. The study works with a set of indicators that enable the degree of progress in creating socially innovative environments to be detected, providing the most realistic overview possible of the current situation in each region and the potential relationship between social, economic, environmental and other conditions in long-term Integral Territorial Development (outcome).

The Territorial Potential for Social Innovation Indicator System (TP_SI) proposes a metric for monitoring and evaluating the development of SI in regional environments by measuring relevant aspects. As such, the TP_SI model can be used for two different purposes: comparing different regions and assessing a region's development over time.

The System of Indicators proposed for the model for measuring the territorial potential for Social Innovation, by its nature, includes quantitative and qualitative indicators, given the nature of the phenomenon of social innovation and its manifestations at the territorial level. Quantitative indicators are compiled from official statistical sources; Qualitative indicators are obtained through the application of perception surveys (Appendix B).

The TP_SI indicator system is linked, determined and sometimes even conditioned by the official data sources containing the information required in order to apply the system. Following an exhaustive review of the scientific literature, the model was designed by identifying different data collection instruments at the sub-national level, developed by the institutions responsible for their respective regional statistical

systems. This approach was possible due to the generic nature of the model, which is applicable to different regions.

The proposed TP_SI Indicator System was submitted for validation by international experts from five countries (Chile, Spain, Colombia, Ecuador and Peru) via an online questionnaire and an unstructured interview (Figure 1).

The system was then designed in accordance with the process outlined in Figure 1:

In the '*Organized and Participatory Society*' dimension, a broad definition of society is adopted, encompassing citizens and organizations but excluding the for-profit entities covered by the second dimension (Democratic and Pluralist Economy). Civil society is therefore understood to comprise individuals, collectives, organizations and institutions and to represent a force for progress towards common interests (CIVICUS, 2019).

The broad understanding of society underpinning this dimension requires the selection of components and indicators allowing common aspects relevant to social innovation to be compiled, on the one hand, and the limits shared with other areas (such as the economic sector) to be managed in the most satisfactory manner possible, on the other (Table 2).

The second dimension used in this analysis, '*Democratic and Pluralist Economy*', follows Razeto (1999), who points to the idea that a new economy should be based on a distinct 'democratic' market and a 'pluralist' method of economic organization. The presence of a democratic, pluralist economy does not entail a rejection of the traditional market economy, but is understood instead as way of organizing the

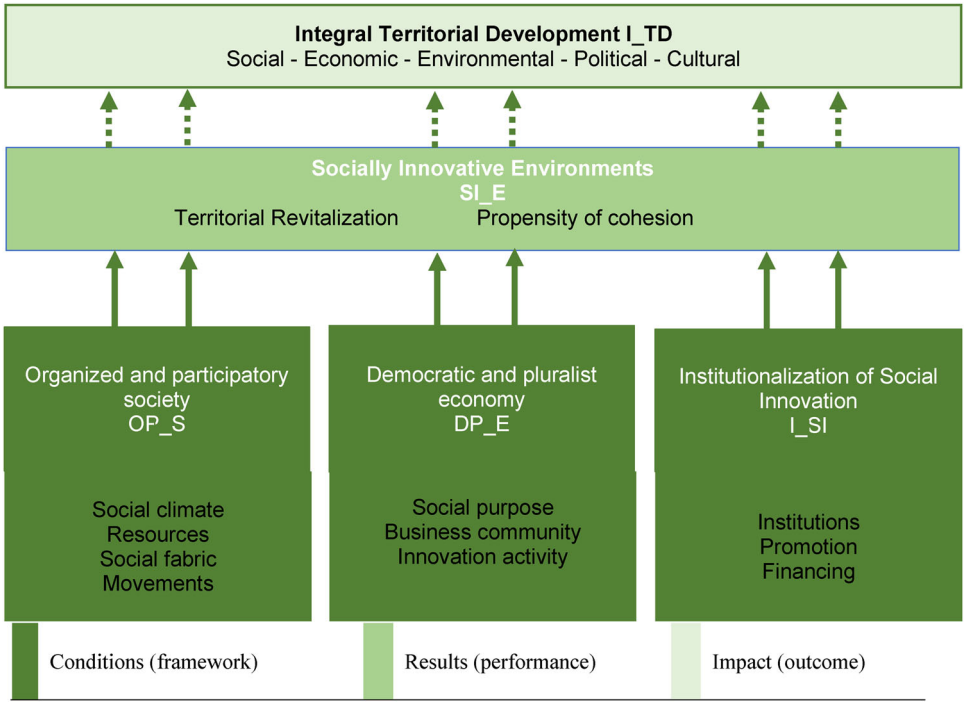

Figure 1. Territorial potential for social innovation indicator system.
Source: the authors.

Table 2. Components and indicators: 'Organized and Participatory Society' dimension.

Components	Social Climate	Territorial Resources	Social Fabric	Movements
Indicators	Political civic-mindedness Trust Personal and community harmony Social volunteer work Environmental awareness	Level of education Connectivity Entrepreneurial culture	Density and continuity Structure Cooperation	Political Social

Source: the authors.

Table 3. Components and indicators: 'Democratic and Pluralist Economy' dimension.

Components	Social Purpose	Business Community	Innovation Activity
Indicators	Business objectives Environmental management	Density and continuity Structure Cooperation	Innovation sector Investment Obstacles

Source: the authors.

Table 4. Components and indicators: 'Institutionalization of Social Innovation' dimension.

Components	Institutions	Promotion	Financing
Indicators	Transparency and best administrative practices Networks and alliances	Government programs Government incentives Supporting infrastructure	Availability Protection Social spending

Source: the authors.

economy in a region whereby the new is linked to the traditional in a harmonious, complementary fashion.

A region's economy may be said to be democratic when market control and wealth are socially distributed and dispersed, and where no single company exercises monopolistic or highly concentrated power. In a democratic market, true equality of opportunities is established, reducing the power of large corporations and boosting activity among small-scale economic actors (Razeto, 1999).

However, even if a market functions in a fully democratic manner, this is not sufficient (Razeto, 1999). Action is required from the other two main sectors -the public, state economy and the social, solidarity economy- to meet needs among certain segments of the population which the traditional market is unable or uninterested in addressing (economic inclusion and fulfilling the needs of vulnerable groups, among others). This requires a pluralist economy based on the three sectors—public, private and collective. Drawing on this understanding of the economy, this dimension contains three components: social purpose, business community and innovation activity (Table 3).

The '*Institutionalization and Social Innovation*' dimension is complex and requires the existence of a national, government-managed social policy to encourage social innovation and entrepreneurship; specific regulatory frameworks for businesses and social entrepreneurs; a transparent, fair legal system that genuinely operates under the rule of law; and relationships between territorial stakeholders, among other aspects. In short, flexible regulations and policies to encourage social innovation are needed. Measuring these types of indicators, which are predominantly qualitative in nature, is difficult but necessary, at the regional and sub-regional level (Innobasque, 2013) (Table 4).

Table 5. Components and indicators: 'Socially Innovative Environments' dimension.

Components	Territorial Revitalization	Propensity for Cohesion
Indicators	Social Commercial	Social Territorial

Source: the authors.

The main lines of social innovation policy emerge at the national level. But, taking into account the particularities of each territory, it is crucial to adapt them to each local area to achieve more appropriate results.

The first three dimensions described -Organized and Participatory Society, Democratic and Pluralist Economy, and Institutionalization of Social Innovation- represent the framework conditions and measure the level of regional resources and initial conditions required for SI to emerge at a given time.

The fourth dimension measures the variation or evolution of territorial performance over a given period, allowing the trend towards creation of socially innovative environments to be calculated. A '*Socially Innovative Environment*' is defined as a region which systematically capitalizes on aptitudes and behaviors that are oriented to the production, transmission and accumulation of knowledge and expertise, resulting in an increase in productive and social capacity in order to fulfill needs and solve problems. The ultimate objective of such environments is improved wellbeing and development (Lisetchi & Brancu, 2014). Socially innovative environments are those that facilitate societal processes and empowerment, improving the capacity for SI diversification in particular (ECLAC., 2022).

Most of the available statistics adopt a Schumpeterian perspective, positioning businesses as the main protagonists in processes for generating innovation. This approach allows the creation of socially innovative environments to be explained from a business perspective only. In order to fulfill the stated objective, the proposed indicator system must contextualize innovation regionally and incorporate other variables (social, environmental and institutional) that play a role in the region's sustainable development.

The approach adopted for this dimension is based on the assumption that an environment considered to be innovative must display certain tangible and intangible characteristics. The tangible characteristics are identified and quantified using conventional territorial revitalization indicators that reflect changes in the social fabric and business community, while social and territorial cohesion serve as the intangible indicators (Table 5).

Finally, the '*Integral Territorial Development*' dimension revolves around the idea that each region is unique in terms of its characteristics, conditions and, above all, development priorities. As such, the variables selected when applying the proposed indicator system to a specific region should correspond closely to its development strategies and plans, addressing regional characteristics and specificities. In terms of regional needs and demands, SI must have a greater impact, especially in the areas targeted by strategic development objectives (Table 6).

As in the Socially Innovative Environments dimension, the indicators in this dimension are presented as rates of change due to the time they take to emerge. Performance indicators should preferably be available for a baseline year in order to

Table 6. Components and indicators: 'Integral Territorial Development' dimension.

Components	Social	Economic	Environmental	Political and Cultural
Indicators	Housing, Health, Education, Security, Migration	Diversification of productive matrix	Environmental Sustainability	Civic and community participation Cultural environment

Source: the authors.

measure variation over the subsequent period. The impact of SI on development in the form of profound structural changes in all areas (social, economic, environmental, political and cultural, among others) can only be seen over the long term.

The proposed dimensions with their components and indicators are integrated into the Territorial Potential Measurement System for Social Innovation, the summary of which is presented in Table 7. The five dimensions of the proposal are based on 16 components. Each of these components is built basing on 41 indicators. Finally, each indicator is calculated from its sub-indicators, as a basic unit of measurement, which are obtained from the primary and secondary statistical information sources identified and available in the territories. The theoretical proposal validated by the experts contemplates 330 sub-indicators, where 250 of them measure the framework conditions (Appendix A). This number of sub-indicators may be lower, depending on a data availability, as in the case of Planning Zone 7 in Ecuador (Appendix B).

It is important to emphasize that the indicator system created by the authors, which is structured around five dimensions (Organized and Participatory Society, Democratic and Pluralist Economy, Institutionalization of Social Innovation, Socially Innovative Environments and Integral Territorial Development) and centered on the main factors driving SI, may be used both to perform a situational analysis of a region and to compare different regions. In the first case, each indicator is applied individually, permitting a detailed analysis. In the second, the system can be used to guide the creation of a composite index for comparison between different regions. The depth of analysis that is possible will always depend on the availability of data for each case study, which will vary depending on the unique characteristics of each region.

The proposed indicator system serves to identify regions with superior capacity and enables the patterns and conditions contributing to their performance to be studied. It could therefore be used to formulate policies for promoting SI. The model also links theoretical assumptions to empirical indicators.

As previously noted, the indicator system presented here may be applied to any region, with particular emphasis on more disadvantaged areas. It was piloted in Planning Area 7 in Ecuador, an underdeveloped region in one of the least-developed countries in Latin America, and produced important results that may contribute to the region's development.

3.3. Validation of the territorial potential for social innovation index as applied to Planning Area 7 in Ecuador

The new indicator system proposed in the previous section has been designed for use in all regions of the world. However, it is important to adapt it to the context under

Table 7. Summary: proposed territorial potential for social innovation indicator system.

Dimensions/Components/Indicators	No. sub-indicators	Dimensions/Components/Indicators	No. sub-indicators
Organized and Participatory Society O PS	**81**	**Socially Innovative Environments SI_E**	**45**
Social climate			
Political civic-mindedness	4		
Trust	3	Territorial revitalization	
Personal and community harmony	12	Social	5
Social volunteer activity	4	Commercial	28
Environmental awareness	7		
Territorial resources			
Level of education	5	Propensity for cohesion	
Connectivity	14	Social	7
Entrepreneurial culture	7	Territorial	5
Social fabric			
Density and continuity	4		
Structure	11		
Cooperation	1		
Movements			
Political	3		
Social	6		
Democratic and Pluralist Economy DP_E	**86**	**Integral Territorial Development I_TD**	**35**
Social purpose			
Business objectives	8		
Environmental management	7	Social	
Business community		Housing	5
Density and continuity	7	Health	7
Structure	8	Education	5
Cooperation	22	Safety and Migration	2
Innovation activity			
Innovation sector	11		
Investment	14		
Obstacles	9		
		Economic	
Institutionalization of Social Innovation	**83**	Diversification of productive matrix	3
Institutions			
Transparency and best administrative practices	8	Environmental	
Networks and alliances	5	Environmental sustainability	5
Promotion			
Government programs	22		
Government incentives	7	Political and Cultural	
Supporting infrastructure	8	Civic and community participation	5
Financing		Cultural environment	3
Availability	12		
Protection	16		
Social spending	5		
Total dimensions			5
Total components			16
Total indicators			41
Total sub-indicators			330

Conditions (framework) Results (performance) Impact (outcome)

Source: the authors.

study. In order to validate the system, it was piloted in one of the nine regions in Ecuador (Planning Area 7) to identify the available conditions for generating SI and assess the degree to which socially innovative environments are being developed in the region.

Planning Area 7 is one of the most disadvantaged regions in Ecuador. It is located in the south and has a surface area of 27,492 km^2, representing 11% of the country's territory. It has 1,325,000 inhabitants (7.8% of the total population), 65.7% of whom live in urban areas and 34.3% in rural areas. The population is 50.2% male and 49.8% female (INEC, 2019).

The region contains three of the country's 24 provinces (El Oro, Loja and Zamora Chinchipe), with 39 of the 221 cantons and 191 of the 1,149 parishes in Ecuador. 70% of the region's cantons are considered to be depressed. For this reason, the implementation of initiatives to promote social innovation and the activation of endogenous resources is key for territorial development.

Therefore, identifying the region's main strengths and weaknesses can inform public policies for promoting social innovation as a far-reaching alternative for assessing and resolving problems, closing gaps and generating development.

In view of the potential benefits generated by SI, governments are increasingly seeking to take effective action to promote this form of innovation, commissioning academic studies that generate the knowledge needed for public action.

This study adds value to previous research, focusing on the factors involved in generating social innovation using meso-level (regional) analysis. In order to achieve the research objective, the authors opted to create the TP_SI Composite Index, which is based on the system set out in this article and adapted to the specific characteristics of the region under study.

For the construction of the composite index, the phased design methodology developed by the OECD (2008) has been applied. The referred stages are: the selection of indicators based on the theoretical-conceptual framework, the multivariate analysis, the imputation of missing data, the normalization of the data, the weighting and aggregation of the indicators, and the analysis of uncertainty and sensitivity.

The inclusion of the composite index of the indicators and sub-indicators, previously identified according to the conceptual criteria of the theoretical framework, was subjected to statistical validation by applying the Cronbach's Alpha Coefficient. This made it possible to verify that each evaluated indicator reliably collects information from the sub-indicators that comprise it. For imputation of missing data, explicit modeling using the mean as the allocation measure was selected. Identified outliers were adjusted to prevent undesirable bias. In the data normalization stage, among the available techniques, the ordering of indicators between units of analysis and re-scaling has been considered as the most appropriate for this study.

Finally, the different combination of viable methods according to the type of normalization, weighting and aggregation previously analyzed in each stage, made it possible to establish a delimited number of work scenarios, to verify the degree of subjectivity of the index and evaluate its sensitivity.

A total of 5,226 observations (excluding lost data) corresponding to 39 units of analysis (the cantons in Planning Area 7) were obtained. 134 sub-indicators were then applied to these units, leaving the overall structure for measuring TP_SI unaltered.

Statistical sources related to the indicators in the TP_SI model were then selected. Questionnaires containing relevant data were reviewed and information from other public and private organizations such as civil society organizations, social and political

movements, the national supervisory bodies for companies and banks, the Ecuadorian Social Security Institute and the country's Internal Revenue Service was consulted.

The first part of the analysis focused on studying the quality of the indicators. Indicators and sub-indicators were first selected for inclusion in the composite index according to the conceptual criteria imposed by the theoretical framework. These indicators and sub-indicators then underwent statistical validation using several multivariate analysis techniques.

As a result of this statistical procedure, 23 indicators were obtained, represented by 67 reliable sub-indicators which are distributed equally across all components and dimensions, allowing the index proposed in this study to be calculated. In other words, this step produced the indicators and reliable sub-indicators which measure the phenomenon under study and are suitable for inclusion in the composite index.

Based on the Territorial Potential for Social Innovation Index (TP_SI) for Planning Area 7 and applying the theoretical framework underpinning the model and the indicator system produced in this study, the results obtained are presented below. Responses were sought to questions such as:

- What resources are available to Planning Area 7 and its cantons to promote SI?
- How are these resources distributed spatially?
- Which dimensions of the TP_SI model are the most favorable and which are less developed?

By exploring these questions, we have been able to identify the main challenges involved in promoting SI in the region under study and in other vulnerable areas throughout the country.

Following rigorous analysis of the indicator system proposed in this study, adapted to the regional specificities of Planning Area 7, the most relevant aspects are as follows:

- Good performance on indicators in the Organized and Participatory Society dimension in the most vulnerable cantons.
- Weak and incipient development of the business community, albeit one that is democratic and pluralist in nature, with significant presence of SMEs and organizations operating in the informal, solidarity economy.
- Government incentives for institutionalizing SI and supporting regional efforts are underused, calling for significant improvements.
- The financial wing of Ecuador's informal, solidarity economy as an important agent in driving SI through the allocation of funds for micro-credits. These are essential for micro-ventures and SI and must be stimulated by public policies.
- Existence of significant inequality between cantons which, if not addressed, could further widen territorial gaps, curbing regional development in the short and medium term.

These results, as well as others obtained from the application of the TP_SI model to a specific region, allow us to observe the practical scope of the integral nature of the proposed system compared to other works of a more specific nature, which was mentioned

at the beginning of this study. In this regard, other available tools and measurement systems take a sectoral approach to SI, exploring topics such as the impact of community and third-sector initiatives (Anheier et al., 2015; Dancause & Longtin, 2014), the capabilities of regional organizations (Benedek et al., 2016; Unceta et al., 2016) and the performance and innovation capacity of public sector organizations (Bloch et al., 2009).

The TP_SI model proposed here provides a overview of the existing economic, institutional and social capabilities for developing this multidimensional phenomenon in a specific region, contributing in conceptual terms to the field of SI measurement and in empirical terms to the practical application of such measurement systems.

By applying the rigorous, structured methodology of the proposed indicator system at a highly disaggregated level, this analysis enhances our understanding of the region, its endogenous resources and its potential, allowing strategic measures for improvement to be designed that provide a tailored response to regional circumstances and offer a greater guarantee of success.

The pilot study in Ecuador's Planning Area 7 opens up new and diverse possibilities for the model to be applied to other regions. The system proposed in this study thus contributes to territorial development, not only in the most disadvantaged regions but also in more advanced regions.

4. Conclusions

By demonstrating that the components of territorial potential for social innovation are a key driver of development, this article has fulfilled its overarching objective. Based on this, a system of indicators capable of measuring territorial potential for social innovation was designed, which is applicable to any region and adaptable to specific regional needs and characteristics.

Based on your recommendation, the following explanatory paragraph is included in the conclusions: To validate the theoretical model, a pilot application was carried out in Planning Area 7 of Ecuador, through the development of the Territorial Potential Index for Social Innovation. Based on the specific data collected from the region, after analyzing them according to the design methodology by stages of the composite index, an adjustment to the initial theoretical indicator system has been achieved, obtaining a model adjusted to the conditions of the analysis region. This produced a series of results which will be very useful in designing and implementing regional socioeconomic policies and ensuring a higher rate of success.

The empirical contribution made by this article is therefore highly relevant in promoting integral regional development and improving societies in specific regions.

The article also makes a significant, highly original contribution in conceptual and methodological terms by incorporating new elements into the scientific debate on social innovation and by approaching the territorial variable from a integral perspective, encompassing social, economic and institutional dimensions and the cross-cutting environmental variable.

This study opens up some very interesting new lines of research, incorporating new indicators—depending on the research objectives—and the possibility of applying them to different regions.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

Addarii, F., & Lipparini, F. (2017). *Vision and trends of social innovation for Europe*. European Commission, DG Research. https://doi.org/10.2777/08700

Alkire, S., & Deneulin, S. (2009). The human development and capability approach. In S. Deneulin & L. Shahani (Eds.), *Introduction to the human development and capability approach: Freedom and Agency*. Earthscan (pp. 22–48).

Anheier, H., Krlev, G., Preuss, S., & Mildenberger, G. (2015). *Frameworks, the third sector and social innovation. Policy Brief. Deliverable 2.5 of the project: 'Impact of the third sector as social innovation'(ITSSOIN)*. European Commission, DG Research.

Avelino, F., Dumitru, A., Cipolla, C., Kunze, I., & Wittmayer, J. (2019). Translocal empowerment in transformative social innovation networks. *European Planning Studies*, *28*(5), 955–977. https://doi.org/10.1080/09654313.2019.1578339

Benedek, J., Kocziszky, G., Somosi, M., & Balaton, K. (2016). Generating and measuring regional social innovation. *Club of Economics in Miskolc*, *12*(Special Issue), 14–25.

BEPA. (2011). *Empowering people, driving change. Social Innovation in the European Union*. European Communities. https://doi.org/10.2796/13155

Bloch, C., Jorgensen, L., Norn, M., & Damvad, T. (2009). *Public Sector Innovation Index-A Diagnostic Tool for measuring innovative performance and capability in public sector organisations*. Exploratory project commissioned by NESTA, Aarhus University.

Bund, E., Gerhard, U., Hoelscher, M., & Mildenberger, G. (2015). A methodological framework for measuring social innovation. *Historical Social Research*, *40*(3), 48–78. https://doi.org/10.12759/hsr.40.2015.3.48-78

Caroli, M., Fracassi, E., Maiolini, R., & Carnini, S. (2018). Exploring social innovation components and attributes: A taxonomy proposal. *Journal of Social Entrepreneurship*, *9*(2), 94–109. https://doi.org/10.1080/19420676.2018.1448296

CEPAL & Kellogg. (2017). *Experiencias en Innovación Social América Latina y El Caribe*. ONU.

CIVICUS. (2019). Índice de la Sociedad Civil. Retrieved January 13, 2019, from https://evolutas.wordpress.com/2006/11/03/el-indice-de-la-sociedad-civil-de-civicus/

Cloutier, J. (2003). *Qu'est-ce que l'innovation sociale?*. Les Cahiers du CRISES.

Dainienė, R., & Dagilienė, L. (2016). Measurement of social innovation at organisation's level: theoretical issues. *Economics and Business*, *29*(1), 96–103. https://doi.org/10.1515/eb-2016-0027

Dancause, L., & Longtin, D. (2014). Guide pour développer vos indicateurs d'innovation sociale. *RQIS*, 1–37. Retrieved December 1, 2020, from http://www.rqis.org/wp-content/uploads/2021/11/Guide_dev_vos_indicateurs_IS_v1-2-2.pd

Donaldson, C., & Mitton, C. (2022). Health economics and emergence from COVID-19 lockdown: the great big marginal analysis. *Health Economics, Policy and Law*, *17*(2), 227–231. https://doi.org/10.1017/S1744133120000304

ECLAC. (2022). *Social cohesion and inclusive social development in Latin America: A proposal for an era of uncertainties*. United Nations.

Edwards-Schachter, M. (2021). Mapping innovation diversity. In B. Godin, G. Gaglio, & D. Vinck (Eds.), *Handbook on alternative theories of innovation* (pp. 79–105). Edward Elgar Publishing.

Eichler, G., & Schwarz, E. (2019). What sustainable development goals do social innovations address? A systematic review and content analysis of social innovation literature. *Sustainability (Switzerland)*, *11*(2), 522–544. https://doi.org/10.3390/su11020522

EIU. (2016). Old problems, new solutions: Measuring the capacity for social innovation across the world. Retrieved from https://www.eiuperspectives.economist.com/sites/default/files/Social_Innovation_Index.pdf

European Commission. (2017). *SI-DRIVE report summary*. European Union.

FMK-UDD. (2014). *Indice de potencial de innovación social (IPIS)*. FMK-UDD.

Fraunhofer ISI. (2017). *Frugal innovation for Europe*. Retrieved July 19, 2019, from https://www.isi.fraunhofer.de/content/dam/isi/dokumente/ccp/2017/frugal_broschuere_web.pdf

Heiskala, R. (2015). *Relating Mann's conception to CRESSI, a deliverable report on institutions, social innovation & system dynamics from the perspective of the marginalised*. European Commission, DG Research.

Howaldt, K. C., Schröder, A., & Zirngiebl, M. (2018). *Atlas of social innovation: New practices for a better future*. European Commission, DG Research.

INEC. (2020). *Programa nacional de estadística.Quito*. Ecuador.

INEC. (2019). *Inventario de Operaciones Estadísticas.Quito*. Ecuador.

Innobasque. (2013). *A regional index to measure social innovation*. Basque Innovation Agency.

Jaeger-Erben, M., Rückert-John, J., & Schäfer, M. (2015). Sustainable consumption through social innovation: A typology of innovations for sustainable consumption practices. *Journal of Cleaner Production*, *108*, 784–798. https://doi.org/10.1016/j.jclepro.2015.07.042

Jenson, J., & Nagels, N. (2022). Social policy for institutional change. In J. Garritzmann, S. Häusermann, & B. Palier (Eds.), *The world politics of social investment: Political dynamics of reform (II)* (pp. 358–376). Oxford University Press.

Jessop, B., Moulaert, F., Hulgard, L., & Hamdouch, A. (2013). Social innovation research. A new stage in innovation analysis? In F. Moulaert (Ed.), *The international handbook on social innovation* (pp. 110–130). Edward Elgar Publishing. https://doi.org/10.4337/9781849809993.00020

Klein, J.-L., & Tremblay, P.-A. (2013). The social economy: A springboard for local development projects?. In M. Bouchard (Ed.), *Innovation and the social economy* (pp. 229–254). The Quebec Experience.

Krlev, G., Bund, E., & Mildenberger, G. (2014). Measuring what matters-indicators of social innovativeness on the national level. *Information Systems Management*, *31*(3), 200–224. https://doi.org/10.1080/10580530.2014.923265

Kuhn, T. (1962). *The structure of scientific revolutions* (O. Neurath, Ed.). The University of Chicago Press.

Leadbeater, C. (2010). *We-Think: Mass Innovation, Not Mass Production*. London: Profile Books. https://doi.org/10.1126/science.aab1422

Lisetchi, M., & Brancu, L. (2014). The entrepreneurship concept as a subject of social innovation. *Procedia – Social and Behavioral Sciences*, *124*, 87–92. https://doi.org/10.1016/j.sbspro.2014.02.463

Martin, C., Upham, P., & Klapper, R. (2017). Democratising platform governance in the sharing economy: An analytical framework and initial empirical insights. *Journal of Cleaner Production*, *166*, 1395–1406. https://doi.org/10.1016/j.jclepro.2017.08.123

McGowan, K., Westley, F., Moore, M., Alexiuk, E., Antadze, N., Geobey, S., & Tjornbo, O. (2021). The importance of systems thinking and transformation for social innovation research. In J. Howaldt, C. Kaletka, & A. Schröder (Eds.), *A research agenda for social innovation* (pp. 59–79). Edward Elgar Publishing. https://doi.org/10.4337/9781789909357.00011

Moulaert, F., & Mehmood, A. (2020). Towards a social innovation based epistemology in local development analysis. *European Planning Studies*, *28*(3), 434–453. https://doi.org/10.1080/09654313.2019.1639401

Mulgan, G. (2012). The theoretical foundations of social innovation. In A. Nicholls, & A. Murdock (Eds.), *Social innovation* (pp. 33–65). Palgrave Macmillan UK. https://doi.org/10.1057/9780230367098_2

Nicholls, A., Simon, J., & Gabriel, M. (Eds.) (2015). *New frontiers in social innovation research*. Palgrave Macmillan.
OECD. (2008). *Handbook on constructing composite indicators: Methodology and user guide*. Paris: OECD Publishing. https://doi.org/10.1787/9789264043466-en
Oeij, P., van der Torre, W., Vaas, F., & Dhondt, S. (2019). Understanding social innovation as an innovation process: Applying the innovation journey model. *Journal of Business Research*, *101*, 243–254. https://doi.org/10.1016/j.jbusres.2019.04.028
Pelka, B., & Terstrip, J. (2016). Mapping the social innovation maps—The state of research practice across Europe. *European Public &Social Innovation Review*, *1*(1), 3–16.
Planifica Ecuador. (2020). Plan Estratégico Institucional 2020-2021. Retrieved December 10, 2020 from https://www.planificacion.gob.ec/wp-content/uploads/downloads/2020/03/PEI-2020-2021.pdf
Razeto, L. (1999). La Economía de Solidaridad: Concepto, Realidad y Proyecto. *Persona y Sociedad*, *XIII*(2), 1–19.
Senplades (2011). Zonas económicas deprimidas. Retrieved December 10, 2020 from https://fdocuments.net/document/metodologia-definicion-de-zonas-economicas-deprimidas.html?page=7
Schubert, C. (2021). Social innovation: contested understandings of social change. In B. Godin, G. Gaglio, & D. Vinck (Eds.), *Handbook on alternative theories of innovation* (pp. 106–121). Edward Elgar Publishing.
Teasdale, S., Roy, M., Ziegler, R., Mauksch, S., Dey, P., & Raufflet, E. (2021). Everyone a changemaker? Exploring the moral underpinnings of social innovation discourse through real utopias. *Journal of Social Entrepreneurship*, *12*(3), 417–437. https://doi.org/10.1080/19420676.2020.1738532
Tiwari, R., & Herstatt, C. (2022). Frugale Innovation und Nachhaltigkeit in der Postcorona-Welt. In C. Schmiderer, P. Weber, & H. Müller (Eds.), *Theorie-Praxis-Dialog des Fachbereichs onlineplus der Hochschule Fresenius* (pp. 53–67). Kopaed.
Unceta, A., Castro-Spila, J., & Fronti, J. (2016). Social innovation indicators. *Innovation: The European Journal of Social Science Research*, *29*(January), 1351–1610. https://doi.org/10.1080/13511610.2015.1127137
Van Wijk, J., Zietsma, C., Dorado, S., de Bakker, F., & Martí, I. (2019). Social innovation: Integrating micro, meso, and macro level insights from institutional theory. *Business & Society*, *58*(5), 887–918. https://doi.org/10.1177/0007650318789104
WEF. (2019). *The global competitiveness report 2019*. WEF.
WEF. (2020). *The global competitiveness report. Special edition: How countries are performing on the road to recovery*. WEF.

Appendixes

Appendix A. Validation questionnaire of the indicator model for territorial potential for social innovation

In your opinion, to what extent are the following **Components**/Indicators/*Sub-indicators* relevant to dimensions of the System of Indicators of Territorial Potential for Social Innovation?

Measurement scale: *higt*, *medium*, *low*, *not aplicable*

Components / Indicators / *Sub-indicators*

I. Framework dimension. Organized and participatory society

1.1. Social Climate

1.1.1. Political civic mindedness

Political participation in electoral processes, % of total voters

Degree of knowledge of citizen rights and obligations; level of information regarding the basic legal instruments (constitution, treaties) that guarantee political, social and cultural rights, perception

1.1.2. Trust

Level of personal trust towards members of the immediate environment; among the members of the community; economic (household situation, employment prospects); ethics, perception

1.1.3. Personal y community harmony

Identification with the territory; personal satisfaction of the population with their life; collective satisfaction regarding participation within the immediate environment; tolerance with different groups; perception

1.1.4. Social volunteer work

Help vulnerable groups; voluntary work; membership in voluntary organizations, N° per 1000 inhabitants

1.1.5. Environmental awareness

Responsible consumption; saving resources; waste sorting; environmental concern, % of population

1.2. Territorial Recources

1.2.1. Level of education

EAP (economically active population) according to the level of studies (high school, university); Foreign EAP, % of total EAP; Public and private spending on education, % of GVA (Gross Value Added)

1.2.2. Connectivity

Internet access, users per 1000 inhabitants; Use technological equipment; have an account and use social media, % of population

1.2.3. Entrepreneurial culture

Families with their own business (total, by necessity, opportunity), families with their own business by type of reason, total %

1.3. Social Fabric

1.3.1. Density and continuity

Civil Society Organizations CSOs (total, urban, rural), N° per 1000 inhabitants; N° of years of operation, average

1.3.2. Structure

CSOs according to level (first, second, third), according to category, N° per 1000 inhabitants; Degree of associativity, % of second and third level CSOs in total CSOs

1.3.3. Cooperation

Linking CSOs with decentralized autonomous governments; Linkage according to sector, N° per 1000 inhabitants

1.4. Movements

1.4.1. Política l

Political movements; Social networks; Followers, N° per 1000 inhabitants

1.4.2. Social

Registered social movements; of priority groups (youth, women, others), Social networks, Followers, N° per 1000 inhabitants

Comments

II. Framework dimension. Democratic and pluralist economy

2.1. Social purpose

2.1.1. Business objectives

Weighted importance of the objective increase the variety of goods or services; improve their quality and replace outdated ones; increase production capacity; reduce costs; improve the occupational health and safety of employees, perception

2.1.2. Environmental management

Personnel dedicated to environmental activities, %; environmental consulting (outsourcing or specific department within the structure); environmental accreditation (Certification, Impact Statement or License), % of companies

2.2 Business Community

2.2.1. Density and continuity

Companies (total, urban, rural), N° per 1000 inhabitants; years of operation of companies, average; Employed population, % of the EAP

2.2.2. Structure

Weight of companies according to size (micro, small, medium), according to economic organization (Social and Solidarity Economy SSE, public and private companies, % of GVA

(*continued*)

Continued.

Components / Indicators / *Sub-indicators*

2.2.3. Cooperation
weighted importance of information by type of source and of cooperation by type of collaborator, perception; Cooperation with consumers; competitors; providers; consultants; universities; S&T public entities, % of companies

2.3 Innovation Activity

2.3.1. Innovation Sector
Specialized staff training; Employees (total and women) according to training level (PhD, master's degree, specialist, third level, technician or higher technologist), %

2.3.2. Inverstment
R&D, market studies, % companies; Investment in Innovation according to the objective (productive, social, environmental), according to financing (universities, other sources), according to items (acquisition of machinery and equipment; hardware; software; disincorporated technology; consultancies and technical assistance; engineering and industrial design; training), % of total

2.3.3. Obstacles
Weighted importance of the cost factor (lack of funds; high innovation costs); of the knowledge factor (lack of qualified personnel, difficulty in finding cooperation partners for innovation), perception

Comments

III. Framework dimension. Institutionalization of Social Innovation

3.1. Institutions

3.1.1. Transparency and best administrative practices
Existence of institutional accountability and transparency mechanisms; of social inclusion; of concerted work with the various local actors, of the proper use of services and the promotion of a payment culture, %.
Expenses financed (personnel, current, and production) with own funds; efficiency in the use of resources (capital expenses; investment), %

3.1.2. Networks and alliances
Memberships in networks relevant to SI (local, provincial, regional and national), average; Public-Private alliances, N° projects in execution

3.2. Promotion

3.2.1. Government programs
Level of knowledge about support programs (quality improvement and certification; personnel training; support for innovation; technical assistance for technology adoption and business management; support for entrepreneurship; promotion of exports), % of companies that have the knowledge; Access to support programs, % of companies that access

3.2.2. Government incentives
Usefulness of government incentives for their business valuation (adaptation to specific needs; interest rate charged; required guarantees; established bureaucratic processes; clarity of guidelines; management of confidentiality), perception;Tax reduction for social purposes, % of territorial GVA

3.2.3. Supporting infrastructure
Broadband penetration rate, %; level of development of the state road network with respect to traffic (urban and rural), population served; investment in technological equipment, $ per 1,000 inhabitants; centers for learning and collaborative work (incubators, coworking, infocenters), N° per 1,000 inhabitants; level of use of spaces for learning and collaborative work, %

3.3. Financing

3.3.1. Availability
Bank loans, private cooperatives and public banks (commercial; consumption; microcredit; housing), $ per 1,000 inhabitants

3.3.2. Protection
Provisions of public, private banks and credit portfolio cooperatives (commercial, housing, educational, microcredit, consumption), % of portfolio

3.3.3. Social spending
Amount of non-reimbursable resources, subsidies or social bonds, % of GVA;
Social spending per capita, thousands of $;
Elderly people receiving assistance pension, people with disabilities receiving assistance pension, % population

Comments

IV. Performance dimension. Socially Innovative Environments

4.1. Territorial Revitalization

4.1.1. Social
CSOs (new, liquidated or dissolved), % of total; Total CSOs, % variation; Degree of associativity of civil society, % variation

4.1.2. Commercial
New companies according to their economic purposes (ESS, EPU, EPR) and size (micro; small; medium; and large), % of the total
Liquidated and dissolved companies according to their economic purposes and size, % Total companies according to their economic purposes and size, % variation

(*continued*)

Continued.

Components / Indicators / *Sub-indicators*

Degree of democratization of the economy, % variation
Degree of pluralization of the economy, % variation
EAP employment rate, % variation
Investments, % variation
Presence in foreign markets, % of GVA

4.2. Propensity for Cohesion

4.2.1. Social
Gini coefficient, ratio variation
Population living in poverty, % variation
Population living in indigence, % variation
Incidence of poverty due to unsatisfied basic needs, %
Level of assistance to vulnerable groups (older adults, disabled), % variation
Unemployment rate, % variation
Employed population in low productivity sectors, % variation
GVA per capita, % variation
GVA of key sectors, % variation
4.2.2. Territorial
Territorial versus (vs) regional Gini coefficient, variation ratio
GVA per capita territorial vs. regional, variation ratio
Population in situation of territorial vs. regional poverty, % variation
Population in situation of territorial vs. regional indigence, % variation
Employed population in sectors of low territorial vs. regional productivity, % variation
Unemployment gap, % change

Comments

V. Outcome dimension. Integral Territorial Development

5.1. Social

5.1.1. Housing
Reduction of the housing deficit; precarious housing with respect to the total housing; overcrowded homes; variation of the number of dwellings on the variation of the population; surface area per person; investment in housing (private bank loans and cooperatives), % change
5.1.2. Health
No. beds / doctors per 10,000 inhabitants, % variation
General/infant mortality rate (total and indigenous) per 100,000 inhabitants, Territorial infant mortality rate as a reason for the regional infant mortality rate; Life expectancy at birth; population in a state of undernourishment; level of confidence in the institutions of the health system, % variation
5.1.3. Education
Educational inclusion for social and personal competence (school dropout, illiteracy); equal opportunities with respect to vulnerable groups (disabled/women); net enrollment; over 15 years of age who have not finished primary school; over 20 years of age who have not finished high school, % variation
5.1.4. Security
Variation in the level of security (general population; women) (homicides/murders per 100,000 inhabitants)
5.1.5. Migration
Net rate of internal migration (per thousand inhabitants), variation %

5.2. Economic

5.2.1. Diversification of productive matrix
Exports of non-traditional sectors, non-primary GVA, % change
Variation of the energy demand of households over the energy demand of industries, %

5.3. Environmental

5.3.1. Environmental sustainability
Emisiones de gases de efecto invernadero, % de variación de CO2;
uso de energías renovables; nivel de eficiencia financiera del gobierno local para cubrir el servicio de reciclaje de desechos sólidos con recursos propios; capacidad instalada en el territorio –equipamiento, dotación técnica y operativa- para realizar procesos de reciclaje; desarrollo de normativa - Ordenanzas, Reglamentos y Manuales- para la gestión ambiental en el territorio; permisos y control ambiental de las actividades productivas locales, %

5.4. Political and cultural

5.4.1. Civic and community participation
CP component strength; financial allocation; Legal sustenance; Availability of a Participatory Local Development Plan, Application of information and training mechanisms to organizations and citizens, Application of consultation mechanisms, %
5.4.2. Cultural eEnvironment
Contribution of cultural activities to GDP; cultural employment; Household spending on culture, %

Comments

Appendix B. Indicators of territorial potential for social innovation en planning area 7 in Ecuador

Component	Indicator	Sub_Indicator	Measurement
I. Framework dimension. Organized and participatory society OP_S			
Social Climate	Political civic-mindedness	Political participation in electoral processes	%
		Political participation of women in electoral processes	%
	Trust	Level of personal trust towards people in the neighborhood or community	Perception
		Level of satisfaction with their participation within the community, neighborhood and/or neighborhood	Perception
		Level of economic trust in the situation of the household in the next 3 months	Perception
	Social volunteer work	Donating money, groceries, clothing, or other property to charities or people in need during the last term	N° per 1000 inhabitants
	Social volunteer work	Volunteer work with individuals or families in need, at least one hour during the last quarter	N° per 1000 inhabitants
	Social volunteer work	Volunteer work in social, neighborhood or community organizations, at least one hour during the last period	N° per 1000 inhabitants
	Environmental awareness	Population that carries out waste recycling practices (organic, inorganic)	%
		Population that carries out water-saving practices	%
		Population that performs energy saving practices	%
Territorial Resources	Level of education	Illiteracy rate	%
	Level of education	Net attendance rate in high school for the population aged 15 to 17	%
		Population rate with a university degree	%
		Average schooling of the population aged 24 and over	Years
	Connectivity	Population with activated cell phone	%
		Population with smart cell phone	%
	Connectivity	Population with internet access	%
		Population accessing Wi-Fi via cell phone	%
		Population that accesses social networks through cell phones	%
	Connectivity	Population that accesses email via cell phone	%
		Population accessing email through other devices	%
		Fixed internet access	%
		Access to fixed telephony	%
		Average commercial energy billed	kWh
		Average industrial energy billed	kWh
		Average residential energy billed	kWh
	Entrepreneurial culture	Rate of families with their own business	%
		Entrepreneurship rate per opportunity	%
Social Fabric and Movements	Density and continuity	Civil society organizations (CSO)	N° per 1000 inhabitants
		Average number of years of operation of CSOs	Years
	Density and continuity	Rural Civil Society Organizations	N° per 1000 inhabitants
	Structure	Degree of second level associativity	%
	Structure	Degree of third level associativity	%
	Cooperation	Link between CSOs and Decentralized Autonomous Governments	N° per 1000 inhabitants
	Movements Political and Social	Movements Political and Social	N° per 1000 inhabitants
II. Framework dimension. Democratic y pluralist economy DP_E			
Social Purpose	Business objectives	Variety of goods or services.	Perception
		Update of products or processes	Perception
		Quality of goods or services.	Perception
		Flexibility to produce goods or services.	Perception
		Capacity to produce goods or services.	Perception

(*continued*)

Continued.

Component	Indicator	Sub_Indicator	Measurement
		Reduction of material and energy costs per unit of production	Perception
	Business objectives	Reduction of environmental impacts	Perception
		Occupational health or safety of employees	Perception
	Environmental management	Companies that invest in waste management	%
		Average amount invested in waste management by company	$
Business community	Density and continuity	Companies	N° per 1000 inhabitants
		Average years of operation of companies	Years
		Working population	%
	Density and continuity	Rural businesses	N° per 1000 inhabitants
		Average number of years of operation of rural companies	Years
		Working population	%
	Structure_size	Weight of micro-enterprises	% employment generated
		Small business weight	% employment generated
		Weight of medium-sized companies	% employment generated
	Structure_size	Weight of large companies	% employment generated
	Structure_size	Ratio of SMEs to large companies	%
	Estructura_type	RISE Weight	% employment generated
		Weight of non-profit companies	% employment generated
	Estructura_type	Weight of Popular and Solidarity Economy Companies	% employment generated
	Estructura_type	Weight of public companies	% employment generated
		Weight of private for-profit companies	% employment generated
	Estructura_type	Ratio of Popular and Solidarity Economy Companies over Private Sector Companies	%
	Cooperation	Cooperation with customers and consumers at the local level	%
		Cooperation with public bodies at the local level	%
	Cooperation	Companies that cooperate with private companies at the local level	%
		Companies that cooperate with society at the provincial level	%
		Companies that cooperate with public companies at the provincial level	%
		Companies that cooperate with private companies at the provincial level	%
		Membership in trade union organizations	%
Innovation activity	Innovation sector	Employees with expertise	%
		Employees with specialized training	%
	Innovation sector	Employees with third level training	%
		Employees with higher technician or technologist training	%
	Investment	Training of specialized personnel	%
		Investment in R&D by company	%
	Inverstment	Investment in market research	%
		Investment in external R&D	%
	Obstacles	Lack of qualified personnel in the company	Perception
		Lack of information about technology	Perception
		Lack of information on the markets	Perception

(*continued*)

Continued.

Component	Indicator	Sub_Indicator	Measurement
		Difficulty finding cooperation partners	Perception
		II. Framework dimension. Institutionalization of Social Innovation I_SI	
Promotion	Transparency and best administrative practices	Existence of institutional accountability and transparency mechanisms	%
	Government programs	Access to support programs for quality improvement and certification	%
		Access to support programs for staff training	%
		Access to support programs technical assistance for technology adoption and business management	%
	Government programs	Access to innovation support programs	%
		Access to entrepreneurship support programs	%
		Access to export promotion programs	%
	Supporting infrastructure	Centers for learning and collaborative work - coworking	N° per 1000 inhabitants
	Supporting infrastructure	Centers for learning and collaborative work - infocenters	N° per 1000 inhabitants
		Level of use of spaces for learning and collaborative work - Infocentros	%
		Level of development of the state road network	Population served
Financing	Availability	Private-commercial banking loans	$ per 1000 inhabitants
		Private banking loans - consumption	$ per 1000 inhabitants
		Private banking loans - microcredit	$ per 1000 inhabitants
		Private banking loans -housing	$ per 1000 inhabitants
		Cooperative Loans - Commercial	$ per 1000 inhabitants
	Availability	Cooperative loans - consumption	$ per 1000 inhabitants
	Availability	Cooperative loans - microcredit	$ per 1000 inhabitants
	Availability	Cooperative loans - housing	$ per 1000 inhabitants
	Protection	Financing from other sources without collateral - risk investment, credits from suppliers, relatives	%
	Social spending	Assistance for development through financing with government support -bonds for development of entrepreneurship, housing, agriculture, other subsidies-	$
		Human development voucher beneficiaries (mothers)	N° per 1000 inhabitants
		Amount of financing with government support	$
	Social spending	Social protection - elderly beneficiaries of assistance pension	N° per 1000 inhabitants
		Social protection - people with disabilities beneficiaries of assistance pension	N° per 1000 inhabitants
		IV. Performance dimension. Socially Innovative Environments SI_E	
Territorial Revitalization	Social	New Civil Society Organizations	% variation
		Liquidated and dissolved Civil Society Organizations	% variation
	Social	Growth of the social fabric	% variation
	Social	Degree of second level associativity	% variation
	Social	Degree of third level associativity	% variation
	Commercial	Start-up companies	% variation
		new private companies	% variation
	Commercial	New Companies of Popular and Solidarity Economy	% variation
	Commercial	New public companies	% variation

(*continued*)

Continued.

Component	Indicator	Sub_Indicator	Measurement
		new microenterprises	% variation
	Commercial	new small businesses	% variation
	Commercial	New midsize companies	% variation
		great new companies	% variation
		Liquidated or dissolved private companies	% variation
	Commercial	Companies of Popular and Solidarity Economy liquidated or dissolved	% variation
		Global occupancy rate	% variation
		Growth of cantonal Gross Added Value	% variation
Propensity for Cohesion	Cohesion Social	Population living in poverty	% variation
		Population living in a situation of indigence	% variation
		Poverty incidence due to unsatisfied basic needs	% variation
	Cohesion Social	Level of social vulnerability measured by people included in the Social Registry below the poverty line	% variation
		GVA (Gross Value Added) per capita	% variation
		Gini coefficient	% variation
	Cohesion Territorial	GVA gap per capita	% variation
		Poverty Gap	% variation
		Territorial Gini coefficient	% variation
	Cohesion Territorial	Indigence Gap	% variation

Indicators included in the measurement model.
Indicators excluded from the measurement model because they did not pass the data consistency test. (Cronbach's Alpha Coefficient).