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# **Beyond the agricultural sector in Latin America: territorial approaches for rural development**

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2010

Online at <https://mpra.ub.uni-muenchen.de/24975/>

MPRA Paper No. 24975, posted 14 Sep 2010 11:45 UTC



**Beyond the Agricultural Sector in Latin America:  
Territorial Approaches for Rural Development**

**Abstract**

A recent transition in the field of agrarian economics theory for rural development is the move from a narrow agricultural sector approach, to one which adopts broader territorial vision. This passage seeks to interpret interactions between urban and rural worlds in a more comprehensive manner. This relatively new theoretical perspective is of particular interest to academics and politicians in Latin American countries where, since the mid 1990s, the concept of new rurality has been seen as the source of a new approach to rural development.

Therefore the theoretical purpose of this research is to clarify the analytical signposts of the new rurality theme in Latin America and to identify the differences between sectoral and territorial approaches considering the socio-economic, institutional and environmental aspects involved. The transition from sectoral to territorial approaches also means, from an operative point of view, the recognition of homogeneous areas for the suggestion of rural development strategies. The operative purpose of this research consists in proposing a methodology to identify these areas with an application in the Maule Region in Chile. The conclusion underlines some critical elements that should be considered in the definition of territorial rural development strategies.

*Key words:* sectoral and territorial approaches, rural development policy, new rurality, Latin America, Chile, cluster analysis



## INTRODUCTION

An increasing number of agrarian and forest economists, as well as social scientists, are crossing new borders of theoretical and applied research to investigate themes such as the environment, society and institutions, and all of these are being analysed at the local level (32). In Latin American countries too, territorial planning is a theme that is receiving increasing interest to reduce poverty and to promote fair economic and environmental development (30). In this context the focus of primary sector policies, which mainly aim to maximize production, is widening to include a more comprehensive range of integrated policies, with the prospect of attaining real socio-economic and environmental improvements. This prospect is encouraging a general interest in a move away from sectoral policies to policies that aim to achieve a general improvement of the territory and of the environmental, social and infrastructural resources that exist therein.

It should be emphasized that the transition to territorial policies also requires a reappraisal of the function carried out by the public sector, which was once the only actor playing a role in the definition and implementation of development policies, but which is now *primus inter pares* (with the private sector) of a locally orchestrated development strategy.

Evidently, this process is the result of new strategic modalities through which the local actors organize themselves in order to contend with the significant impact of globalization and of neo-liberal policies. So the distinguishing features of the territories, and the environmental peculiarities that characterize them, create new possibilities for economic operators to enter the competitive marketplace. Consequently, local and relative specificities are integrating with the global, opening new markets for products that were once appreciated only locally (5,6).

Such aspects (new private and public actors, local and global systems) are very important in the economies of rural areas, where globalization is expected to push the agrarian economies toward participating in the strong international market, so much so that economic operators who do not have the required scale may find that they have to exit the forum. The losers of this competition may not only be micro or small producers that lack a certain technological tool to keep pace with national and international competitors; they also may be medium-sized agricultural companies that in some cases, in the absence of subsidies and aids, can barely compete in the international economic system.

This topic is particularly important for those economies, like that of Chile, that have decided to structure themselves according to the export-led growth model (29). The political desire to transform Chile into one of the five greatest agro-alimentary powers may well find its own limit and this may, in the medium term, lead to an economic fragility that is determined by the limits of the agrarian economy model being followed in different parts of the country. It should be opportune, therefore, to integrate the agrarian economy with a more dynamic rural economy, which could be able to generate increased income and employment in rural areas. This vision is actually sustained by the new rural reformists, following Kay's classification (24), whose aim is



to design territorial development policies which stretch further than sectoral approaches. Chilean rural development policy is now working in this direction (18), with the aim to organize territorial development strategies through local development agencies, as first realized in the European Union with the LEADER initiative (1). What is lacking, or maybe it is not so clear, is a method to define a homogeneous area where the strategy should be applied. The purpose of this research is to suggest how these homogeneous areas should be individuated. The method proposed is the cluster analysis, realized by using economic, social, institutional and agro-environmental indicators, and applied in a specific case study: the Maule Region in Chile. These indicators consider the different aspects involved in the new rurality approach as defined by new rural reformists. It should be noted that the cluster is not a socially defined area, but it is here proposed as the first step to draft a local policy to be designed by local actors.

The paper is organized as follows: in the first part the theoretical background on new rurality in Latin America and the authors' contribution to the theory – to clarify the differences between sectoral and territorial approaches in relation to social, institutional, environmental and economic issues – are presented. In the second part the objective of the research is specified and the case study discussed. In the third part the results of the cluster analysis are presented and in the fourth part the concluding remarks underline different aspects to be considered in the application of the strategy.

#### NEW RURALITY IN LATIN AMERICA: FROM SECTOR TO TERRITORY

The terms *rurality* and *rural economy*<sup>1</sup> are often used as synonyms for *agrarian system* and *agrarian economy*. These equipollences of terminology do not appear particularly informative and definitions, that adequately clarify the meanings and the limits of *rurality* and also of *rural economy*, still need to be found. At this regard Cloke (7) suggests that “*It is surprising how often we seem to lack an adequate understanding of how the concepts that underpin the idea of rurality should be defined and made relevant. It is almost as if the strength of the idea of rurality is in its overarching ability to engage very different situations under a single conceptual banner*”. Academics are suggesting definitions to encompass the complex reality of rural areas, considering also the dynamic and changing forces shaping these contexts. De Ferranti, for instance, claims that:

[Rurality] *is more than agriculture; it includes forestry and fisheries production and other economic activities that take place in nonurban areas. There are at least three ways of describing the rural economy: a sector approach, which emphasizes the sector's contribution to national GDP; a household income approach that includes farm and nonfarm activities; and a territorial approach that examines rural space more generally* (9).

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<sup>1</sup> In economic literature there are different definitions of rural economy. In this paper the concept of the rural economy is intended to be a qualitative-quantitative expression of the rurality of a territory.



The three descriptive approaches of sector, household income and territory, which were posited above as a means to delineate rurality, are not independent; they represent different aspects of a new approach whose specificity is to links society, economy, institutions and environment in rural areas, in other words the new rurality.

In the Latin American context, researchers who deal with extra-urban economies have recently focused their attention on this topic (*nueva ruralidad*) (4,14,16,17,21,37,38). For these researchers, the new rurality contains detailed features that are introduced in an attempt to resolve problems specific to Latin America and which are notably dissimilar from those in Europe<sup>2</sup>.

*[...] In Europe, diversification in the rural economy is important for creating employment alternatives for the rural population which is ready to forsake agriculture because of its reduced productivity. In Latin America, in contrast, diversification is important because it is the only possible means to resolve the issues of: i) an increased rural population; ii) workers made redundant by agricultural modernization; and iii) poor peasantry undertaking unsustainable economic activities (14)<sup>3</sup>.*

Latin American researchers have thus particularized the new rurality in order to interpret the transformation of rural areas in their region, where the major change factor is neo-liberal globalization (12,15,23,25). Following Kay's interpretation of new rurality (24), these researchers can be divided into two groups:

1. new rural reformists, who maintain that the transformation of rural areas takes place in a manner similar to that of a cultural renaissance, through the definition and implementation of rural development policies (such as reduction of poverty, promotion of rural nonfarm activities, establishment of new rural-urban relationships, decentralization of political power, and environmental sustainability);
2. new communitarian ruralists, who adhere to the prevailing Marxist ideology and who propose a radical change of society from below.

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<sup>2</sup> The term rural, in the European context, can refer to cultivated space of low demographic density with cultivated or spontaneous vegetation, which is excluded from the direct influence of city centres. In addition to scattered dwellings, small, new and ancient inhabited centres, as well as artisan, trading and small manufacturing settlements can be dispersed throughout the territory. Such definitions describe the rural space, but also delineate the possible economic activities that can take place in the extra-urban territory, activities that are complementary to and/or integrative of agricultural, livestock and forestry production. It could be asserted that, thanks to rural development, the agricultural sector tends to be integrated within a much more complex territorial economy, in that the production of raw materials is placed in close proximity to the agro-industrial transformation and the supply of services, including environmental services, such as biodiversity and landscape protection, carbon sequestration and storage. The most important economic element in successful rural development is diversification (new products and new technologies), which entails the creation of new markets to generate alternative sources of income (43, 44).

<sup>3</sup> Our translation from the original Spanish text (14).



For the new rural reformist the concept of new rurality corresponds to a new vision of the territory, distinct from the historical hypothesis of a rural space that is functional to urban development (13). In the collective imagination the term rurality often evokes a poor economy compared to that in city areas, human capital with reduced productivity, and a stock of natural capital meant as resources for use in the prevailing development of the city economy. This vision, which subordinated policies of the rural areas to those of the city, is traceable in the 1970s literature on urban bias, which had as its greatest supporter the economist Lipton (23)<sup>4</sup>.

Nowadays the rural economy can become an instrument for the promotion and development of local territory through the diversification of economic activities (rural farm and rural nonfarm activities) (16, 35, 39, 40). This process necessarily requires a connection with the urban areas and a continuous exchange of material (transformed or not) and immaterial goods (environmental, recreational, social services, etc.). Hence, the rural economy progressively tends to combine with the urban, culminating in a territorial economy in which the previous spatial separation of economic activities loses its importance.

The new rurality approach should link political action not only to the sector of intervention (agriculture or forestry or livestock), which gives prominence mainly to the economic component, but also to the *local territory* with its particular social, economic, environmental and institutional characteristics, to improve the quality of life in rural areas (34). For this purpose table 1 summarizes the distinctive features that differentiate the sectoral from the territorial approach.<sup>5</sup>

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<sup>4</sup> For a recent and interesting critique of urban bias theory, see Kay (23).

<sup>5</sup> The topic of the territory is by no means a new one in economic development, even though at different times it has assumed various nuances of meaning. In the 1950s and 1960s, the interest of many development economists shifted from the analysis of the contributions of the various economic sectors to the formation of Gross Domestic Product (GDP) at the national level to the analysis of regional economic structure (input-output tables devised by Leontief and applied at the sub-national level). Also, in this case, the objective consists of locating the sector (at the regional level) with the most backward and forward linkages, as per Hirschman's (22) formulation of key sectors. To improve a key sector, according to a vision of economic politics, meant strengthening the regional context within the national one and facilitating economic growth. Such a formulation was criticised by McGilvray (27), who condemned the isolation of some key sectors, objecting that non-key sectors could indeed, because of sector interdependences, be much more important than the key sectors. The limitations of the key sectors theory have, to some extent, been overcome in Perroux's (31) theory of *pôles de croissance* (growth poles) by observing the synergies that can be realised within industrial complexes and the effects they have on local economic growth. Such a concept has been claimed by cluster analysis, defined by Bergmann and Feser (3) as '*one of the most popular approaches for regional development strategies*'. The topic was further developed in the course of the 1980s and 1990s within the *pure linkages* and *keystone sector* theories elaborated by Kilkeny and Nalbarte (26). Such elaborations, starting with Hirschman's theory, have shown how sectors endowed with important ties with other economic fields can have limited impacts on economic growth if their dimensions turn out to be limited (9).



Table 2 details further characteristics of the two approaches in relation to environmental, institutional, social and economic objectives, distinguishing general objectives (G.O.) and operational objectives (O.O.), as analytical signposts for each typology. It should be noted that the specifications of the operational objectives are not exhaustives and other relevant aspects could be delineated.

It should be noted likewise that Latin American policy makers, academics and technicians as well as civil society operators testify an increasing interest in the new rurality topic.

Table 1: Differentiation in sectoral and territorial approaches to rural areas

Topics	Sectoral approach	Territorial approach
Rural territory	Rural territory is equivalent to the area that carries out the activities of the primary sector. The definition of sector goes back to Clark (1940), who proposed a distinction between primary, secondary and tertiary sectors. Moreover, Clark argues that this distinction reflects the fundamental stages of the development of every society. Such a model of <i>static comparison of ideal models</i> was later expanded upon by Rostow (1960) in his theory of the stages of development. The term rural is synonymous with the agricultural sector.	Rural territory is a <i>socially constructed area</i> where there are interactions between private and public organizations. Cooperation among these actors facilitates the definition of strategies based on the best economic opportunities. Economic activities can also take place outside the primary sector. In contrast to the sectoral approach, for economic development occur, it is fundamental to differentiate the production activities and to activate backward and forward linkages between the various production sectors, not just within the primary sector. The term rural is synonymous with local territory that contains a prevalence of mixed economies.
Actors	Agricultural, forestry and livestock enterprises are the main recipients of the sectoral development strategy which can be: i) regulated by public actors; ii) left to the forces of the free market; or iii) subject to a combination of i) and ii) above. Agricultural development policy, in its ideal form, aims to differentiate the operative instruments in relation to the scale of the enterprises (micro, small, medium, large). It is assumed that the technologies utilized in agricultural development, usually of a capital-intensive type, are fractionated in relation to the scale of the farm, and so all the enterprises can, as a rule, benefit (Ruttan 2006).	The typologies of actors (stakeholders) involved, can be different to those identified by the sectoral approach and can include not only enterprises, but also trade unions, technicians, educational institutions, public national and local authorities, consumers, etc.). Territorial development policy aims to plan an effective approach by realizing the participation of different actors with diverse operative modalities.

Source: authors



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### Working paper

Table 2: Differentiation in sectoral and territorial approaches to achieve general (G.O.) and operational (O.O.) objectives

	SECTORAL APPROACH	TERRITORIAL APPROACH
<b>ECONOMY</b> G.O.	To increase the agricultural productivity of the farm.	To develop employment and income, as well as welfare services, infrastructures, public institutions and private organizations.
O.O.a) Internal and external economies	Specialization of the productive activity allows realization of economies of scale.	Economies of agglomeration are the most important: they facilitate the realization of external economies in relation to the enterprise, but internal economies in relation to the territory, through geographical proximity of economic operators (Porter 1991).
O.O.b) Integration and globalization	Economic integration starts between production activities that are connected to the primary sector.  Productive advantage is linked to the relative endowment of the factors of production. This determines the specialization of specific production.  Competition among international companies is the main feature of neo-liberal globalization.	Territorial integration involves several productive fields and usually occurs within a networked system comprising both private and public actors.  Productive advantage in the territory is linked not only to the relative endowment of the classic production factors, but also to the competitive advantage related to a better organization of the immaterial factors (human capital, social capital, and institutional capital).  Competition among territories is the strategy that, it is hoped, will mitigate the negative impact of globalization and that will also allow participation, to their benefit, of small and medium-sized enterprises.
O.O.c) Role of city centres in the economic system	The city market is important as the location where agricultural products are offered for sale.	It is hoped that clusters or rural districts around small or medium-sized rural towns will fulfil the market function.
<b>INSTITUTIONS</b> G.O.	The public sector supplies services and infrastructures in order to facilitate production and exchange activity, which is realized by the private sector.	The public sector interacts with the private sector to delineate common strategies for the development of the territory.
O.O.a) Institutional organization	The usual institutional connotation refers to centralized models.	The decentralization of political power through local institutions can be realized through: i) administrative decentralization; ii) political decentralization; and iii) fiscal decentralization, within the subsidy principle.
O.O.b) Participation	Not an important topic in the sectoral approach. Usually the policies for development of the primary sector are top-down.	Participation is both important and relevant because the definition of a territorial development strategy is that it is realized through common agreement between various stakeholders in a bottom-up approach, where adhesion is voluntary.
O.O.c) Programme rigidity	Governmental programmes for the development of the primary sector	The strategy of territorial development presents a certain degree of flexibility in



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and flexibility	are characterized by increased rigidity in formulation and application. Moreover, these programmes prove difficult to change in relation to the various and variable requirements of the population in question.	relation to the various and variable necessities of the population because it is formulated by local stakeholders who are simultaneously its planners and its beneficiaries.
<b>SOCIETY</b> G.O.	The social objective of better redistribution of wealth is pursued in an indirect way, through economic growth, which determines the trickle-down effect. Furthermore, economic growth of a sectoral nature promotes the accumulation of wealth that, by means of tax returns, enables the poorest social classes to benefit in terms of increased public services (health, education, infrastructures).	The social objective of better social equity is pursued through economic development which offers new employment opportunities, utilizing the competitive advantage of the territory. Public services are not valued exclusively in terms of greater social costs, but rather as investments to sustain employment and income.
O.O.a) Human capital	The formation of human capital promotes sectoral growth, and it is realized in the bigger urban centres, where the industrial sector requires trained and qualified manpower.	The formation of human capital is considered to limit the effects of possible migration towards the more developed urban areas.
O.O.b) Social capital	Not an important topic in the sectoral approach. Sectoral growth is independent from social capital endowment, which can be considered as an output of the growth process.	The social networks present in the territory are immaterial components that multiply the effects of material investments. Fostering social capital of a bridging and linking nature enables fairer economic development.
O.O.c) Poverty	The selection of strategies for the fight against poverty is remitted exclusively to the public sector or to local/international specialized agencies.	The public and private sectors select common strategies in order to reduce poverty. The public sector recognizes the role of enterprises in strategies to mitigate rural poverty.
<b>ENVIRONMENT</b> G.O.	Economic growth predominantly considers the environment as a stock of raw materials that is to be used to develop different economic sectors.	Priority is placed on sustainable development, which aims to maintain the lasting value of ecosystems that are the distinctive and qualifying resources of the territory.
O.O.a) Externalities	Externalities are recognized whenever they are codified and regulated by public institutions. If negative, enterprises consider them to be a cost burden.	Externalities, both positive and negative, are a topic of public concern for the territory and the objective is to reduce the asymmetries generated by them.
O.O.b) Governance of natural resources	Public institutions are the main source of codification and they control the management of environmental resources.	Good governance of resources is entrusted to the public, which actively participates in management rather than passively accepts direction.
O.O.c) Social and environmental responsibility	Not an important topic in the sectoral approach.	Both an instrument and a purpose in order to obtain increased productivity.

Source: authors



Furthermore, in recent years, researches are strongly sustained and specific proposals (in terms of policy, programs and projects) are financed and implemented. The following are only some examples: *Territórios da Cidadania* is a Brazilian programme aiming to improve the quality of life of poor peasantry by means of a sustainable territorial development approach; *Dinámicas Territoriales Rurales* proposed by RIMISP, is a Latin American network of operators involved in the territorial development; *Proyecto de Desarrollo Regional* (1) proposed by FAO Latin America is a pilot project in Mexico, Brasil and Chile that try to introduce the European LEADER approach into selected contexts).

Chile represents a geographical context where the concepts of *new rurality* and the *territorial approach to development* have cultural resonance and hence effective application, not least because of the specific nature of the evolution of the primary sector that has been taking place there (42).

The policies applied from the 1990s to the present day by the *Concertación de Partidos por la Democracia* have been based on the export-led growth model, which has paid particular attention to the inclusion of the poorer social classes, who were marginalized under Pinochet's dictatorship (1973–1989). The model has enabled the attainment of important socio-economic targets, so the progress of Chile has been followed with particular interest in the rest of Latin America and elsewhere (30).

Of special note are the following changes in the Chilean economy: i) the reduction of the poverty ratio from 38.6% in 1990 to 13.7% in 2006 (28); ii) the enhancement of Human Development Index (HDI) from 0.788 in 1990 to 0.878 in 2007/8 (41); iii) the improvement of per capita income equivalent to USD13,880 purchasing power parity (PPP) in 2009; and iv) the attainment of first rank of per capita income of Latin American countries (41).

Notwithstanding the positive values of these macro indices, it should be noted that income distribution remains strongly unequal among the Chilean population and, in the agricultural sector, the labour productivity of peasants remains one third of the values registered in other economic sectors (30).

From the 1980s to date, neo-liberal policies have sustained the agricultural exports sector<sup>6</sup>, providing a great deal of support for the growth of a strong agricultural economy through substantial investment, first in capital then in labour (2). This has led to a strong segmentation of the enterprises working in the sector. This segmentation favours medium and large enterprises that are very much involved in the export of commodities, and places at a disadvantage micro and small enterprises that find it difficult to compete in the international market (19).

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<sup>6</sup> Between 1996 and 2007, Chilean agricultural exports increased from USD1,594.10 to USD3,187.40 billion free on board (FOB). In 2007, the fruit-growing sector registered the best performance in terms of value exported (USD1,008.49 million) and the forestry sector contributed USD10.5 million to exports, according to data published by ODEPA and the Chile Central Bank.



The agricultural development policy designed to benefit peasants has aimed to make investments to sustain irrigation, to increase productivity, to improve knowledge and professional skills, to reduce soil erosion, to promote marketing, and to adopt good agricultural practices (GAPs) (33). Public expenditure on rural development appears to be very limited, according to figures cited in the government's economic planning documents (18).

It is worth noting that the Chilean Government plans to reorganize its rural development policies through the establishment of local development agencies (profit-oriented and not for profit), which will work as *collectors* of public and private requests for projects and grants, pinpointing the best strategies to energize rural areas, according to the specific features of their territorial capital (20).

However, this vision does not define what is an homogenous territory, a focal point of rural development policy. In this regard, public and private actors should start to cooperate in order to determine the *social construction of the territory*, a concept that, it may be recalled, is often used in approaches that stress territorial development.

#### OBJECT AND METHOD

In the light of these considerations, the purpose of this research is to define homogenous territories through cluster analysis in a specific case study: the Maule Region. In this region's territories the cooperation between public and private entities should be initiated, so that local development strategies can be formulated. It is important to note that, from the methodological point of view, the cluster does not represent a *socially constructed territory*; rather, it is an area characterized by major proximity of municipalities (according to a number of indicators). Nevertheless, the cluster can be used as a *starting point* for defining a set of integrated strategies for local development, and to suggest possible ameliorations thereof in partnership with local operators.

Of the multiple instruments of multivariate statistical analysis that are available, cluster analysis was chosen because it allows zone groupings to be characterized by using a battery of preselected indicators. The typology for the cluster analysis typology that was used is hierarchical, whereby successive aggregations show progressively decreasing degrees of homogeneity. The use of a hierarchical approach allows latent agro-territorial structures to emerge freely, something that would have been extremely difficult to achieve if other criteria had been adopted, such as techniques of fixing the groups of variables *a priori*, or fixing the minimum number of units in a cluster or even the number of clusters.

The elementary unit of analysis chosen was the single Municipalities of the Maule Region. After considering wide range of indicators at the territorial level, indicators relating to environmental, agronomic, social, economic and institutional aspects were chosen. These diverse types of indicators allow prominence to be given, not only to the factors in relation to the agrarian



economy, but also to those that characterize the different typologies of extra-urban economies that are related to the primary sector. This, in theoretical terms, also means to pass from a sectoral approach to a territorial approach to rural development.

The analysis was performed in two phases:

1. analysis and selection of variables from the *Sistema Nacional de Información Municipal* (SINIM)<sup>7</sup> database, which lists 150 indicators, from which 14 indicators were extrapolated<sup>8</sup>;
2. analysis of clusters of the Municipalities of the Maule Region.

Specifically, the cluster analysis was developed in two stages: first, the total correlation between the indicators was determined, out of which a similarity matrix was built; and second, an algorithm was chosen that enabled the municipal territories to be gathered according to indicators, using the similarity matrix as a basis. In this case, the WARD system was used<sup>9</sup>.

## RESULTS AND DISCUSSION

### *Results 1: Hierarchy tree and identification of the clusters*

The hierarchy tree shown in figure 1 is a graphical expression of the clustering, using as a basis a matrix of 14 indicators applied to 30 municipalities. If the hierarchy tree is *cut* at a much lower

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<sup>7</sup> The indicators used relate to 2007.

<sup>8</sup> The 14 indicators are grouped into the following four macro-categories, which represent, partially, the composite reality of the Maule Region: social variables (SOC); economic variables (ECO); those referring to the primary sector and to the environment (AGR-ENV); and those referring to institutional variables (IST).

The 14 indicators are:

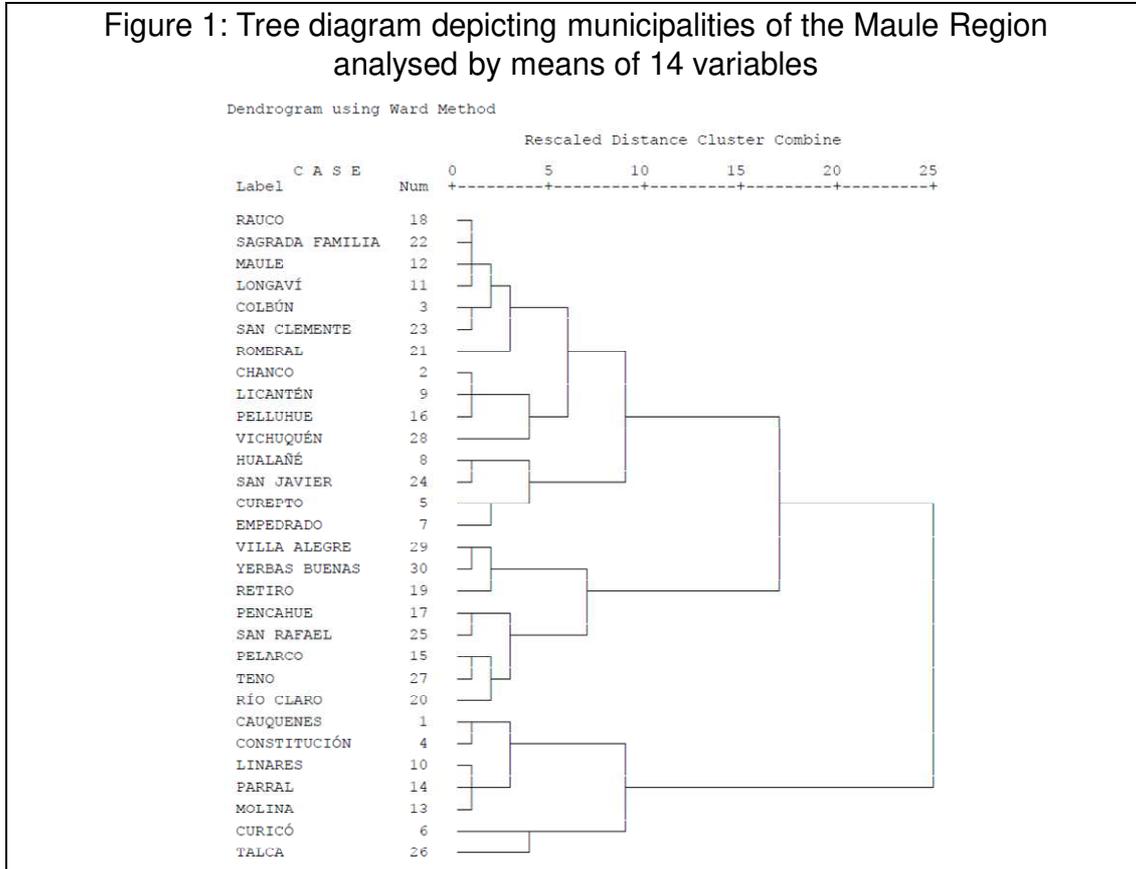
- 1) Percentage of the municipal population out of the regional population (SOC)
- 2) Percentage of the rural population out of the total municipal population (SOC);
- 3) Average education of the population (SOC);
- 4) Percentage of dwellings linked to the potable water network out of total municipal dwellings (SOC);
- 5) Number of inhabitants per municipal organization (SOC);
- 6) Percentage of paupers out of the total municipal population (SOC);
- 7) Municipal public expenditure per inhabitant (thousand pesos) (IST);
- 8) Percentage of agricultural areas out of the total municipal area (AGR-ENV);
- 9) Percentage of irrigated agricultural area out of the total agricultural area (AGR-ENV);
- 10) Percentage of agricultural farms that have from 1 to 5 hectares of land (AGR-ENV);
- 11) Percentage of forestry area out of the total municipal area (AGR-ENV);
- 12) Average family income (pesos) (ECO);
- 13) Percentage of public aid to average family income (pesos) (IST);
- 14) Distance from the nearest hospital (km) (IST).

The values recorded for the different variables for the various Municipalities were successively standardised according to the formula:  $[Vx(i) - Vx(\min)] / [Vx(\max) - Vx(\min)]$ , where  $Vx(i)$  represents the  $i^{\text{th}}$  value of the variable  $x^{\text{th}}$ ,  $Vx(\min)$  the minimum value attributable to variable  $x$ , and  $Vx(\max)$  the maximum rating of the same. It follows that all of the values considered have values between 0 and 1.

<sup>9</sup> With the WARD method, the entities pair to combine at certain steps of the analysis, which reduces the deviance between two middle points of the possible groups. The deviance has a minimum equal to 0 when all of the units are isolated, and a maximum equal to the sum of the deviances of the classification variables when all of the units are part of one group (11).



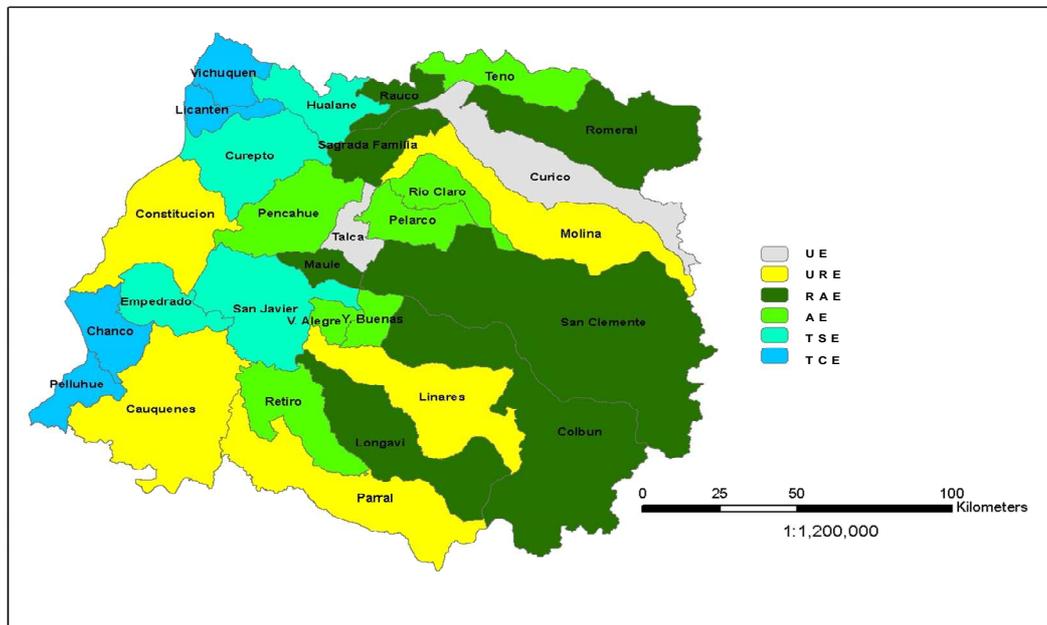
level (point 4 in the scale that reports the distance between the cluster elements), the zoning, expressed as six different cluster types, figure 2, reveals very similar groups.



Source: authors

The denomination of every single cluster has been chosen in relation to two aspects. First the variables used in the cluster analysis (social, economic, institutional and agro-environmental indicators). This allows the cluster to be discriminated in relation to a determined socio-economic characterisation. Second the cartographic analysis that shows the single cluster's positioning in specific geo-morphological areas of the Maule Region: central depression area, Andean pre-cordillera areas, Andean cordillera areas, Secano Interior area, coastal cordillera areas, coastal areas.

Figure 2: Clusters of the Maule Region



Source: authors

Given these premises, and from the analysis of the municipalities in various groups, it has been deemed appropriate to separate the clusters into zones where the following prevail:

- a) urban economy (cluster 1: UE)
- b) urban-rural economy (cluster 2: URE)
- c) agricultural economy (cluster 3: AE)
- d) traditional economy of the *Secano Interior* (cluster 4: TSE)
- e) traditional economy of the coast and the coastal *cordillera* (cluster 5: TCE)
- f) rural-agricultural economy (cluster 6: RAE)

*Results 2: Brief description of the cluster*

The descriptive indicators, chosen among the 14 indicators of the cluster analysis, are used as a proxy for the macro-categories previously identified (SOC, ECO, IST, AGR-ENV):

- 1) Percentage of dwellings linked to the potable water network out of total municipal dwellings (SOC);
- 2) Average family income (pesos) (ECO);
- 3) Public aids to families (pesos) (IST);
- 4) Percentage of forestry area out of the total municipal area (AGR-ENV).

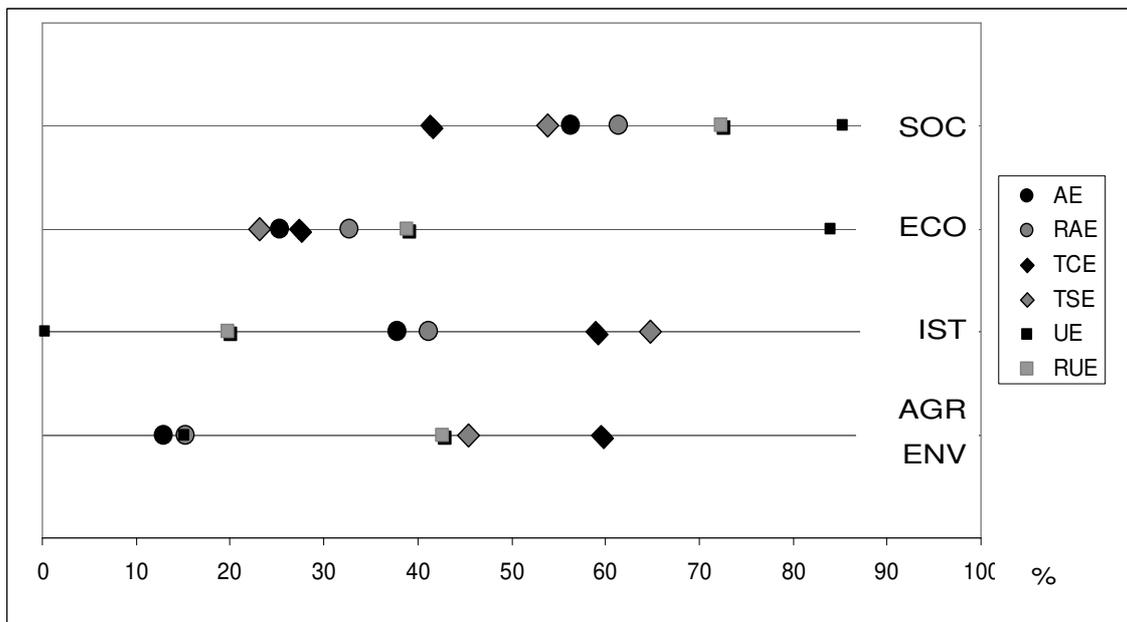
The four indicators that were used, in a reduced number and independent from each other, facilitated comparisons between the six clusters previously identified (figure 3).

The urban economy (UE) and the rural-urban economy (RUE) clusters have mean values greater than those of other territorial groupings for the social and economic indicators. The



rural-agricultural economy (RAE) and the agricultural economy (AE) clusters are collocated at an intermediate position for the social, economic and institutional indicators. Finally, the clusters of the traditional economy of the *Secano Interior* (TSE) and the traditional economy of the Coast (TCE) perform worst for the social and economic indicators, whereas the data improves for the institutional and environmental indicators. Of particular interest is the average family income, which shows its highest levels in the urban and urban-rural economies, reducing drastically in value in the agricultural economy (characterised by limited production diversification) and in the traditional economy of the Secano (characterised by the highest level of public support to family income). The limited diversification of production, which either followed specific production choices or was forced by unfavourable environmental conditions, is therefore a factor limiting income and strengthening poverty.

Figure 3: Clusters and descriptive indicators



Source: authors

Using the above results as a basis and taking into consideration the zoning of the territory, it is possible to corroborate the hypothesis that the development of the Maule Region is indicative of sectoral approaches that have promoted the economies of scales with a decreased diversification of local production activities. Thus the territory has been subdivided into areas with differentiated levels of development.<sup>10</sup> On the one hand, these policies have supported the economic growth of certain rural areas with a prevailing agrarian economy, while at the same

<sup>10</sup> 'The framework of the policies of the last quarter of the twentieth century has been formulated with general economic growth in mind, sustained by social policies to help the most vulnerable sectors of the population'. Our translation of the original Spanish text) (42).



time raising the average standard of living. On the other hand, they have progressively marginalized, in both social and economic terms, the rural areas which have a prevailing traditional economy where the peasantry is widely dispersed. To address this negative outcome, it is proposed indicative steps that should be considered to promote rural development and to facilitate the inclusion of the local population in the economic, social and institutional life of the Region.

Development strategies should be formulated and carried out as the situation demands and in partnership with local stakeholders. For instance, in relation to the transition from a traditional economy (both of the *Secano* and of the Coast) to an agrarian economy or from an agricultural economy to a rural economy. Table 3 provides some strategies, based on the experience in the field, which could be translated into targeted development projects in order to promote the desired transformation of rural areas.

## CONCLUSION

Thanks to various types of indicators, it has been possible to select homogenous territorial groupings for the Maule Region that are very apt to become territories of reference for local development policies.

The six clusters in the Maule Region show different levels of socio-economic development and it ought to be highlighted two critical situations:

1. the Secano and coastal traditional economy presents purposeful development issues in relation to the small peasantry. Similarly, such areas have yet to show evidence of the passage toward a strong agrarian economy and the consequent diversification of the production activities typical of the rural economy;
2. the agricultural economy testifies strong attention toward specialised production without adequately weighing the opportunity to diversify the production activities.

Within these homogenous groupings, more resources should be engaged for the socio-economic development of the rural territory, as they appear to be critical. In relation to ways of organising the strategy and also considering *Chile Emprende's* desire to extend the application of the territorial development approach as widely as possible, it is evident that the modalities cannot leave out what has been established at the government level. It seems opportune, however, to remember some important aspects of the rural politics experiences realised also in Europe.

The territory of implementation of a local development policy does not need to correspond to a pre-existing administrative entity. In Chile, in particular, an adequate implementation of policies between the regional and municipal levels is missing. In this sense, the clusters identified can correspond, with good approximation, to territorial entities operating at the inter-economy level. The clusters, moreover, do not exhibit rigid territorial identities. The result could be different



when the reference values of the variables used in the cluster analysis change. The flexible character of territorial development planning could easily intercept these modifications.

Table 3: Transition Strategies

Strategies to facilitate the transition from a traditional to an agricultural economy		Strategies to facilitate the transition from an agricultural to a rural economy	
TRADE SYSTEM	<ul style="list-style-type: none"> <li>- To support market analysis in relation to local agri-zootechnical production and forests</li> <li>- To favour with adequate fiscal incentives the constitution of producers' associations and cooperatives for trading transformed and untransformed products</li> <li>- To stimulate training in marketing and business economy</li> <li>- To develop certification systems in order to characterize new market outlets</li> <li>- To support advertising activities for regional products</li> </ul>	DIVERSIFICATION OF PRODUCTION ACTIVITIES	<ul style="list-style-type: none"> <li>- To create new opportunities for income and employment in rural areas</li> <li>- To help youths and women enter the job market</li> <li>- To improve the appeal of rural areas</li> <li>- To support multifunctional agriculture (social, environmental, didactic-formative, tourist and recreational roles carried out by enterprises or enterprise networks)</li> <li>- To support the development of handicrafts and a high regard for culture and local traditions</li> <li>- To support the production and deployment of renewable energy and of services protecting and sustaining the environment</li> <li>- To support the spread of Information Technology (IT) in rural areas</li> <li>- To improve the range of services in rural areas</li> </ul>
POST-COLLECTION SYSTEM	<ul style="list-style-type: none"> <li>- To support producers' associations introducing integrated local plans for storage systems for agricultural products</li> <li>- To support agricultural and food supply chains</li> <li>- To support integrated local plans for logistical activity</li> </ul>	SOCIAL CAPITAL AND NETWORKS	<ul style="list-style-type: none"> <li>- To promote associations as well as entrepreneurial societies in rural areas</li> <li>- To stimulate local initiatives aiming to develop social services</li> <li>- To stimulate the spread of IT in order to counteract the Digital Divide experienced in rural areas</li> </ul>
TRAINING AND TECHNICAL SUPPORT	<ul style="list-style-type: none"> <li>- To strengthen human capital through training programmes</li> <li>- To consolidate the professionalism of economic operators in the primary sector and to support enterprise culture</li> <li>- To facilitate the spread of technological innovations through technical support activities</li> </ul>	TRAINING AND TECHNICAL SUPPORT	<ul style="list-style-type: none"> <li>- To improve agricultural entrepreneurs' awareness of certification, good agricultural practices, the quality of agricultural and food production, the production of bio-fuels, sustainable agriculture, and techniques to improve soil quality</li> </ul>
RESEARCH AND DEVELOPMENT	<ul style="list-style-type: none"> <li>- To stimulate the public research and the spread of innovations and their application</li> <li>- To facilitate plans to interconnect agricultural enterprises, industries of transformation, and research institutes operating in the territory</li> </ul>	RESEARCH AND DEVELOPMENT	<ul style="list-style-type: none"> <li>- To promote partnerships between private and public sectors</li> <li>- To promote innovations in the modification and improvement of processes, products, and services</li> <li>- To support plans to increase the added value of agricultural and forest products</li> </ul>
CREDIT	<ul style="list-style-type: none"> <li>- To promote programmes of microcredit for peasantry, particularly distribution of credit to farmers engaged in subsistence and traditional agriculture</li> <li>- To promote the development of micro-finance initiatives by non-governmental organizations</li> </ul>	INFRASTRUCTURE	<ul style="list-style-type: none"> <li>- To improve the road network and the links between marginal rural areas and small city centres</li> <li>- To improve the electricity supply in marginal rural areas</li> <li>- To improve the water purification and sewage systems in marginal rural areas</li> </ul>

Source: authors

Many aspects need to be considered in the design of a rural development strategy: i.e. the role of institutional capital, the impact of new system of governance at a macro scale, the role of



human capital in sustaining a learning environment, the urban-rural relationships, the external demands of local products, the impact of globalization on local development processes. These aspects are widely considered by the literature on new rurality and on territorial rural development. What is partially acknowledged as problematic is the role of social capital in rural development processes. This is a hot topic for the Chilean context, where the dictatorship of the 1970s and 1980s mined the foundations of fiduciary relations, especially in rural territory. Further research would be required to fully understand these dynamics, in the meantime it remains difficult to think that inserting share approaches, even with very organised networks, can develop fiduciary relations by themselves.

Finally an adequate identification of the criteria for the evaluation of local development initiatives with pre-defined indicators is necessary. Evidently, in this case the development processes considered, by their own nature, are long-term, and they do not belong to triennial or quinquennial initiative project. Therefore, changing the present situation will necessarily be evaluated as a middle-long term process.

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