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Changes in the sectoral orientations of the State of Guerrero between 1970 and 2000

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Abstract. This paper presents an economic classification for the municipalities of Guerrero, Mexico, in terms of successive quotients. An outline of the concepts underlying this branch of Economic Geography is followed by a description of the method used to determine the economic orientations for 1970 and 2000. The economy of Guerrero

has changed from one that was specialized in the primary sector to structures in which the tertiary and secondary sectors have more weight.

Key words: Sectoral orientation, Guerrero, Mexico.

Cambios territoriales en las orientaciones sectoriales de Guerrero, 1970-2000

Resumen. Este trabajo expone una tipología económico-productiva de los municipios guerrerenses, desde el enfoque de los cocientes sucesivos. Primero, se hace alusión a los antecedentes cognoscitivos de esa vertiente de la Geografía Económica. En el segundo apartado se describe la secuencia utilizada para obtener las orientaciones económicas corres-

pondientes a 1970 y 2000. Finalmente, se analiza y constata el tránsito de una economía guerrerense especializada en el sector primario hacia estructuras productivas en las que el sector terciario y el secundario tienen mayor peso.

Palabras clave: Orientación sectorial, Guerrero, México.

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INTRODUCTION

The aim of this study is to demonstrate the changes in the sectoral orientations of the municipalities of Guerrero between 1970 and 2000. During this period, this State underwent significant socio-economic change: tourism became established as the key component of the State economic dynamic, and various processing plants for USA companies (principally in the northern region) and agroindustries arrived in the Tierra Caliente. The present analysis uses the municipality as the spatial unit of observation, since the statistical method used in the research relies on information regarding the volume of the economically active population (EAP) for productive sectors. Before the 1990s, such data were reported mainly by the National Institute of Statistics and Geography (INEGI) at national, State and municipality level. Nowadays, research can supply greater territorial detail by adopting basic geostatistical areas as units of study. However, this is viable when the period under consideration has as its initial date 1990 or, failing this, it is intended to show the sectoral orientations that have occurred in any territory, in a given year, or in the years that coincide with those corresponding to the later editions of the 10th Census of Population and Vivienda. It was from the eleventh census onwards that INEGI began to register the detailed information, and solely those publications have the variables mentioned.¹

The present study uses the method of successive quotients developed in the Polish school of Geography. This statistical-mathematical tool serves as a guideline for reaching a synthetic spatial interpretation linked with cartography, which allows the complex socio-economic structure of a territory to be expressed in simple form. Hence, the study of the productive dynamic of Guerrero from this

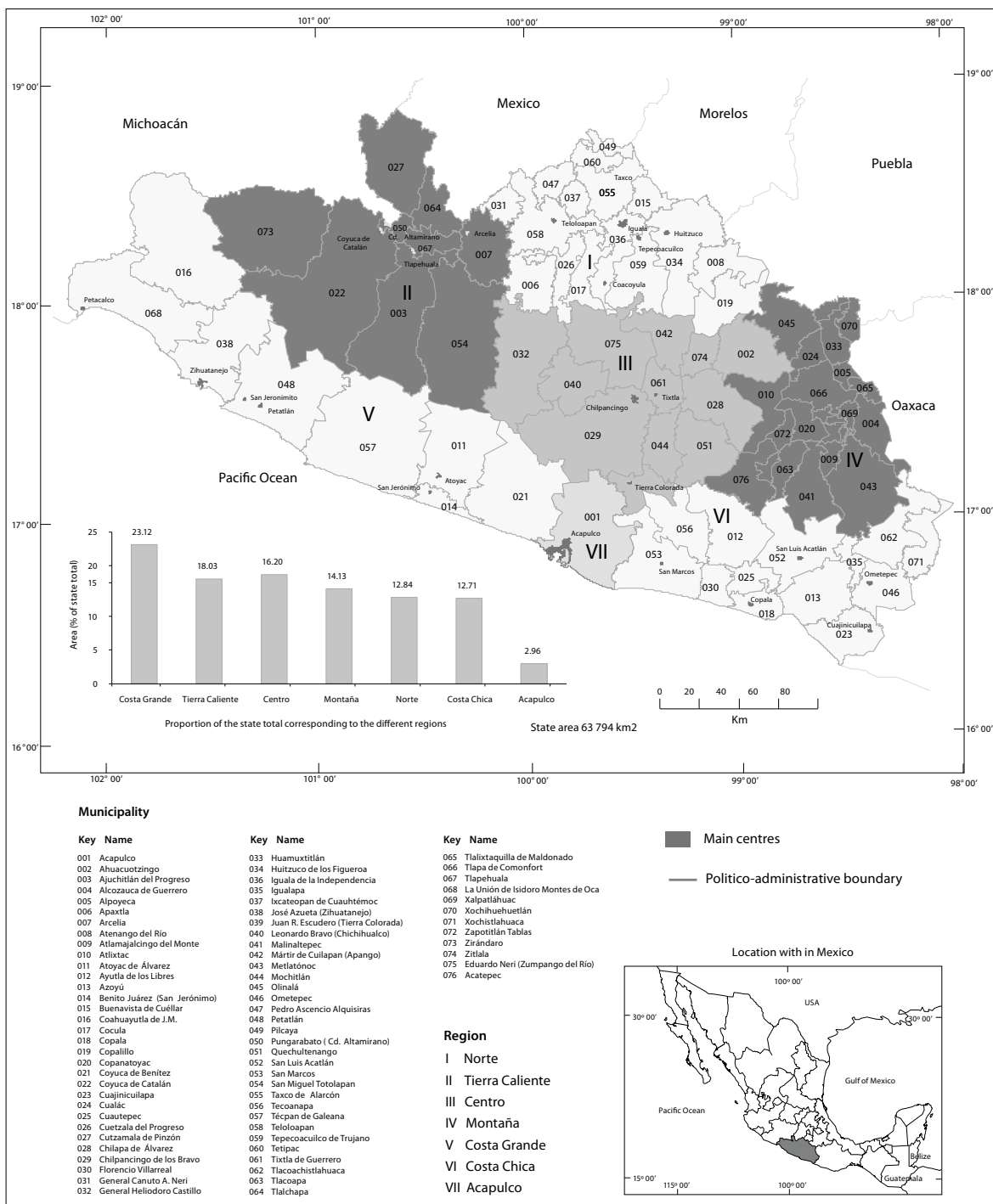
systemic perspective, and the production of a map that summarizes it, is a substantial contribution to understanding its current socio-economic inequalities. In 2000, the State consisted of seventy-six municipalities (Figure 1). Acapulco, José Azueta, Chilpancingo, Iguala and Taxco had the highest concentration of inhabitants, economic investment and profitable productive activities, chiefly belonging to the third and second sectors. Poverty is a constant in most of the municipalities (Figure 2).² In them, the primary industries are the main option for subsistence. Unfortunately, agriculture has significant yields in only a few parts of Guerrero, such as the coastal strip or part of the Tierra Caliente; these parts have physical characteristics that have favoured the introduction of commercial crops with possibilities for export, and they benefit from the presence of areas of irrigation. In general, there has been virtually no modernization of the State's primary sector. In the face of this situation, it is common for country dwellers to leave their rural communities and seek better incomes in the main cities of Guerrero, in other States of Mexico, or in the USA (Table 1 and Figure 3).

BASIC CONCEPTS

Diverse geo-economic studies have shown the specialization of regions or, in some cases, their productive diversification, by use of the method of successive quotients (Szczesny, 1964; Kostrowicki,

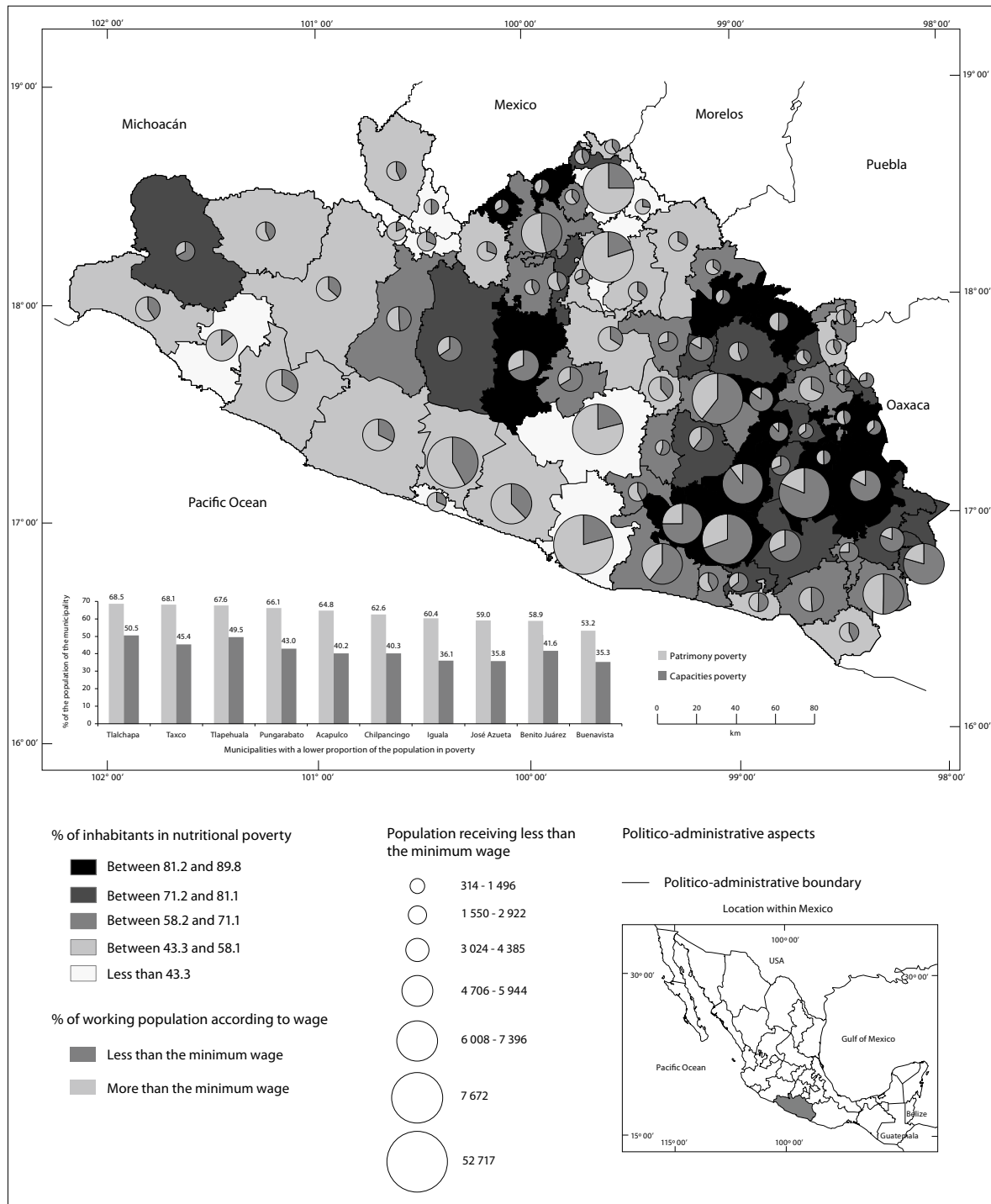
¹ Similarly, the end of the period was taken as the year 2000 because in the 2010 Census of Population and Housing the variables required for the method of successive quotients are the product of the application of a questionnaire distributed only to those homes selected by a probabilistic process. For that reason, the results of the 12th census (2000) are a better statistical support for revealing patterns of sectoral specialization or diversification at the municipal level.

² The concept of poverty, understood as a situation of material-economic deficiency that occurs in the context of the life of a human being, is simplistic. However, it is useful for the study of contemporary social dynamics, whose outstanding characteristics are a utilitarian philosophy and consumerism. In this sense, with the aim of showing the regional contrasts that distinguish Guerrero, the levels of poverty and of migration of the various municipalities are presented. In addition, each phenomenon helps to explain the economic-sectoral panorama of the different municipalities because the territories with high levels of poverty and, in consequence, with a wide range of social problems are places that people leave. This fact has not favoured or encouraged the implicit aims of projects related to local development (Propín and Sánchez, 1998, cited in García Castro, 2007).



Source: based on Gobierno del Estado de Guerrero, 2010a.

Figure 1. Guerrero: politico-administrative divisions, 2000



Source: based on CONEVAL, 2007 and INEGI, 2001.

Figure 2. Guerrero: population in conditions of poverty, 2005.

Table 1. Guerrero: evolution of the main urban centres, 1950-2010

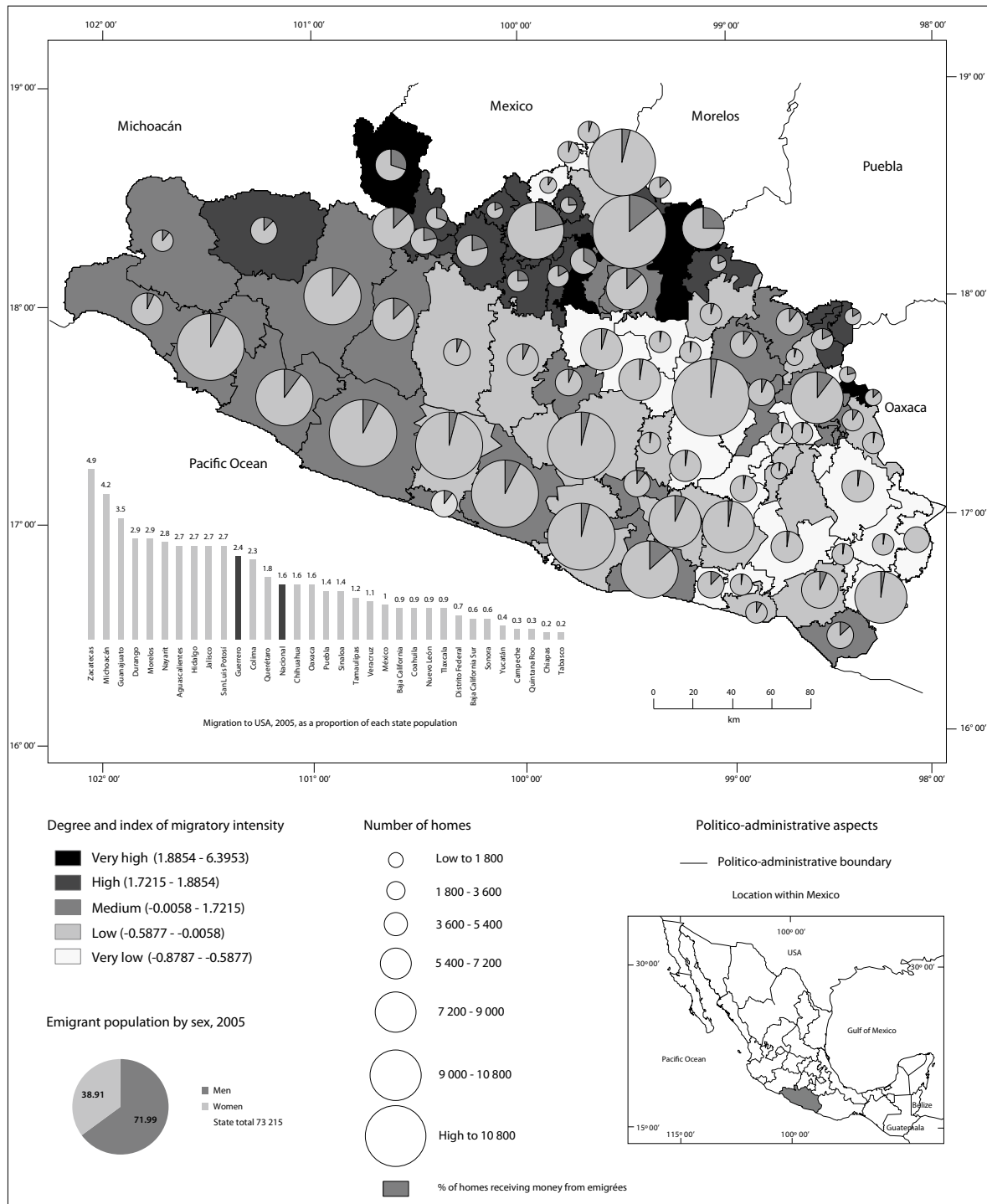
Locality	Number of inhabitants						
	1950	1960	1970	1980	1990	2005	2010
Acapulco	31 368	51 766	174 378	301 902	515 374	616 394	673 479
Iguala	19 422	29 700	45 355	66 005	83 412	110 390	118 468
Chilpancingo		18 022	36 193	67 498	97 165	166 796	187 251
		Taxco	27 089	36 315	41 836	50 415	52 217
				Zihuatanejo	37 328	62 376	67 408
				Tlapa	20 863	37 975	46 975
				Atoyac	18 561	20 788	21 407
				Petatlán	18 044	20 720	21 659
				Tecpan	17 884	14 136	15 119
				Teloloapan	17 763	21 592	23 549
				Tixtla	17 079	21 720	22 826
				Cd. Altamirano	16 697	25 317	25 168
				Chilapa	16 332	27 510	31 157
				Zumpango	15 690	22 322	24 719
					Ometepec	20 764	24 120
					Arcelia	17 608	18 685
					Huitzuco	16 025	17 475
						Ayutla	15 370

Source: based on Gobierno del estado de Guerrero, 2010a and INEGI, 2011.

1970; Kulikowski and Szyrmer, 1974; Propín *et al.*, 1985). This technique was developed in the Institute of Geography of the Polish Academy of Sciences and was used initially in the 1970s by the members of the then Commission on Land Use of the International Geographical Union as an alternative to the procedures used in analogous studies conducted in the USA and in Japan (Propín, 2003); the procedure arose in response to the need to reveal the essential performance of a structural phenomenon. A basic concept is that of orientation, a term that alludes to the conjunction of principal elements of a structure and indicators of its tendency or preferential inclination in a determined territorial unit (Sánchez and Propín, 2001). The application of this method to tracing patterns of diversification or productive specialization shown

by given spatial entities has led to recognition of the following socio-economic scenarios.

The territories that specialize in the secondary and/or tertiary sectors show a substantial accumulation of capital. They coincide with densely populated areas and with a significant degree of urbanization, and they present regional patterns that are monocentric (one city of primary importance) or polycentric (several medium-sized cities). They are usually linked with adjacent territories in which agriculture of high technical and productive investment is aimed at the external market. In poor countries, these areas are related directly with foreign firms. In contrast, the places with primary sectoral orientation, in some cases with minor participation of the secondary and/or the tertiary sectors, inform traditional economies; some show



Fuente: Elaborado con base en CONAPO, 2002; INEGI, 2001 y 2006.

Figure 3. Guerrero: population migrant to the USA, and home areas benefitting from the moneys sent back, 2000.

transitional states, characterized by the coexistence of traditional with new production systems. They depend on regions with industrial or industrial-agricultural specialization such as suppliers of raw materials (Propín and Sánchez, 1997 cited in Reyes, 2000 and García Castro, 2007).

Similarly, in those places that respond to processes of globalization, any type of economic orientation may be identified, since the foreign and national interests and their consequent investment of capital influence the predominance that a given productive activity acquires. In those places, orientation is affected by the natural resources, the size and demographic of the resident population, and the culture and productive infrastructure, such as factors linked with flows of capital and the potential to show some form of productive specialization (*Ibid.*).

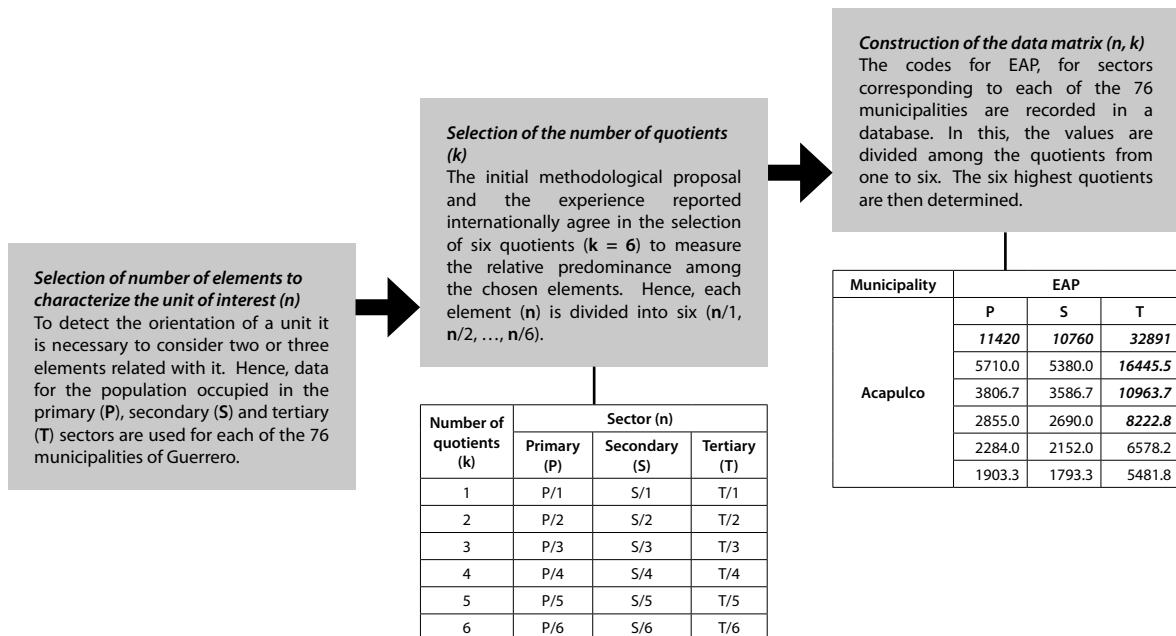
The research on 'Considerations on the determination of orientations of land use in municipalities of Pinar del Rio' (Propín, 1985) constitutes one of the first Latin-American investigative experiments that make use of this tool. In the Mexican Republic it has been used in the following studies.

'The types of economic assimilation in Mexico between 1930 and 1990' (Propín and Sánchez, 1997), 'Changes in the types of economic assimilation of Puebla State between 1950 and 1990' (Reyes, 2000), 'Changes in the functional orientation of the medium-sized cities of the Mexican tropics' (Sánchez and Propín, 2001) and 'Changes in the types of economic assimilation of Guanajuato State between 1950 and 2000' (García Castro, 2007). All these studies constitute the conceptual basis of the following section.

METHOD

To determine the sectoral orientation of each municipality in the State of Guerrero, the economic participation of each its productive sectors was considered. The sequence illustrated in Figure 4 was used.

Comparison of the results with the possible codes. Once the six major quotients have been obtained for the 76 municipalities, each economic sector is represented by its uppercase initial letter and its



Source: based on Reyes, 2000, Sánchez and Propín, 2001, Propín, 2003 and INEGI, 2001.

Figure 4. Technical procedure for determination of the six main quotients for a territory.

respective number of quotients as a subscript. The combination of three elements ($n = 3$) and six quotients ($k = 6$) leads to 28 possible codes that denote a sectoral orientation of any combination ranging from primary *dominant* (P_6), primary *predominant* with secondary (P_5S_1), primary *predominant* with tertiary (P_5T_1), to tertiary *predominant* with primary (P_1T_5), or tertiary *dominant* (T_6) (Reyes, 2000; Table 2).

Interpretation of the results. The codes obtained reflect distinct states of specialization ($P_6 \dots S_6 \dots T_6$) or of diversification ($P_2S_2T_2$) that can be explored in relation to the urbanization-tertiarization, industrialization or other processes characteristic of the area studied (Table 3). Also, this tends to contrast the corresponding results from different years and to signal the modifications caused in the municipalities involved (Table 4). The presence of the same code on the initial and final dates represents a *stable* productive orientation; variation by one quotient is a *slow* change; when two are modified, *moderate*; in the case of three, *accelerated*; the variation of four, *abrupt*; and the change of five or six quotients, *very abrupt* (Propín, 2003). The increase or decrease in quotients constitutes an alternative method that provides a criterion for revealing the gaining or losing sector(s). On this occasion, the expression *slightly favoured* was used to refer to the sectors that, in 2000, had one quotient greater than in 1970, *favoured* if they had 2-3 more, and *very favoured* if they had gained more than three.

SECTORAL ORIENTATIONS AND THEIR TRANSFORMATION

In 1970, Guerrero had an economically active population of 383 027 persons. The primary sector accounted for 238 314 workers, i.e. 67% of the State's EAP. The tertiary accounted for 22% and the secondary for 12% (DGE, 1971). The following were notable for their substantial EAP: Acapulco, 55 071; Iguala, 13 533; Chilpancingo, 13 134; Taxco, 12 933; Teloloapan, 10 366; Tecpan de Galeana, 9 939; Coyuca de Benítez, 8 434 and Atoyac de Álvarez, 8 078. In contrast, la Montaña

and la Costa Chica had EAPs of fewer than 5 000 persons (*Ibid.*). The classification of the successive quotients revealed ten sectoral orientations: four of these denote a certain grade of specialization in the primary sector, four showed a moderate productive

Table 2. Possible combinations of elements

	Code	Sectoral classification
1	P_6	Primary <i>dominant</i>
2	P_5S_1	Primary <i>predominant</i> with secondary
3	P_5T_1	Primary <i>predominant</i> with tertiary
4	P_4S_2	Primary <i>with</i> secondary
5	P_4T_2	Primary <i>with</i> tertiary
6	$P_4S_1T_1$	Primary <i>with</i> secondary and tertiary
7	$P_3S_2T_1$	Primary-secondary <i>with</i> tertiary
8	$P_3S_1T_2$	Primary-tertiary <i>with</i> secondary
9	P_3S_3	Primary <i>and</i> secondary
10	P_3T_3	Primary <i>and</i> tertiary
11	P_2S_4	Secondary <i>with</i> primary
12	P_2T_4	Tertiary <i>with</i> primary
13	$P_2S_3T_1$	Secondary-primary <i>with</i> tertiary
14	$P_2S_1T_3$	Tertiary-primary <i>with</i> secondary
15	$P_2S_2T_2$	Primary-secondary-tertiary
16	P_1S_5	Secondary <i>predominant</i> with primary
17	P_1T_5	Tertiary <i>predominant</i> with primary
18	$P_1S_4T_1$	Secondary <i>with</i> primary and tertiary
19	$P_1S_1T_4$	Tertiary <i>with</i> primary and secondary
20	$P_1S_3T_2$	Secondary-tertiary <i>with</i> primary
21	$P_1S_2T_3$	Tertiary-secondary <i>with</i> primary
22	S_6	Secondary <i>dominant</i>
23	S_5T_1	Secondary <i>predominant</i> with tertiary
24	S_4T_2	Secondary <i>with</i> tertiary
25	S_3T_3	Secondary <i>and</i> tertiary
26	S_2T_4	Tertiary <i>with</i> secondary
27	S_1T_5	Tertiary <i>predominant</i> with secondary
28	T_6	Tertiary <i>dominant</i>

Shading indicates combinations present in Guerrero.

Source: based on Reyes, 2000, Sánchez and Propín, 2001, and Propín, 2003.

Table 3. Types of sectoral orientation in the economy

Code	Sectoral classification	Practical interpretation
P ₆	Primary <i>dominant</i>	Specialization in one sector
S ₆	Secondary <i>dominant</i>	
T ₆	Tertiary <i>dominant</i>	
P ₅ S ₁	Primary <i>predominant with</i> secondary	Specialization in one sector with another sector complementary
P ₅ T ₁	Primary <i>predominant with</i> tertiary	
P ₁ S ₅	Secondary <i>predominant with</i> primary	
S ₅ T ₁	Secondary <i>predominant with</i> tertiary	
P ₁ T ₅	Tertiary <i>predominant with</i> primary	
S ₁ T ₅	Tertiary <i>predominant with</i> secondary	
P ₄ S ₂	Primary <i>with</i> secondary	Moderate specialization in one sector with another participant
S ₄ T ₂	Secondary <i>with</i> tertiary	
P ₂ S ₄	Secondary <i>with</i> primary	
S ₄ T ₂	Secondary <i>with</i> tertiary	
P ₂ T ₄	Tertiary <i>with</i> primary	
S ₂ T ₄	Tertiary <i>with</i> secondary	
P ₄ S ₁ T ₁	Primary <i>with</i> secondary and tertiary	Moderate specialization in one sector with the other two complementary
P ₁ S ₄ T ₁	Secondary <i>with</i> primary and tertiary	
P ₁ S ₁ T ₄	Tertiary <i>with</i> primary and secondary	
P ₃ S ₃	Primary <i>and</i> secondary	Relative diversification between two sectors
P ₃ T ₃	Primary <i>and</i> tertiary	
S ₃ T ₃	Secondary <i>and</i> tertiary	
P ₃ S ₂ T ₁	Primary-secondary <i>with</i> tertiary	Moderate diversification, with one sector slightly predominant, one participatory and one complementary
P ₃ S ₁ T ₂	Primary-tertiary <i>with</i> secondary	
P ₂ S ₃ T ₁	Secondary-primary <i>with</i> tertiary	
P ₁ S ₃ T ₂	Secondary-tertiary <i>with</i> primary	
P ₂ S ₁ T ₃	Tertiary-primary <i>with</i> secondary	
P ₁ S ₂ T ₃	Tertiary-secondary <i>with</i> primary	
P ₂ S ₂ T ₂	Primary-secondary-tertiary	Diversification between two sectors

Source: Sánchez and Propín, 2001.

diversification, and one had specialization in the secondary sector and one in the tertiary sector.

In contrast, in 2000, the primary sector employed only 27% of the EAP of Guerrero, estimated at 899 191 persons. The secondary accounted for 21% and the tertiary for 52%; this sectoral composition recurred in the municipalities of the regions Norte, Costa Grande, Tierra Caliente

and Acapulco. Acapulco again accounted for the greater part of the labour force, 257 599 workers (29% of the State total), followed by Chilpancingo (7.5%), Iguala (5%), José Azueta (4.9%), Taxco (4.8%) and Chilapa (3.1%). The other 54.76% was distributed among the remaining 70 municipalities (INEGI, 2001). Seventeen sectoral demoninations were found; in nine of these, the

Table 4. Sectoral orientations from a temporal perspective

Example		Quantitative variation in subindices	Qualitative classification of change
1970	2000		
P ₆	P ₆	0	Stable
P ₆	P ₅ S ₁	1	Slow
P ₆	P ₄ S ₁ T ₁	2	Moderate
P ₆	P ₃ S ₁ T ₂	3	Accelerated
P ₆	P ₂ S ₁ T ₃	4	Abrupt
P ₆	P ₁ S ₂ T ₃	5	Very abrupt
P ₆	S ₆	6	

Source: Propin, 2003.

primary sector still had considerable weight, in three the secondary had a slight predominance, and in the rest the tertiary occupied the major portion of the EAP. The data suggest that tourism and/or industry have been concentrated in only a few municipalities, and that the rest of the State does not have the economic benefits of either. The socio-economic backwardness has persisted in most of the municipalities; however, this condition was more acute in La Montaña and La Costa Chica, regions characterized by the presence, from ancient times, of indigenous people. In 2010, there were 475 099 indigenous inhabitants of Guerrero (7% of the national total): of these, 36% were Nahuatl, 29% Mixteca, 25% Tlapaneca and 10% Amuzga (INEGI, 2011). In general, they live in dispersed localities that are poorly coordinated and lack basic infrastructure, and their principal means of subsistence is agriculture and exploitation of the forest. According to the National Council for Evaluation of Social Development Policy (CONEVAL, 2007), in 2005, 42% of those living in Guerrero were suffering poor nutrition, 50.2% had low purchasing power and 70.2% had meagre assets. In these two regions, La Montaña and La Costa Chica, are concentrated the municipalities that have the highest percentages of the population in a state of

poverty. There, the economic-productive dynamic has shown minimal transformation (Figure 5).

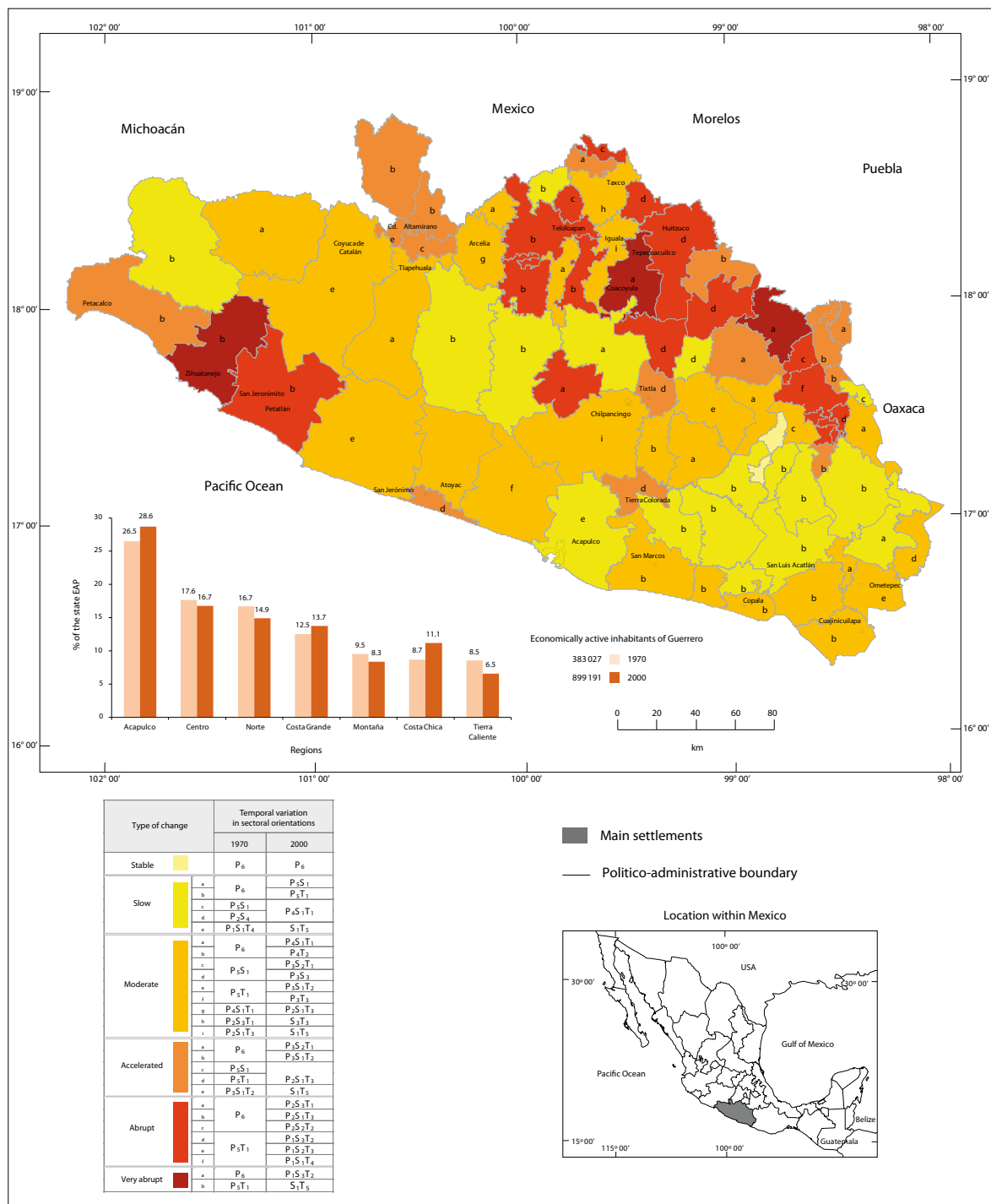
Sectoral orientations from a temporal perspective

According to the method used here, the municipalities behaved in the following manner.

Stable. This occurred in Zapotitlán Tablas. There, a dominant primary orientation (P₆) persisted. This is in the central part of La Montaña and had 10 516 inhabitants in 2010. Of these, 71% were Tlapaneca or Nahuatl (*Ibid.*). In 2005, the municipality had a very high degree of marginalization, being the 14th most marginalized in Guerrero, and the 35th in the country as a whole (CONAPO, 2006). Most of the communities have survived thanks to the cultivation of maize and beans in poor soils and steeply sloping terrain (70% of the land in the municipality is rugged), (Gobierno del Estado de Guerrero, 2010a).

Slow change. This type of change occurred in 17 municipalities, most of them concentrated in the north of La Costa Chica and south of La Montaña. In them, rain-fed seasonal agriculture is still the main economic alternative, achieved by manual labour within the family and with the application of minimal input owing to the lack of capital that has characterized the peasant farmers of these regions. Only small areas of some of the municipalities involved have physical conditions that have favoured this productive orientation, among them Ayutla, Tecuapala and San Luis Acatlán (*Ibid.*). Acapulco also changed slowly; it is the municipality with the highest number of inhabitants of all the municipalities in Guerrero, with 789 971 inhabitants (23.3% of the total) and with the highest tertiary EAP (INEGI, 2011).

Moderate change. This condition was detected in 26 municipalities and occurred in those with significant primary EAP, as well as those that are the most highly populated and that have a strong economic-commercial dynamic, for example Iguala (140 363 inhabitants), Taxco (104 053), Coyuca de Benítez (73 460), Tecpan de Galeana (62 071), Ometepec (61 306) and Arcelia (32 181), (*Ibid.*). In those with the significant primary EAP, there is mainly seasonal rain-fed cultivation of maize,



Source: based on DGE, 1971 and INEGI, 2001.

Figure 5. Guerrero: changes in sectoral orientations between 1970 and 2000.

beans and, to a lesser extent, fruits, vegetables and oilseeds. Livestock production is free-range and the few manufacturing establishments are associated with light industry.

Accelerated change. There are 15 municipalities in this category, situated essentially in the north-west of the Tierra Caliente and north-east of La Montaña. The productive-economic dynamic has the following structure: there are areas oriented to seasonal crops or to free-range livestock production. The secondary sector is represented by establishments related to the processing industry. Except for Tierra Colorada (Juan R. Escudero), Tixtla and Ciudad Altamirano (Pungarabato), which have diversified commercial activities oriented towards satisfying a regional market, the main city of each municipality is focused only on modest commercial establishments and basic services.

Abrupt change. This condition was recorded in 14 municipalities, including Apaxtla, Cocula, Teloloapan and Petatlán. In the first three of these, production of crops and livestock is high-yielding owing to their use of technology and to their various irrigated districts. In both the cities of Teloloapan (23 549 inhabitants) and Petatlán (21 659), there are many commercial establishments and services that focus the regional agricultural production or that provide input for such primary activities. In this category also are included Tlapa (the economic heart of La Montaña), Leonardo Bravo, Copalillo, Mártir de Cuilapan, Cualac, Pilcaya, Ixcateopan, Buenavista de Cuellar and Huitzuco. In the second of these, Leonardo Bravo, there is a concentration of light industries related to production of foodstuffs, footballs, metal products and synthetic fibres. In the last four, Pilcaya, Ixcateopan, Buenavista de Cuellar and Huitzuco, there is a concentration of clothing manufacturers (Gobierno del Estado de Guerrero, 2010a).

Very abrupt change. Only Tepecoacuilco, Olinalá and José Azueta belong to this category. In the main city of Tepecoacuilco, commercial premises proliferate, particularly those that sell clothing. The bulk of the secondary EAP is labour in small artisanal workshops connected with the production of ceramics or of paintings on amate bark paper. In Olinalá, the production and sale of lacquer ware is one of

the principal sources of income for the inhabitants (*Ibid.*). José Azueta includes Ixtapa-Zihuatanejo, one of the principal tourist centres of the State. It has 145 hotels that offer altogether 6206 rooms (35.7 and 24.5% of the State total, respectively) and it attracts 17% of the tourists who visit the State (of whom 75% are Mexican and 25% foreigners), (Gobierno del Estado de Guerrero, 2010c).

Types of change in the sectoral orientations

In most of the municipalities there has been an increase in the EAP occupied in tertiary activities (commerce and services), and to a lesser extent in the manufacturing industry (particularly of foodstuffs, beverages and tobacco products). In the metamorphosis of the productive-economic profile of Guerrero, the following have had an influence.

First, the main focus of the political economy of Guerrero has been to boost and consolidate its principal tourist venues, but this has been detrimental to the secondary sector and, in particular, the primary. In recent decades, visitors have been encouraged to come to coastal areas and to places with other tourist attractions apart from the sun and the beach, scattered throughout the seven regions of Guerrero. However, the bulk of the municipalities have benefitted little from the currency that is raised from the influx of tourists, and this has led to a growth in unemployment and the number of people who resort to casual labour related to trade. Also, emigration of Guerrero's inhabitants to other cities of Mexico or to the USA has increased (Díaz and Juárez, 2008). The money these emigrants send back home often vitalizes the economy of the recipient places, and these show greater commercial activity owing to the relative increase in purchasing power of the families that receive the money derived from outside. García Espinoza (2007) reported that, according to national estimates, 80% of the money sent home from elsewhere is destined for day-to-day family expenses, 16% for home improvement, and the rest for other items, including savings. Hence, the construction industry, and the labour force associated with it, is intensified in response to the heightened demand.

Secondly, in those municipalities with a predominantly indigenous population, the low producti-

vity of the terrain and the scarcity of plots of land for working mean that yields are insufficient to cover basic requirements. This, and the possibility of capitalizing upon the available manpower in the family, encourages diversification of work activities. In recent decades, more people have turned to traditional craftwork, have become traders, or have moved to the cities with the aim of seeking employment as builders' labourers or domestic servants, or have moved to the agricultural lands of the north-west of the Mexican Republic.

Other characteristics revealed by the analysis of these sectoral changes are presented below.

I. Municipalities in which the number of quotients of the tertiary sector has grown. In all these, the EAP working in activities related to trade and services has grown at the expense of the primary sector. The variation in the number of quotients gained by the tertiary sector in the various orientations analysed leads to differentiation of the following situations.

I.1. Tertiary favoured. The municipalities of Chilpancingo, Taxco, Iguala, Arcelia, and Pungarabato have consolidated as economies specialized in this sector. Chilpancingo accommodates the state capital, also called Chilpancingo. Here, a considerable part of the population has been occupied in work related to government offices. Similarly, owing to its situation intermediate between Mexico City and the port of Acapulco, here have arisen diverse commercial operations that copy products originating from the central part of the country and offer them to buyers from the central region, from the west of La Montaña, and from La Costa Chica. In Taxco, a dynamic economy has become firmly established, supported by the production and sale of traditional handicrafts in silver and by the influx of tourists. The situation is similar in Iguala, since its municipal capital has been promoted as 'The Golden City' because of the recent proliferation of workshops and shops related to jewellery made of gold. In the municipal capitals of Pungarabato and Arcelia the commercial activity has increased owing to their demographic expansion, to the improvement of the communication routes that connect with diverse settlements in the eastern part of the State's Tierra Caliente and with the southern

part of the State of Mexico, and to the increase in the economic awareness of the inhabitants who receive money from family members who have left Guerrero. These also have a bearing on the rise in small trading establishments in Tlapehuala, another municipality that showed a significant increase in the successive quotients corresponding to the tertiary economic activities, since there was a change from P_5S_1 to $P_2S_1T_3$. This jurisdiction showed a high degree of migratory intensity, and ~1077 homes benefitted from money sent home from the USA (22% of the total for the municipality), (CONAPO, 2002).

In a second group of municipalities a primary *dominant* orientation (P_6) changed to one moderately specialized in the primary sector with the participation of the tertiary sector (P_4T_2). This was recorded in San Marcos, Florencio Villareal, Copala, Azoyú and Cuajinicuilapa, municipalities that have beaches such as Pico del Monte, Ventura, La Bocana, Las Peñitas, Barra de Tecuanapa and Punta Maldonado. An infrastructure has developed in those places, related to the accommodation and servicing of the visitors who have increased in numbers in the past two decades (Gobierno del Estado de Guerrero, 2010b).

I.2. Tertiary slightly favoured. In this category are found, above all, municipalities in the south of La Montaña and north of La Costa Chica (Tecuanapa, Ayutla, San Luis Acatlán, Cuatepec, Tlacoapa, Malinaltepec, Metlatonoc, Acatepec). They changed from a primary *dominant* orientation (P_6) to primary *predominant with* tertiary (P_5T_1), since some rural workers had trade or the provision of services as their principal source of income. In recent decades, in the municipal capitals the establishments of this type increased in number because of both the demographic growth and the receipt of moneys from family members who had emigrated. In contrast, Acapulco changed from $P_1S_1T_4$ to S_1T_5 through the consolidation of tourism as the focus of the municipal economic dynamic. The port of Acapulco is the principal tourist destination of the entire State, accounting for 73% of all visitors (80% of these being from within Mexico, and the rest mainly from the USA and Canada). Similarly, it is the second most po-

pular destination for Mexican tourists, with 10.5% of them choosing it (*Ibid.*).

II. Municipalities in which the number of quotients for the secondary sector increased. This is shown by the change in the sectoral orientations of Xochistlahuaca, Tlacoachistlahuaca and Eduardo Neri. Two categories were found, as follows.

II.1. Secondary sector favoured. Xochistlahuaca changed from a primary *predominant with* secondary orientation, to a relative diversification between the primary and secondary sectors (P_3S_3). In this municipality 25 180 (79%) of the inhabitants are Amuzga or Mixteca (INEGI, 2011). To a large extent, the expansion of the secondary EAP is related to the organization of indigenous women into microbusinesses directed towards the production and commercialization of their traditional textiles, as in the case of the La Flor de Xochistlahuaca cooperative formed three decades ago. Thanks to this, this productive activity has received funding through various official programmes whose objective is the promotion, diffusion and commercialization of traditional crafts.

II.2. Secondary sector slightly favoured. This occurred in Tlacoachistlahuaca and Eduardo Neri. Each changed from a primary *dominant* orientation (P_6) to a primary *predominant with* secondary (P_6S_1). Tlacoachistlahuaca has socioeconomic characteristics similar to those described in the preceding paragraph. Indigenous inhabitants predominate; 11 808 (65% of the population) are Mixteca or Amuzga (*Ibid.*). In San Cristóbal and Tlacoachistlahuaca the production of *huipiles* (embroidered smocks) has increased. In Eduardo Neri, the sectoral composition was modified through the arrival in the early 1980s of the company Minera Nukay S. A. de C. V. which installed a treatment plant for the minerals extracted in Mezcala (Gobierno del Estado de Guerrero, 2010a).

Municipalities in which the number of quotients of the primary sector increased. This occurred only in Zitlala, which changed from a secondary *with* primary orientation (P_2S_4) to a relative diversification between primary and secondary (P_3S_3). This municipality is in the Centro region, and 9 852 (50%) of its inhabitants have Nahuatl as their first language. In the late 1970s, the peasants of this

part of Guerrero started to use chemical fertilizers and improved seeds supplied by the National Bank for Rural Credit (Banrural). In most places this led to higher yields of crops and increased income from their sale. Some settlements even stopped making craft items (mainly mats and hats) from palm fronds for generating extra income (*Ibid.*).

IV. Municipalities in which the number of quotients belonging to the secondary and tertiary sectors increased. This category included the following types.

Tertiary sector much favoured and secondary slightly favoured. In José Azueta there was a specialization in the tertiary sector with the secondary as a complement. This was due to a boost given by the Federal and State government since the 1970s to the tourism industry of Ixtapa-Zihuatanejo. This tourist destination, together with Acapulco, Cancún and Puerto Vallarta, has many of the country's hotels that rank five-stars or even higher. In 2005, the influx of visitors yielded Guerrero 4247.4 million US dollars, of which Acapulco accounted for 42.8% and Ixtapa-Zihuatanejo for 35.6%.

IV.1. Secondary and tertiary favoured. There was a flow of specialized economies in the primary sector towards productive orientations that show a certain sectoral diversification. This transition occurred in those municipalities that were favoured by the spread of foreign-owned assembly plants towards the south-east of the country, a process that started in the 1990s. Thus, Ixcateopan, Pilcaya and Tepecoacuilco have acquired assembly plants for clothing manufacture. On the other hand, in Olinalá the change was due to the proliferation of workshops producing lacquer ware. The interest that these crafts have aroused among national and international tourists, added to the improvement in the highway that connects the municipal capital to the capital of Guerrero, caused the proliferation of places selling food and, to a lesser extent, of those offering accommodation, and commercial and service establishments that cater to the inhabitants of the municipality and the population of the northern part of La Montaña (Gobierno del Estado de Guerrero, 2010b).

IV.2. Secondary favoured and tertiary slightly favoured. This occurred in eight of the municipali-

ties. Most changed from a primary sector with five or six successive quotients to diversified productive structures. Ahuacuotzingo, Xochihuehuetlán and Tetipac reached an orientation of primary-secondary *with* tertiary ($P_3S_2T_1$). In Mártir de Cuilapan, Copalillo, Buenavista de Cuellar and Xalpatláhuac the secondary predominated slightly, the tertiary participated and the primary complemented; here, the production of traditional crafts increased considerably, and these were sold both within their communities and at regional markets, and even in the main cities of Guerrero and in other States such as México, Morelos and the Federal District. Within this group, Buenavista de Cuellar also acquired assembly plants for the manufacture of denim garments. In Leonardo Bravo, the consolidation of light industries (production of foods, footballs, metal goods and synthetic fibres) led to an orientation of secondary-primary *with* tertiary ($P_2S_3T_1$).

IV. 3. Secondary and tertiary slightly favoured. Zirándaro, Ajuchitlán, General Canuto A. Neri, Cuetzala, Quechultenango, Atixtlac, Alcozauca and Igualapa retain a substantial primary EAP. The primary sector has rather less importance in Copanatoyac, where it predominates slightly, the secondary participates and the tertiary complements ($P_3S_2T_1$), and in Coyuca de Catalán, Tecpan, Ometepec and Chilapa where the code is $P_3S_1T_2$. The city of Ometepec was consolidated as the economic-commercial focus of the eastern part of La Costa Chica and part of the south of La Montaña (Sánchez, 2000). Analogously, in the capital city of Chilapa commercial activity intensified, selling the agricultural and craft goods from the municipality or from surrounding parts. In Tecpan several establishments arose related to the processing of regional agricultural produce (mainly installations where coffee is processed) (Gobierno del Estado de Guerrero, 2010c).

IV.4. Secondary slightly favoured and tertiary favoured. This change was common in those municipalities of La Costa Grande and La Tierra Caliente where historically the agricultural activities have produced significant yields as a result of the physical conditions; this prompted a surge in some agroindustries. In Tixtla, the change can be attributed to the inclusion of the municipality as a tourist

venue, promoted by the State; this also stimulated the production of traditional crafts (Gobierno del Estado de Guerrero, 2010a). In contrast, in Juan R. Escudero and Tlapa the change is associated with the expansion of commercial activity shown by their respective capital cities. In Tlapa, the money sent home by migrants is arousing the interest of traders who see in this city a good place to gain a foothold. Even Wal-Mart intends to secure a hectare of land on which to establish the first of its shops in La Montaña. Coppel, Elektra and Milano have similar plans.

CONCLUSION

Analysis of the codes obtained during the investigation indicates that in most of the State of Guerrero the economy has veered towards the tertiary sector. This was not only intense in territories that include established tourist resorts (Acapulco and Ixtapa-Zihuatanejo) or those with certain politico-administrative function such as Chilpancingo, but also in those with low-yielding agricultural activities; faced with this situation, the population has opted for self-employment in casual trade or even for migrating to other states of Mexico or to the USA. This last alternative has had considerable effects on the local sectoral orientation through the moneys sent back to the various municipalities of the state. In 2007, Guerrero amassed 1 239.1 million US dollars through the receipt of these moneys, this being 23 times the total sum of funding that the state government devoted to social programmes in that year, or the equivalent of 8.1% of the Gross Domestic Product of the state (Gobierno del Estado de Guerrero, 2010a).

In addition to this, the promotion of various tourist venues scattered throughout the seven regions of the state began to be important, including the beaches of La Costa Chica (Pico del Monte, Ventura, La Bocana, Punta Maldonado) and of La Grande (Barra de Potosí, Tlacoyunque, Michigan, Troncones, Paraíso). Also included are those places that have a biodiverse environment or an important historic-ethnographic-cultural heritage: Olinalá, Tlapa and Huamuxtitlán in La Montaña; Tixtla,

Chilapa, Zitlala and Mochitlán in the Centro region; and Arcelia, Tlapehuala and Pungarabato in La Tierra Caliente. Both situations have meant that the economic dynamic of those municipalities now depends largely on resources generated in other parts. The number of employees fluctuates according to the high or low seasonal influx of tourists, and in any case most payments associated with the provision of services to the tourists are low because of the low level of qualifications in the population. Meanwhile, the sums received by the families of migrants are influenced by the economic and socio-political conditions that prevail in the USA.

In summary, the movement towards the tertiary sector recorded in several parts of Guerrero, just as in the rest of the country and in poor countries, is a phenomenon directly proportional to its demographic expansion. In 1970, only Acapulco, Iguala, Chilpancingo and Taxco had more than 15 000 inhabitants, whereas in 2010 there were 18 towns with a population fluctuating between 15 000 and 700 000 (INEGI, 2011). In addition to the places already mentioned, the following are now notable urban centres: Zihuatanejo, Tlapa, Chilapa, Atoyac, Ciudad Altamirano, Zumpango and Ometepepec. Most of these, historically, have played an important role in the supply of goods and services to the surrounding areas; they have to a greater or lesser degree received repeated economic investments and they are seen as attractive places for other inhabitants of Guerrero, who migrate to these places and, because of their few work-skills, tend to perform work related to trade and/or services.

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