

THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

LOCAL ECONOMIC DEVELOPMENT IN MEXICO

THE CONTRIBUTION OF THE BOTTOM-UP APPROACH

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Declaration

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Abstract

This thesis examines the contribution of the bottom-up approach towards local economic development (LED) in Mexico. It applies a combination of methodologies to assess if the growing importance of this approach in the public policy arena is supported by a more focused and systematic analysis. In doing so, the aim is to offer a broader and deeper understanding of the key elements of the bottom-up perspective and their specific impact on the economic and social development of places, by considering a large sample of Mexican municipalities; and to better comprehend the effects of local actions and interactions on the shape and effectiveness of those key elements by focusing on two municipalities, which have adopted different strategies.

The first part of the empirical analysis uses a quantitative methodology and presents – to the best of our knowledge – the first nationwide quantitative assessment of the impact of the constituents of the bottom-up approach on the development fortunes of local jurisdictions. The analysis relies on a purpose-built database of 898 municipalities in Mexico and on heteroscedasticity-consistent ordinary least square (OLS) regression methods to evaluate whether the implementation of six different components of the bottom-up development strategies – development plan, sustainability, entrepreneurship, capacity building, participation mechanisms, and development links – has delivered greater human development across Mexican municipalities. The results of the analysis indicate that municipalities engaging in LED have witnessed improvements in human development, relative to those which have overlooked it. The increase in human development has been greatest for those local authorities which have pursued capacity building, the establishment of development links and which have drafted a development plan based on a local diagnosis.

The second part of the analysis uses a case-study methodology to dig deeper on two Mexican municipalities – Apizaco and Chiautempan – located in Tlaxcala, one of the Mexican states which has set up an institutional framework aimed at encouraging greater participation. Our findings reveal that while the implementation of certain aspects of the bottom-up approach have had a clear relevant positive contribution to economic and social development, a series of local challenges have clearly shaped the effectiveness of the LED strategies applied in both municipalities. In addition, the analysis shows that Apizaco, the local authority which pursued LED in a more comprehensive way, experienced a greater improvement in socio-economic development.

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CHAPTER 1 Introduction

In *Small is Beautiful: a Study of Economics as if People Mattered*, Schumacher (1973) suggested the importance of territories within countries to tackle issues of poverty, mass migration, unemployment, and income inequalities, among others. He criticised the focus of national policies on gross domestic product growth which neglects other aspects of people's quality of life and the concrete circumstances of the places where individuals live and interact. Later, Stöhr and Taylor (1981) observed that bottom-up development strategies had not been implemented on a regular basis and for a long period of time. After long periods of top-down predominance in public policy and the continued presence of the problems pointed by Schumacher, policy strategies closer to local (sub-national) realities started growing in importance as recent as the outset of the last decade of the 20th century (Pike et al. 2006).

The popularity of local economic development (LED) approaches to economic and social development has risen significantly over the last two decades, fundamentally as a result of what has been perceived as a failure of top-down development strategies (Boisier, 1999; Puga, 2002; Crescenzi and Rodríguez-Pose, 2008). In short, numerous national approaches to development have been unsuccessful to satisfy local needs as well as to tackle local economic difficulties and challenges, and, thus, have failed to improve people's quality of life in a context of increasing globalisation (Grefe, 1989; Potter et al., 1999; Swinburn, 2006).

The process of globalisation has contributed to the growing relevance of local approaches to development (Cooke, 1989; Stöhr, 1990). While central governments are increasingly viewed as too remote and too inefficient to effectively tackle the challenges and opportunities generated by globalisation, localities, cities and regions are perceived by some as the most adequate spaces to address global challenges (Scott, 2001; Scott and Storper, 2003), including those emerging from the 2007-8 financial and economic crisis (Vázquez-Barquero, 2009; Tomaney et al., 2010). Little by little, some of the key elements associated with LED approaches have been creeping into – and, in numerous cases fully adopted by – localities in their development strategies. As a consequence, since the beginning of the 1990s, an increasing number of local and regional authorities across the world have been involved in the design and implementation of development strategies which increasingly adopt different specific elements of LED approaches (Blakely and Bradshaw, 2002; Tödting, 2011).

Parallel processes of globalisation and decentralisation have not only granted localities greater autonomy to design and implement their own development strategies, but have also promoted capacity building and the empowerment of local actors, leading to a greater emphasis on the participation of local stakeholders and on the sustainability of development processes (Pike et al., 2006). In addition, in the specific case of Latin America, democratisation has also favoured decentralisation efforts and contributed to the transfer of greater responsibilities and resources to sub-national governments (Enriquez-Villacorta, 2006).

In this context, the literature is awash with a number of successful LED cases showing that bottom-up strategies provide viable development alternatives in a more integrated world. However, despite the success cases documented by academics and practitioners, the impact of LED strategies remains insufficiently assessed (Crescenzi and Rodríguez-Pose, 2011; Gordon and Low, 1998; Markusen and Schrock 2006). A large percentage of the literature dealing with LED has tended to concentrate on a handful of cases such as Silicon Valley in California, the Third Italy, Baden-Württemberg, Jutland in Denmark, Bangalore in India, Wenzhou in China, and Rafaela in Argentina. But the constant tendency in the literature to examine and evaluate successful cases has resulted in an overwhelming dominance of single-case inductive approaches to the study of LED strategies, which have resulted in an impossibility to determine whether LED strategies, beyond the well-documented cases, really work (Barberia and Biderman, 2010; Crescenzi and Rodríguez-Pose, 2011). It may well be the case that the evaluation of local and regional development has been constrained to the lushest trees, disregarding the multitude of small and generally poorly documented attempts to try to implement the bottom-up approach across the world.

Meyer-Stamer (2005) maintains that although there are some 'good practice' experiences described in the literature, it is not easy to clearly distinguish the effects of LED strategies on development outcomes even in the best known and documented success stories. In this sense, there are no studies that have put together the key elements of strategies which main feature is their local origin and focus, and analysed their specific effects on the development fortunes of the places where they have been contemplated.

To engage in such analysis is of core significance because the bottom-up approach continues gaining notoriety in public policy forums and development programmes designed by different organisations such as the Organisation for Economic Cooperation and Development (OECD), the United Nations Development Programme (UNDP), and

the International Labour Organisation (ILO), among others. Besides, the Europe 2020 strategy contemplates a regional policy based on the 'strengths of each territory' (European Commission Website¹). LED strategies have been seen as complements, if not as outright alternatives, to traditional top-down development programmes (Pike et al., 2006; Potter et al., 1999; Stöhr, 1990; Tödting, 2011; Vázquez Barquero, 1999 and 2011). The need to examine the concrete effect of the key elements of this approach grows in importance given that the role of sub-national territories in development has not escaped criticism within the literature (Lovering, 1999; Mohan, 2011; Newton, 1978).

As bottom-up strategies towards economic and social development have been pursued within developing and developed countries, and successful cases have been increasingly documented along the years since the outset of the 1990s, it is now possible to build an analytical framework to examine their specific contribution to the development performance of territories (Pérez-Sánchez, 2010; Vargas, 2006).

In order to perform such analysis, in this dissertation we select the case of Mexico. It is interesting and relevant to examine the effects of the key constituents of the bottom-up approach in this Latin American country for two reasons. First, it is one of the countries in the world where the pursuit of LED strategies by regional and local authorities has been prominent since the 1990s as documented by numerous studies (Albuquerque, et al. 2002; Bair and Gereffi, 2003; Helmsing, 2001b; Iammarino et al., 2008; Mazza and Parga, 1999; Mitchell Group Inc., 2003; Pike, et al. 2006; Pérez-Sánchez, 2010; Rabellotti and Schmitz, 1999; Ruiz-Durán, 2000a and 2000b; Vargas, 2006). Second, Mexico's formal institutional setting allows sub-national levels of government to engage in social and economic development. Democratisation and decentralisation efforts since the end of the 1980s have contributed to transfer greater responsibilities and resources to sub-national authorities, among other aspects favouring their active role in promoting development (Cabrero, 2003b; Ruiz Durán, 2005; Vargas 2006).

To sum up, the relevance of this research is rooted in two different aspects. First, the need to clearly specify what the bottom-up perspective involves in a context of external influences and different scales of policy intervention (Martin and Sunley, 2008). On these grounds, this research offers a detailed discussion on the bottom-up approach towards economic development which leads to clearly distinguish its fundamental features and policy actions. Second, it is necessary to propose and use different analytical tools to examine the concrete impact of each of those key elements on the development of

¹ Territorial cohesion: http://ec.europa.eu/regional_policy/what/cohesion/index_en.cfm (Accessed on February 14th 2012).

places. To that end, we propose a quantitative methodology to test such impact, followed by a qualitative analysis intended to provide some knowledge on the specific shape and characteristics of the effects discovered during the quantitative study. Such a combination of methods is being proposed in the European Union to evaluate its regional policy 2014-2020, with the advantage that the European Commission will not only be able to evaluate individual strategies in particular regions, but the information gathered would also be useful for including a large number of them in further analyses (European Commission Website²).

Our research hypothesis is that the fundamental elements of the bottom-up approach have played a significant role in the development of the Mexican localities where these elements were present between 1990 and 2005. More specifically, we hypothesise that if, as believed by the literature on local and regional development, LED strategies are expected to have a positive impact on economic development, then the presence of any of the specific LED features and policy actions – development plans, sustainability, empowerment and capacity building, entrepreneurship, development linkages, as well as participation mechanisms – in the strategies followed by Mexican municipalities resulted in better development outcomes. This dissertation is organised as follows.

Chapter 2 introduces the bottom-up approach and sets the foundation that contributes to build the conceptual basis for the analysis of its impact on the development of Mexican municipalities. Towards this end, a discussion of the logic behind the idea of localities as the main source of development initiatives is presented as well as a comparison between the top-down and bottom-up approaches. Additionally, an analysis of different LED definitions identifies the fundamental features of this approach.

Chapter 3 completes the theoretical ideas and background that represent the foundation for the analysis of the impact of bottom-up strategies on the development of places by explaining and illustrating their key features and policy instruments, as well as discussing the rationale for their implementation in Latin American countries, in general, and Mexico, in particular. This chapter also provides detailed insights on the pertinence of the selected scale of analysis.

Chapter 4 elaborates on the methodology to quantitatively test if the LED constituents have had a significant effect on the development of Mexican municipalities. This

² Reform proposals: http://ec.europa.eu/regional_policy/what/future/index_en.cfm (Accessed on February 14th 2012)

chapter introduces and explains the model specification, the LED explanatory and control variables, as well as informs on the selection of the response variable.

Chapter 5 carries out the quantitative analysis using a database specifically-tailored for the purpose of this project – as there were no prior datasets on LED strategies at the municipal level in Mexico. Chapter 5 unveils the model results and comments them in light of the analytical framework developed in chapters 2 and 3.

Two municipalities in the state of Tlaxcala are selected for further analysis: Apizaco and Chiautempan. Chapter 6 informs on the design of the qualitative analysis and on the criteria for the consideration of these municipalities as our case studies. Chapter 6 also explains their development context which includes their institutional setting, their attributes relative to the LED database, and their main geographical, economic, and social features.

Chapter 7 discusses the findings of the qualitative analysis by comparing Apizaco and Chiautempan in terms of the particular shape and possible effect of the LED constituents on their development fortunes. Finally, the last chapter of the dissertation puts together its main contributions and findings, and offers some concluding remarks.

CHAPTER 2

An introduction to the bottom-up approach towards the development of places

1. Introduction

Local economic development (LED) can be affected by both national governments' interventions and by sub-national ones. Since the start of the 1990s local and regional development strategies have been increasingly adopted with governments no longer acting as the sole or predominant actors in the development process (Albuquerque, 2005; Glasmeier, 2001; Vázquez-Barquero, 2002). This chapter elaborates on the background behind the growing importance of bottom-up strategies all over the world, and presents their main conceptual underpinnings.

The chapter's aim is to introduce the bottom-up approach to economic development and set the conceptual foundation that will contribute to build the basis for the analysis of the impact of bottom-up strategies in Mexico.

We start discussing the general background of this approach by going through basic considerations of the concept of the word development and some of the most common uses of this word in the development practice. The clarification of what is understood here by the development of places is followed by a discussion of the logic behind the idea of localities or sub-national regions as the main source of development initiatives. This is followed by a review and analysis of different definitions of LED in order to identify its key elements. Next, a comparison between top-down and bottom-up approaches sheds further light on the rationale of the latter towards effectively promoting economic development. The main criticisms to this approach are discussed before offering some concluding remarks.

2. The bottom-up approach: conceptual background and the links between practice and theory

The objective of this section is to define the development of places and to start discussing the bottom-up perspective towards it. To that end, the fascination of development goals with economic growth is highlighted first. Second, the section goes through common uses of the concept of development found in the literature related to the development of places such as social development, human development and sustainable development. Their link with the predominant idea of economic development is clarified. All these concepts have been used extensively not only by

scholars but also by policy makers, non-governmental organisations (NGOs), and international organisations such as the Organisation for Economic Cooperation and Development (OECD) and the World Bank. Finally, the logic behind the idea of regions or localities as the main source of economic development policies is examined.

2.1 The focus of economic development on economic growth

Acknowledging the importance given by O'Neill (2011) to the use of language in the development practice and literature, we start by looking at the meanings of the word development. It has a variety of connotations that depend on the context people use it³. The idea of a process of growth has predominated in the literature on economic development (Boisier, 1999; Pearce, 2001). The use of language that closely relates the ideas of growth and development may stem from the definitions of 'growth' in different languages which include the following: 'the process of growing and progressive development'. For the word 'development', a common definition is the 'act, process, or result of developing', where 'develop(ing)' refers to 'increase, augment, improve and perfect'.

As a consequence of the focus on economic growth, the nations and regions that are economically classified as developed are the ones that have reached certain high economic standards in terms of gross domestic product (GDP) and level of industrialisation. The developing countries are the nations going through the process of catching up with developed countries' GDP figures and economic composition (Pearce, 2001). By the same token, among the developing ones, the so called emerging market economies or newly industrialising countries have been the ones with the highest GDP growth rates. This pervasive idea known as 'developmentalism' prevailed during the second half of the 20th century (Pike et al. 2006) and, arguably, is still in the mind of many policy makers around the world. The LED strategies are part of a more comprehensive approach as it will be explained in the remaining paragraphs of this chapter.

2.2 Social and human development

According to the United Nations Research Institute for Social Development (UNRISD), the strategy towards social development entails the promotion of universal social

³ The Etymology of the English word *develop* is the French *développer*. The sources of the definitions presented here are: Larousse Universal Ilustrado, 1962; Spanish Royal Academy online: <http://www.rae.es>; Dictionnaire de L'Académie française, 4th Edition (1762): <http://www.academie-francaise.fr/>; L'Encyclopédie de L'Agora, 1998–2009: <http://agora.qc.ca/>; Dictionnaire de L'Académie française, 8th Edition (1935): <http://www.academie-francaise.fr/>

protection and equity in a context of economic globalisation. This social perspective is incorporated to the policy agenda by means of public policies and institutions that aim to protect citizens from social contingencies and poverty. In addition, social policy should contribute to improve people's involvement in the formulation of development policies and public services, as well as help individuals to satisfy their needs and pursue their aspirations. Government accountability through participatory mechanisms is another fundamental element of this approach (Douglas and Geller, 2007). In short, social development involves the promotion of participatory democracy, human rights protection including gender equality, and poverty eradication, among other aspects (Smetana et al, 2008; UNRISD Website⁴).

The concept became popular during the 1990s as a result of social policy reactions to macroeconomic adjustments. In the 1970s the development strategy of most developing countries was still import-substitution industrialisation led by the state. The consequence of trying to produce some intermediate inputs and any kind of final goods within each country, predominantly by state managed firms (public firms), was the prevalence of inefficiencies and non-competitive markets. In Mexico, this in combination with a huge budget deficit, high external debt, and low oil prices; led to a severe economic downturn during the 1980s (Aspe, 1993; Urquidi, 1996). In the middle of economic crises, the structural economic adjustments began consisting in privatisation of public firms, debt re-structuring, downsizing of public deficits, and openness to trade⁵. This emphasis on market liberalisation did not consider the possible social impact of the structural changes. For example, the privatisation of public firms and controls on public expenditure ended an era of direct governmental intervention in the labour market which secured jobs that otherwise would not survive as a result of low productivity and other inefficiencies in the use of resources (Aspe, 1993; Urquidi, 1996).⁶

Some national governments started to design policies under the label of 'social development' in order to ameliorate the situation of the unemployed and the population living in poverty. In the case of Mexico a new ministry was created in the administration of Salinas de Gortari (1988-1994) called Social Development. Some years after its creation, the administration of President Ernesto Zedillo implemented the poverty alleviation programme called Progresa (now Oportunidades) which has been

⁴ <http://www.unrisd.org/>

⁵ In Mexico the openness to trade dates from 1986 with its accession to the General Agreement on Tariffs and Trade (GATT).

⁶ Further details on other reforms are presented in the following chapter.

internationally recognised as successful in terms of the results evaluated within samples of beneficiaries (IFPRI, 2002; Levy, 2006; Schultz, 2001; World Bank, 2004b).⁷

International organisations were also aware of the impact of macroeconomic policies on vulnerable population sectors within developing countries. As a result, the United Nations Development Programme (UNDP) proposed to put an emphasis on *human development*, while the United Nations International Children's Emergency Fund (UNICEF) with its study called *Adjustment with a Human Face* initiated an international debate on how to protect vulnerable groups from the negative effects of the economic adjustments and reforms taken to fix poor countries' economies. The pursuit of human development has included not only the satisfaction of people's basic needs but also their empowerment and improving their capacities for a better participation in their social and economic life. Improving human capital or people's education has been seen as beneficial in monetary and non-monetary terms for both individuals considered alone and as a group (Silva, 2008). Thereby, investment in human development or human capital has become one of the fundamental actions of development strategies around the world since the outset of the 1990s.

To sum up, the concepts of social and human development, and related policies had its momentum as a reaction to counterbalance the perceived negative socioeconomic effects of economic restructuring in different countries. Economic development is further discussed below alongside with its relation to the notion of sustainability.

2.3 Economic and sustainable development

In line with one aspect of the definition of the word 'development' presented above, economics literature on the topic bases the study of the economic development of countries mainly in the determinants of gross domestic product (GDP) growth (Meier and Rauch, 2000). Traditional growth theoreticians such as Solow (1956, 1957, 1964) and Lucas (1988, 1993) concentrated on the contribution of physical and human capital as well as technical progress and knowledge accumulation on economic growth. Deeper understandings have added other aspects such as social capital to their equations. For example, Rodrik, et al. (2004) argue that there are three sets of explanations that should be considered when studying economic growth: international trade related, geographical and institutional. For them, the interaction between these three factors

⁷ You can find a complete description of this programme in Spanish in the following electronic address: <http://www.oportunidades.gob.mx/>

'determines which societies will innovate and accumulate, and therefore develop, and which will not' (Rodrik, et al., p. 133). Therefore, the literature on economic development has seen it merely as economic growth by focusing on the process of increasing countries' potential (i.e productivity) towards higher levels of GDP and, consequently, employment.⁸

In 1987 the United Nations (UN) General Assembly in its 96th plenary meeting welcomed the report of the World Commission on Environment and Development which emphasised the need for a new approach to economic development consisting in a change of direction towards sustainable development (Bruhn-Tysk and Eklund, 2002). For the UN this concept implied 'meeting the needs of the present without compromising the ability of future generations to meet their own needs', and 'should become a central guiding principle of the United Nations, governments and private institutions, organizations and enterprises'⁹. Since then, the concept has been increasingly incorporated in the agendas of governments, multilateral organisations and some NGOs.

The concept goes further than the ecological aspect when sustainability in economic development also considers the participation of local people in the development process, the effects of economic activities on communities and their localities, the protection of landscapes and natural resources, and the benefits for present and future generations (Forsyth, 1996). Precisely, this more complete idea of development, which also shares the ideals of human and social development, than the mere emphasis on economic growth is promoted by the proponents of LED strategies as it will be shown below.

2.4 The development of places and the bottom-up approach

The development of places has mainly been related to the economic sphere as job creation, productivity increases and income growth goals predominated in the development agendas during the 20th century (Geddes and Newman, 1999). Policies affecting the economic performance of regions and localities were mainly designed at a national level following the dominant economic theories at the time. However, the intensification of the globalisation of the world economy, the transition from close to

⁸ After Solow's (1956, 1957) neo-classical economic growth analytical framework, the vast literature on economic growth has incorporated other different aspects to the analysis of economic growth such as external economies, labour migration, savings rates, foreign direct investment, and geographical variables, among others (Boserup, 2007; Meier and Rauch, 2000; Pike et al. 2006).

⁹ United Nations Department of Economic and Social Affairs (DESA) electronic posting: <http://www.un.org/documents/ga/res/42/ares42-187.htm> (Accessed on September 2009).

open economies, the necessary reduction of public deficits in some countries, the number and geography of people living under 1 dollar per day, in combination with the perceived low effectiveness of top-down policies; facilitated a change of focus towards a more bottom-up and comprehensive notion of development (Martin and Sunley, 2008a; Tödtling, 2011). To this we can add the emergence of other concerns such as increasing sub-national disparities and the awareness of the presence of sustainability problems (Ruiz-Durán, 2005; Martin and Sunley, 2008a; Tödtling, 2011).

The main development concepts in practice were briefly reviewed in the previous subsections to better understand the background of bottom-up strategies towards economic development. The awareness of the main aspects that development experts and practitioners around the world have been considering towards improving the life conditions in a particular society contributes to clarify the aims and elements that need to be covered in a development strategy for a territory. In other words, the human, social and sustainable development ideals promote the enhancement of individuals' capacity (individually and as a group) to face the challenges and make the best of opportunities in their social and productive lives in a context of economic transformations (Max-Neef et al. 1993). Thus, the development of places goes beyond the goal of economic growth as it incorporates the notions of 'improving' and 'perfecting' embedded in the definitions of the words 'development' and 'develop' presented in the introduction of this section (Corro and Palavicini-Corona, 2008; Local Government Commission, 1997).

Multilateral organisations such as the OECD and the United Nations (UN) by means of different endeavours such as the UN Development and Environment programmes and the OECD's Centre for Local Development have emphasised dimensions and perspectives of development other than the economic dimension and the top-down perspective. At the ideological level, post-development views argue that the capitalism structures imposed by Western countries reinforce inequalities among rich areas and places lagging behind. To fix this structural aspect of a capitalist society those views propose to promote local and regional own forms of development according to places' particular circumstances and desires (Leyshon et al. 2003). At the same time, the emergence of social actors have been filling gaps in poverty reduction, social inclusion and environmental issues, among others (Amin et al. 2002).

Consequently, the *raison d'être* of the development of places is improving the well-being of the population living in a particular area. To achieve this, an approach close to the people seems to better capture the comprehensiveness of the task as it includes

spheres other than only pursuing economic growth. On these grounds, bottom-up strategies have been carried out and different key elements for their success can be identified (CAF, 2010). This allows the LED approach to gain importance and be recommended by academics and development experts as a development alternative without disregarding the possibility of benefiting from national and supra-national development actions (Stöhr and Taylor, 1981; Giordano et al. 2005; Rodríguez-Pose and Crescenzi, 2011).

According to Peet (1998), and Gordon and Low (1998), the idea of a particular space as an active element in the economic and social outcomes of places has been present in the geography literature since Doreen Massey's (1978, 1984) and Philip Cooke (1986, 1989) contributions in which social processes are seen as place specific and as essential elements in shaping the economic trends of localities. The same academics attribute the notion of local influence over localities' economic own destiny in a globalised context to the same authors. In a similar line of ideas, Teitz (1994) traces back the change in emphasis on LED strategies from mainly attracting outside investment to enhancing the local ability to generate employment from within to the beginning of the 1980s.

The bottom-up perspective towards the development of places concentrates on a specific context and takes into account its geographic, economic, as well as formal and informal institutional framework to propose potentially successful economic development strategies (Vázquez-Barquero, 2009). Why is place specificity important? One of the main reasons is that the proximity to people's needs and wishes at the local level (for example, the smallest administrative unit in a country) is seen by bottom-up proponents as the foundation of the development process (Hugonnier, 1999; Stöhr, 1990; Vázquez Barquero, 1988 and 1999). This suggests that the benefits of the bottom-up approach towards economic development may not only entail the delivery of services or policies more efficiently (i.e. maximising the total surplus for the local society) but also the possibility of a better accountability of its processes due to the mentioned proximity (Martínez-Vázquez and McNab 2003).

Place specificity is also important because, as Cooke, et al. (1997) suggest, learning and passing on practical knowledge relevant for the development of regions are collaborative processes deeply embedded in each region. By the same token, Cooke and Morgan (1998) and Iammarino (2005) stress the importance of local conditions to disseminate knowledge and create innovations through constant interactions among

different localised agents such as firms, research and technology centres, and governmental offices, among others.

In this line of ideas, Gordon (2006) suggests that when talking about the protagonism of localities or places, researchers should not reify them. In other words, researchers and practitioners should avoid the vagueness of talking about a locality as something acting by itself because the relevance and richness of analysing localities lies on the concrete institutions, circumstances and people living there. Taking this into account, we refer to what happens in a locality in terms of the different interests, characteristics, actions and interactions of local actors acting individually or as a group in a particular physical, social and economic context.

The fundamental idea behind the bottom-up approach is to harness the development potential of a particular geographical area to improve the well-being of its residents (Cheshire and Gordon, 1996). Therefore, although the economic aspect of development is of core importance, the process of local economic development is determined by different local characteristics including the prevailing local bonds of different nature (economic, social, linguistic, socio-political, and cultural, among others)¹⁰. This territorial dimension implies the participation in the development process of local agents from the public, private and social sectors (Stöhr, 1990). This is thought to generate development policies which are more coherent and effective than central or national government interventions (Hugonnier, 1999; Pike, et al. 2006; Ruiz-Durán, 2005).

Thereby, the proposition supported by mainstream theories of public finance, fiscal federalism and public choice (Azfar et al, 1999; Oates, 1999; Tiebout, 1956) in relation to a better allocation of resources at sub-national levels of government than at the federal or central level is considered in the bottom-up approach with a strong emphasis on local circumstances and the constant interaction among local agents. At the same time, this interaction supposes a greater extent of accountability and increases the chances of the development process continuity when political vicissitudes occur (Azfar et al, 1999; Cabrero, 2003b; Hugonnier, 1999; Díaz-Malásquez, 2009; Martínez-Vázquez and McNab, 2003).

In short, the bottom-up approach towards the development of places is a process that focuses on identifying and putting to work local resources of diverse nature to improve people's quality of life. As we explain below with more detail, LED considers individuals primarily as ends and not only as means of development processes. Therefore, this

¹⁰ Some bonds dissipate when bigger geographical areas are considered while others may appear.

development perspective places special attention to the synergy and local embeddedness of sustainability, social, human and economic development goals.

Once the logic behind the leading role of localities in the development of places has been clarified, the following section offers further details on the bottom-up approach towards LED.

3. LED definitions and their main elements

This section goes through definitions of the bottom-up perspective towards economic development given in the course of the last thirty years. The aim is to clearly distinguish some of the key aspects of this approach. In chapter 3, these aspects will be revised and complemented when studying some experiences of LED around the world in order to define its key elements and set the base for the analysis of Mexican localities. Table 1 presents different definitions and their main elements.

Table 1. Local economic development definitions

| Definition | Reference | Main elements |
|--|--|---|
| 'Development from below considers development to be based primarily on maximum mobilization of each area's natural, human, and institutional resources with the primary objective being the satisfaction of the basic needs of the inhabitants of that area'. | Stöhr and Taylor, 1981, p. 1. | <ol style="list-style-type: none"> 1. Focuses on the satisfaction of local population's basic needs. 2. Local resources are the foundation of development strategies. |
| Local development is a method to approach a territory's problems in face of the challenges of economic openness and innovation. Its principles are: a diagnosis of the weaknesses and strengths of the territory, the satisfaction of new development needs, the inclusion and qualification of human resources, the development of an entrepreneurial and participation culture, and the incorporation of the social economy. | Greffe, 1989, p. VII and 78. ¹¹ | <ol style="list-style-type: none"> 1. Focuses on the characteristics of a particular territory to identify and develop a LED strategy as a response to a higher intensity of international flows. 2. Special interest in human capital. 3. Highlights the importance of creating a culture of entrepreneurship and participation. 4. Allows for non-mainstream competitive economic activities to be developed. |
| 'Local economic development represents a broad strategy in which local actors and institutions try to make the best use of local resources in order to create, strengthen and conserve jobs and business activity. This approach attempts to coordinate scattered initiatives to improve the conditions and the environment in which they operate, and to | OECD, 1993, p. 25 | <ol style="list-style-type: none"> 1. Local agents are the owners of the development process. 2. Local resources are the base for setting development goals and policy actions. 3. The bottom-up approach is seen as a well-structured and coordinated perspective |

¹¹ 'Le développement local est une méthode d'approche des problèmes d'un territoire en face des les défis liés de l'ouverture économique et de l'innovation.' Greffe, 1989, p. VII. 'Leurs principes sont clairs: diagnostic sur les forces et faiblesses d'un territoire, solvabilisation de nouveaux besoins, insertion et qualification des ressources humaines, développement de la culture d'entreprise et du partenariat, utilisation pertinente de l'économie sociale.'

| | | |
|--|---------------------------------|--|
| place them within a framework of coherent local policy.' | | towards LED. |
| 'Local development is a wide ranging concept that can best be seen as a process through which a certain number of institutions and/or local people mobilise themselves in a given locality in order to create, reinforce and stabilise activities using as best as possible the resources of the territory. It can be seen as a bottom-up attempt by local actors to improve incomes, employment opportunities and quality of life in their localities in response to the failure of markets and national government policies to provide what is required, particularly in underdeveloped areas and areas undergoing structural adjustment.' | Potter et al. (1999, p. 97) | <ol style="list-style-type: none"> 1. Includes economic and non-economic goals. 2. Local actors are seen as the protagonists of the development process. 3. Focuses on development policies based on the particular circumstances of a territory as an alternative to fix market and government failures. |
| 'It is a local economy and society activation process based on the endogenous resources of a particular place with the goals of promoting economic growth, employment, and the local community well-being.' | Pérez and Carrillo (2000, p.48) | <ol style="list-style-type: none"> 1. It is not only an economic but also a social process. 2. The goals are economic and social. 3. The foundation of development actions are the local resources. |
| 'Local economic development may be defined as a process in which partnerships between local governments, community-based groups and the private sector are established to manage existing resources, to create jobs and stimulate the economy of a well defined territory. It emphasises local control, using the potentials of local human, institutional and physical capabilities. Local economic development initiatives mobilise actors, organisations and resources, develop new institutions and local systems through dialogue and strategic actions.' | Helmsing, 2001b, p. 3. | <ol style="list-style-type: none"> 1. Emphasises the participation of private and social sectors in the development process alongside with the public sector. 2. Stresses the local origin and management of the development process. 3. Considers the creation of new mechanisms for the interactions between development participants. |
| 'In our conception, Local Development appears as a new way to look at and act from the territory in this new globalization context. From that point of view, the challenge for local societies is presented in terms of their insertion in the global context in a competitive way, capitalizing their local and regional capacities through local actors' strategies.' | CLAEH-ALOP, 2002, p. 7. | <ol style="list-style-type: none"> 1. Emphasises the local content of the approach as policies consider local circumstances in a context of higher international economic competition. 2. The insertion of local societies in the global context recognises the favourable role of local, national and international networking and interactions. |
| 'The purpose of local economic development is to build up the economic capacity of a local area to improve its economic future and the quality of life for all. It is a process by which public, business and non-governmental sector partners work collectively to create better conditions for economic growth and employment generation. The ability of communities to improve the quality of life, create new economic opportunities and fight poverty depends upon them being able to participate effectively in the LED process, and act strategically in the changing and increasingly competitive market economy.' | Swinburn, 2006, p. 1. | <ol style="list-style-type: none"> 1. Includes economic and non-economic goals. 2. The role of local capabilities is once more highlighted. 3. Considers a strategic vision of local development. 4. Stresses again the participation of citizens, business and social sectors in the development process. 5. Suggests the proposal of innovative ways to address development challenges. |

From the basic-needs satisfaction goal of the definition of development from below offered by Stöhr and Taylor (1981) to the more ambitious notion of Swinburn (2006), the importance attributed to the endogenous nature of the approach is notorious in all definitions. To summarise table 1, the main aspects of this perspective highlighted since the first experiences were documented and definitions given are:

1. The bottom-up approach is seen as a process fed by a strategic vision of development where economic goals are the main but not the sole concern.
2. The focus is on the characteristics and circumstances of a particular territory but also considering the outside world to identify and develop a feasible LED strategy.
3. Local agents are seen as the protagonists of the development process where the participation of members of the public, private and social sectors is indispensable.
4. There is recognition of the relevant role of new and innovative ideas, attitudes and skills in the development process in terms of development goals and the means to determine and achieve them.

The definitions suggest that the bottom-up approach is a comprehensive strategy which not only has to do with identifying and taking into account the local economic strengths, weaknesses, opportunities and threats in a globalised world to set particular medium and long run goals; but also with the development process itself that demands considering -in addition to economic and physical features- the social, cultural and legal characteristics of places (Boisier, 1999; North, 1990; Pike, et al. 2006). In other words, a significant implication of the four elements of the bottom-up approach identified here is the need to strengthen local capabilities or the local context in diverse aspects to make the best of the physical and economic conditions.

In general, those local capabilities refer to the specific institutional framework of localities consisting 'of an interdependent web' of formal and informal institutions and resulting organisations (North, 1991, p. 109). According to North (1990, 1991) formal institutions refer to the prevailing legal setting conformed by constitutions, laws and consequent rules; while the informal institutions to informal limits such as codes of conduct, traditions, taboos, rituals and habits. In particular, those local capabilities refer, for example, to the ability to modify, when needed, the regulatory framework to facilitate the development process; attitudes and skills to organise and manage participation mechanisms (e.g. participatory budgets and development agencies, among others); attitudes towards change and innovation; capabilities to properly diagnose the local circumstances as well as the productive and socio-economic

prospects of the territory; aptitudes to identify and successfully run an innovative business; and capabilities to provide high-quality public services, among others. Therefore, the development of places through LED is a long term process that involves actions to meet both present needs of diverse nature, and future development visions.

To complete the background and rationale of the bottom-up approach, in the following section we dig deeper on the causes of its growing appeal since the beginning of the 1990s by comparing it with the top-down perspective.

4. What has been wrong with the top-down approach?

The aim of the following paragraphs is to highlight that, as far as the development goals of places are concerned (e.g. employment generation, higher standards of living), some academics have found that top-down approaches have had fundamental limitations while bottom-up approaches implemented under particular conditions can improve the economic outcomes of both core and peripheral territories (Tödtling, 2011; Vázquez-Barquero, 2011).

It is argued that localities or jurisdictions within a specific country have an essential role in stimulating local economic development in their territory while national or central governments have a crucial role in other matters. However, as sub-national entities are part of a whole country, to better achieve local, regional and national goals coordination is necessary (Camejo, and Gallicchio, 2004; Giordano et al. 2005; Helmsing 2001b; Uphoff and Esman, 1974¹²).

We start looking at the role of governments in the economy of places by recalling their main economic functions. We relate those economic functions to different levels of government before discussing the features that have deteriorated the top-down interventions' appeal to stimulate economic development with impact on sub-national jurisdictions.

The main function of governments is to establish and enforce laws, norms and rules (Stiglitz, 1986). Economically speaking, the state determines the legal framework that regulates property rights' establishment and the market interactions between economic agents (e.g. consumers, producers, workers). For example, the property rights over a start-up assure its owner rights and obligations in the market place, and a

¹² 'Successful local... and participatory development depends very much on a high frequency of both top-down and from below development impulses; local autonomy in isolation provides little leverage for development' (Quoted in Stöhr and Taylor, 1981, p.479).

buyer of a house can have certainty of her ownership after the transaction is done. The legal recognition of patents are incentives for continuing the research and development endeavours that let economic agents achieve higher efficiency and, therefore, produce the same with fewer resources or produce more with less or the same amount of them. As these fundamental regulations need to have a national (i.e. within a whole country), and sometimes, international (i.e. among countries) recognition, the national government is the foundational level of the rule of law with important practical contributions at sub-national levels.

Externalities are present in different ways in markets. Externalities refer to the cost or benefit imposed to others by the actions of economic agents (Stiglitz, 1986). The correction of negative externalities could be the function of local, regional and national authorities alone or in coordination. For example, if a firm producing fertilizers is polluting a local lake, the local authority would be the most suitable to correct the cost that this may impose on fishermen, tourism or the local population that may enjoy swimming there. An interesting example is the case of air pollutants that go beyond local and even national jurisdictions (Mason, 2001) and, as a consequence, other levels of government might need to intervene (e.g. setting air quality standards and signing pollution reduction compromises with other countries such as the Kyoto Protocol).

In the case of foreign direct investment and firms buying supplies in other countries such as wood for furniture production, different levels of government in different countries might also have to intervene to correct the possible negative effects of their activities (Klooster, 2006; Nadvi, 2008). The concept of environmental governance refers to the institutional setting by which economic activities are regulated to protect natural resources in order to achieve sustainable development. The contemporary nature of environmental governance is based on the recognition of the fact that economic activities can have a larger impact on the natural environment than solely on the particular place where they are performed (Mason, 2001; Nadvi, 2008).¹³

The provision of public goods is intended to create positive externalities or, in other words, to provide the goods and services demanded by the population that private agents do not have incentives to supply (Stiglitz, 1986). All levels of government can produce them considering the costs of delivery and the reach of their benefits when provided. However, in small and/or impoverished municipalities or states, the managing

¹³ Bulkeley (2005) explains the case of transnational municipal networks (i.e. horizontal governance) in reference to the Cities for Climate Protection Programme (CCPP). Despite the problem of climate change is usually considered in international terms (global warming) and, consequently, addressed by nation states, the network of participant localities commit to targets of emissions' reductions.

and delivery capacity of public goods by local civil servants might be poor, thereby, the role of the central or national government becomes essential implying that the extent of local intervention need to be lower, at least at the beginning of the development process, than in better-off places (Courchene, et al., 2000).

A public garden in a town is enjoyed generally by locals and the cost of its maintenance should be lower for the local authorities. In the case of roads or highways connecting different regions of a country, a central government lead is fundamental (Courchene, et al., 2000). Although most of the time the capital investment for its construction comes from national funding, the maintenance and operation could be the responsibility of sub-national authorities (Cabrero and Martínez-Vázquez, 2000). A hospital with the capacity to provide different specialised medical services in a particular state or province for the benefit of residents living in different municipalities is likely to be efficiently managed by the provincial instead of the municipal authority where it is located, and the financing of its construction and equipment might have national origin (Cabrero and Martínez-Vázquez, 2000).

In the case of imperfect markets such as monopolies and oligopolies, the economics literature highlights the fact that the farther to the theoretical ideal of perfect competition, the lower the total surplus enjoyed for the society as a whole (Fisher et al., 1990; Mankiw and Taylor, 2006; Parkin, 2007; Stiglitz and Heertje, 1989). In other words, prices become higher and the quantity available of products or services is lower in imperfect markets than in competitive settings. Traditionally, actions against monopolies or oligopolies have been designed and implemented at a national level, although regional or local monopolies or oligopolies may exist.

The existence of information asymmetries or incomplete information is another market failure that demands government intervention (Greenwald and Stiglitz, 1986). Oftentimes, all levels of government need to intervene. For example, in Mexico, the harmful effects of smoking written down in cigarettes' packs to inform the consumers on the risks of this activity is a national level regulation, while the prohibition of smoking in public places is regulated locally (this action is also part of correcting a negative externality).

The emergence of income inequalities among citizens and territories in market driven economies and the negative effects of economic cycles are the other problems that governments need to address (Stiglitz, 1986; Stiglitz and Heertje, 1989). Both require interventions at all levels of government, yet the case of macroeconomic stabilisation

and regional inequalities is a national concern as the former refers to aggregate economic variables such as inflation, exchange and interest rates, and the latter to disparities within a country (Prud'homme, 1995). Programmes to combat poverty such as 'Oportunidades' in Mexico and 'Bolsa Familia' in Brazil are examples of national government efforts to redistribute income among the citizens of these countries where income per capita disparities are large. The provision of incentives to attract direct investment is an example of policy actions that can be implemented at any level of government to stimulate employment, contributing to strengthen the economy in stable periods or to reactivate it when downturns happen.

In short, both national and sub-national governments have an important role in solving market failures and setting and enforcing the rules that allow the functioning of markets. Pursuing the economic development of places is a significant task of governments and it is influenced by what is happening in their own jurisdictions and elsewhere. The nature and complexity of the task suggests the need of cooperation among levels of government and implies the identification of concrete actions that could be performed more efficiently by each of them, and generate synergies. As noted, the proximity to the concrete circumstances that people experience in their everyday life makes the local level the key scale for defining and pursuing development goals.

From the detailed account given about the bottom-up approach in previous sections and the brief discussion on the economic functions of governments just presented, the significant role that factors not directly related with the economic functions of governments have in the LED process stands out (Storper, 1997). This is because not only the collaboration between governmental levels is needed but also the participation of other local agents; considering both, the interactions among them and with external actors. This is explicitly taken into account in the bottom-up in contrast to the top-down approach (Rodríguez-Pose, 2010). Having this in mind, in the last part of this section the main drawbacks that scholars have identified in the top-down approach are exposed.

The following three factors might, arguably, have influenced the emergence of the bottom-up approach towards the development of places (Pike, et al. 2006; Stöhr and Taylor, 1981). First, the top-down perspective has had a strong bias towards industrial and urban development, favouring capital instead of labour as key factor of production and relying in both high technology and the exploitation of economies of scale. As a result, a great section of the population living in rural or semi-rural localities

was left out of the equation during great part of the second half of the XX century (Stöhr and Taylor, 1981).

Second, there are many studies that have presented evidence in the direction of null or negative impacts of top-down or centre-down approaches to economic development in countries, regions or localities lagging behind (Boisier, 1999; Rodríguez-Pose and Crescenzi, 2008; Gramlich, 1994; Puga, 2002). Examples range from the large amount of transfers from rich regions to impoverished ones in countries as different as Italy and Mexico, to sectoral approaches within the import-substitution strategy in Latin American countries (Corro and Palavicini-Corona, 2008; Loddo, 2004; Pike et al. 2006).

Thirdly, the role of central or national governments has been changing as a result of the adjustments to face the challenges and opportunities of the globalisation process (Cooke, 1989; Martin and Sunley, 2008b). Devolution efforts around the world have given more responsibilities and/or resources to sub-national governments. In this context, local authorities have been seen by many as main actors in local economic development processes (Finot, 2001)¹⁴. As noted before, the public choice and fiscal federalism theories support this trend by suggesting that devolution can improve the well-being of local people by increasing the efficiency in resources allocation towards satisfying their needs and wishes according to their preferences and circumstances (Gil, Pascual, and Rapún, 2004; Rodríguez-Pose et al. 2007).

Pike et al. (2006) believe that the reasons for the lack of success of top-down policies could be identified from their own design. According to them, the nature of the bottom-up approach could reduce the chances to incur in the shortcomings observed in the top-down policies. For example, the authors underline that most of top-down policies were not designed as part of a comprehensive strategy and, then, only tried to solve immediate problems that were evidently hindering economic development. The case of transport infrastructure illustrates this point (Pike et al., 2006, p.15):

‘Heavy investment in infrastructure, with little or no emphasis on other development factors such as the support of local firms, the improvement of local human resources, or the diffusion and assimilation of technology, has often created only imperfect accessibility to markets.’

¹⁴ This also has been manifested in different fora and publications of international organisations such as the Inter-American Development Bank (IADB), the OCDE, the World Bank, and the United Nations.

To give another example, connecting cities or towns might increase competition to local firms as it facilitates the entry of final and intermediate products from elsewhere into the local markets at lower costs. In places relying on tourism, if infrastructure improvements reduce substantially the travel time to them, some local firms such as restaurants and hotels might be affected because one day trips could be encouraged (Ottaviano, 2008).

Another alleged problem of top-down approaches is the tendency to misuse policies which have been successful elsewhere regardless of the specificities of each territory (Pike, et al. 2006; Vargas, J. 2006). As we will see even with greater detail, pursuing LED entails the embeddedness of the approach through the participation of local agents, and a diagnosis of the resources and characteristics of the territory; in combination with a strategic perspective to tackle the identified weaknesses, profit from the opportunities and strengths, and face the identified challenges.

To sum up, the changes in economic development processes implied by the bottom-up approach entail a greater emphasis of national or central governments on certain traditional functions such as redistribution schemes among jurisdictions and macroeconomic stabilisation, both suggested by decentralisation and public finance theories; and lower in others such as planning and implementing local economic development as suggested by the bottom-up approach to LED and also the public finance theories. Governmental functions demand a coordination effort among different levels of government. Top-down approaches have showed a lack of cooperation and coordination among levels of government and, consequently, have failed in correcting local market failures and in satisfying local development needs (Boisier, 1999; Potter et al., 1999).

5. Words of caution and criticisms to the bottom-up approach

The place-specificity characteristic of the bottom-up perspective adds complexity to the development process as it entails that successful mechanisms and policies can take a variety of forms. As a consequence, LED strategies cannot be mimetically applied as is commonly the case of macroeconomic, trade or sectoral economic policies that obey either theoretical postulates (e.g. monetary policy, privatisation efforts, free trade agreements) or national ideological and pressure groups' demands (e.g. subsidies to agriculture and international trade protection for certain products such as cement and steel in the United States, and the oil (petroleum) industry in Mexico and Venezuela).

The above involves changes in managing local economic development processes that will vary according to the specific characteristics of places (i.e. weaknesses and strengths of local governments and other local agents). For Storper (1995) the prevailing market and non-market factors (i.e. social, relational and other informal institutions that may affect economic behaviour) are particularities that affect the places' potential of economic success. In this sense, Bardhan (2002) and Bardhan and Dilip (2000) argue that governance failure in development policy and public services delivery could occur not only among actors located at different scales but also at the local level alone. Lack of cooperation could prevent setting and achieving LED goals. This means that the bottom-up approach might also entail establishing the conditions which would allow success to take place, such as modifying existing structures of participation and power within localities. This might prove to be difficult as some of the experiences presented in the following chapter will illustrate. This, again, puts regions or localities at the centre of their development fortunes.

Puga (2002, p.374) affirms that the possible existence of 'a cumulative causation process' may increase regional disparities. For example, in prosperous places workers and firms benefit from being close to each other and to large markets, where higher welfare and consumption options are enjoyed by the former and higher efficiency in inputs' markets and distribution channels by the latter. This attracts even more firms, entrepreneurs and jobseekers from non-prosperous areas (Morgan, 1997; Rodríguez-Pose and Crescenzi, 2008).

Rodríguez-Pose and Gill (2004) warn that devolution processes might increase regional disparities within countries as a result of greater political and economic power of the already most dynamic localities; while Lovering (1999), in his critique to the 'regional euphoria', argues that national economic performance cannot be seen as the sum of sub-national outcomes. All these phenomena could be reasons why policies either top-down or bottom-up have stronger possibilities of success in some places than in others.

Additionally, Cheshire and Gordon (1998) suggest the possibility of generating distortions on markets as a result of territorial competition (i.e. local fiscal policies or incentives trying to attract direct investment), undermining some of the efficiency gains of the devolution process. Glasmeier (2001) argues that the benefits in terms of tax revenues generated from firms that locate in a locality as a result of local incentives frequently do not exceed the cost of such incentives, and that many firms would anyway locate there. In line with Rodríguez-Pose and Gill (2004) she adds that in better

off or core regions the capacity to offer incentives is usually higher, and; by achieving their goal, reinforce territorial inequalities.

However, this might not represent a significant trouble as territorial competition can also take the form of efficiency improvements of local governments' public services and policies delivery (Rodríguez-Pose et al. 2007). Moreover, the possibility of raising territorial inequalities might not really be a problem if bottom-up strategies are successfully designed and implemented in peripheral areas. LED strategies are more about enhancing the local ability to generate wealth and a better quality of life from within than only about attracting outside investment (CAF, 2010; Teitz 1994). In addition, the strengthened 'centrifugal forces' (e.g. pollution, congestion, high housing prices, among others) in core areas eventually cause some firms and workers to migrate (Krugman, 1998).

Those warnings instead of weakening the case for the bottom-up approach discussed here suggest the need of a clear identification of the specific roles, as well as the required coordination between the national, regional, and local levels; depending on the particular circumstances and development threshold of each locality (Vázquez-Barquero, 2011). Precisely, the chances of success of a LED strategy could be higher in the bottom-up than the top-down approach because of its more informed, integrated and coordinated perspective; and because its foundations lie on specific local characteristics including the participation of, ideally, all local sectors in the development process, as well as the consideration of the local external context (Rodríguez-Pose, 2010; Vázquez-Barquero, 2009).

6. Final considerations and remarks

Different levels of government, multilateral organisations such as the World Bank, and a great number of non-governmental organisations around the globe state either explicitly or implicitly their intentions to improve the development of places. Their main goal is to help societies to achieve higher standards in economic, educational, health or social security aspects, among others. To do this, they have put emphasis on particular issues and, as a consequence, many adjectives to the word development have become common in the public policy literature. Combined words like social development, human development, economic development and sustainable development are familiar among practitioners and experts working to improve the well-being of people in diverse parts of the world.

The second section defined the development of places and introduced the bottom-up perspective towards it. Its key message is that the development of places under the bottom-up perspective demands to put together -at the local level- the goals of social, human, sustainable and economic development which have been the focus of different organisations and governments although rarely within an integrated and coordinated approach. This is because the economic, human, sustainable and social development ideals promote the enhancement of individuals' capacity to face the challenges and make the best of opportunities in their social and productive lives in a context of economic transformations, environmental consciousness and social inclusion in development processes.

The main input of the third section is the dissection of different LED definitions given along the past thirty years which led to clearly distinguish key features of the bottom-up approach as well as its goals. The examination of those definitions suggested that the bottom-up approach is a comprehensive strategy. It does not only involve identifying and considering the local economic strengths, weaknesses, opportunities and threats to set particular economic development goals; but also requires the diagnosis of other aspects of the development context such as the social, cultural and institutional characteristics of places. Thereby, although the economic aspect of development is of core importance, the process of LED is determined by a variety of local characteristics. The fundamental idea of LED is to harness the development potential and prospects of the local population. This territorial dimension implies the participation in the development process of local agents from the public, private and social sectors. This is thought to have the advantage of generating development strategies which are more coherent and effective than central or national government interventions.

Section four offered a review of the economic foundation for government intervention in the economy. Economics books attribute governmental functions in the economy to the existence of market failures and the need to set and enforce the rules of the game in markets and society (Fisher et al., 1990; Mankiw and Taylor, 2006; Parkin, 2007). The sub-national governments play an important role in the correction of basically all market failures as well as regulating social and economic activities.

The bottom-up approach to economic development provides clear examples of these local interventions. For instance, the diagnostic effort demanded at the beginning of the bottom-up development process has the intention of generating and sharing information to conceive a feasible and sustainable local development strategy. The positive externalities that business incubators or a cluster of local firms can generate are

highlighted by the bottom-up literature, among other local policies that promote them as we will illustrate in the following chapter. In addition, the role of this approach as an answer to the economic challenges attributed to the globalisation of the world economy is linked directly to the economic functions of sub-national governments related with strengthening or stimulating the local economy during the different phases of the economic cycle.

The main conclusion of section four is twofold. First, governmental functions demand a coordination effort among different levels of government. For example, scholars and practitioners suggest central government intervention in the form of implementing coordinated measures to prevent both raising inequalities among territories and the possible inefficiencies of territorial competition (Garofoli, 1995; Cheshire and Gordon, 1996; Mochi, 2006; Prud'homme, 1995). Second, top-down approaches have showed a lack of collaboration not only among levels of government but also among national authorities and members of different sub-national sectors. Consequently, top-down policy actions have failed in correcting local market failures and in satisfying local development needs and aspirations (Boisier, 1999; Potter et al., 1999).

Finally, the key message of section five is that considering the endogenous, more integrated and balanced perspective of the bottom-up approach, the chances of success could be higher than the top-down because they can even contribute to identify and solve institutional and other local weaknesses from the very beginning of the development process (Rodríguez-Pose, 2010; Vázquez-Barquero, 2009) as it will be illustrated with detail in the following chapter.

To sum up, the bottom-up perspective is a comprehensive approach towards development because considers together economic, social and sustainability aspects, among others (Perrons, 2004). This suggests the creation of a strategic development plan (i.e. considering actions with impact on the short, medium and long runs) and involves the participation of local actors in different ways (Bingham and Mier, 1993; Camejo and Gallicchio, 2004; Quintero, 2004; Vázquez-Barquero, 2011). Experts recommend that all this should be done in coordination with national strategies and transformations, and taking into account the international context (Albuquerque et al., 2002; Angeleri, 1999; Barreiro, 2000; CLAEH-ALOP, 2002; Potter, et al., 1999; Swinburn, 2006; Vázquez Barquero, 1999). Therefore, *the local* is immersed in a wider space where globalisation and, nowadays, economic recovery impose diverse and changing challenges and opportunities (Vázquez-Barquero, 2009).

Once the general aspects of the bottom-up perspective have been clarified and some of its main characteristics and criticisms discussed, the following chapter is devoted to define and illustrate with detail its key elements and policies. In addition, we study the Latin American rationale and Mexican context for embracing the bottom-up approach, and briefly delineate 'the local' as it will be considered in both the quantitative and qualitative analyses of the impact of this development perspective in Mexico.

CHAPTER 3

The bottom-up perspective to economic development: key features and policies

1. Introduction

To complete the theoretical ideas and background that will be the basis for the analysis of the impact of bottom-up strategies on the development of Mexican localities; we elicit here its fundamental features and policies, as well as the rationale for its application in Mexico. Recognising that the theory of the bottom-up approach towards economic development is driven by practice, its comprehensive character is shown by presenting examples of those key elements.

This chapter is organised as follows: first, the key elements for the success of the bottom-up approach towards the development of places are pinpointed and illustrated with LED experiences worldwide. Second, a discussion of the general context in which LED strategies have been proposed as a viable option for Latin American regions and localities, including the drawbacks of the top-down approach in Mexico, is offered. Third, the scale that will be considered for the analysis of bottom-up strategies in Mexico is defined. This is followed by a presentation of the formal institutional context for the implementation of LED in Mexico. Some final remarks are offered recognising that pursuing economic development from the bottom is not an easy endeavour because some or all its fundamental elements might not be present in specific places, and it could take time to build and consolidate them.

2. The fundamental characteristics and policies of the bottom-up approach

The purpose of this section is to explain and illustrate the key characteristics that are present in successful bottom-up strategies implemented around the globe. This section is a formulation based on the literature on LED cases with a focus on, but not limited, to the Latin American experience. The identified elements are common to many of the cases analysed but are not necessarily present in all of them.

For further reference, the main examples in Latin America are taken from the following case studies: The Northeast region in Brazil (Albuquerque, et al. 2002); Cotacachi, Ecuador (Camejo and Gallicchio, 2004; CLAEH-ALOP, 2002); Rafaela, Argentina (CAF, 2010; Camejo and Gallicchio, 2004; Helmsing, 2001b); Medellín, Colombia (CAF, 2010; Helmsing, 2001b); Managua City and Masaya town in Nicaragua (Ceglie and Dini, 1999; UNIDO, 2001); and Chihuahua (Helmsing, 2001b; Ruiz-Durán, 2000a), Jalisco (Pike,

et al. 2006; Ruiz-Durán, 2000b), and Nueva Vizcaya (Albuquerque, et al. 2002; Mazza and Parga, 1999) in Mexico.

2.1 *Embeddedness and sustainability*

The bottom-up approach is indigenous and endogenous. This is because it puts together the economic, social and political circumstances of a particular territory or geographical space, which include intrinsically local assets and resources, among other factors, to design and implement a development strategy (Tödttling, 2011). Thereby, local economic development strategies incorporate in some way different dimensions of embeddedness. For example, Hallencreutz, et al. (2003) discuss four dimensions in the analysis of the relationships prevalent in the highly competitive Swedish music cluster: cultural (i.e. shared understandings and meanings), cognitive (i.e. type of rationality), structural (i.e. economic activities) and political (i.e. power structures).

As far as sustainability is concerned, the literature explaining the LED approach emphasises the importance of this goal (Vázquez-Barquero 2009). The reason is that if a development strategy can capture and properly weight the different local interests (or at least achieve some kind of representativity), its development results are more likely to be sustained (Albuquerque, 2004). Then, there is not only the environmental aspect of the concept but also the fact that if a part of the society does not agree with the direction and shape of the economic development of its locality, the whole process and its outcomes might be at risk (Camejo and Gallicchio, 2004; Boisier, 1999).

The design of the LED strategy considering public, social and private participation together with a diagnosis of the local characteristics and an analysis of the external context contributes to achieve the embeddedness and sustainability of the process (Potter, et al., 1999). In LED, the constant analysis of the local, national and international contexts is crucial to be able to respond to the challenges and opportunities of a more integrated global economy. Moreover, the monitoring of the LED process and the outcomes of LED strategies becomes fundamental in advising on the direction of the agreed (but flexible) actions and goals within the development plan (OECD, 2007). Some of the best known examples in the American continent of locally originated initiatives based on a diagnosis of the local economic potential previous to the design of concrete interventions, as identified by the literature, are revealed in the following lines.

In North America, an interesting case which illustrates the elements of embeddedness and sustainability is the experience of Lac La Ronge, in the Saskatchewan province in Canada. The Kitsaki Management Limited Partnership (KDC), integrated by indigenous Canadians, has obtained support from the national *First Nation Forestry Program*, to build and consolidate economic activities with positive impact on their locality and province. Their economic activities are market oriented and based on local resources. This case incorporates the features of endogeneity pinpointed by Tödtling (2011, p. 333 and 340) including 'indigenous forces' such as 'natural resources and the local labour force', among others. Lac La Ronge has managed to be economically competitive making the best of its informal institutions, in terms of North (1991), such as its traditional knowledge and cultural identity with a strong sense of environmental protection and people's participation (First Nation Forestry Programme Website, September 2009).

In the mid 1990s, in Nueva Vizcaya, integrated by 21 municipalities in the Mexican states of Chihuahua and Durango, a private originated and led case with the support of academics initiated a LED process rooted in a diagnosis of the local economy as a reaction of the decline of their traditional mining and forestry industries. The diagnostic effort identified growth sectors both region-wide and at the municipal scale (Mazza and Parga, 1999). Also in Chihuahua, a situation of uneven state development and lower GDP growth rates during the second half of the 1980s caused the private sector reaction that initiated a process of identification of comparative advantages and productive vocations of certain municipalities towards their economic development. A development plan was designed by the state government with participation of the private sector (Ruiz-Durán, 2000a). In Jalisco, a gradual decline in traditional industries during the 1980s motivated the public and private sectors to work together and identify traditional economic sectors that could still compete in global markets. In some of the promoted activities in Jalisco, the environmental aspect of sustainability has also been present such as in forestry, tourism and organic food production (Pike, et al. 2006).

In Central America, one of the few cases in Latin America in which the environmental aspect has been emphasised is the experience of Nicaragua in the hammock sector (Managua city and Masaya town) where materials and environment friendly techniques were introduced in the production of these handicrafts and other products that were new for the local producers such as deck and hanging chairs. This LED strategy is also based on the local productive vocation with a global market perspective (UNIDO, 2001).

In South America, the Northeast region in Brazil is composed by a group of small and medium size cities with agro-industrial vocation. The Northeast Bank, through a regional diagnosis, identified endogenous development potential and started the LED process. In Medellín, Colombia, strategic planning has guided the LED process based on regional industries (i.e. Strategic Plan for the Metropolitan Area of Medellín and the Renovated Strategic Plan of Medellín)¹⁵. The main actors promoting LED in this experience have been local and regional governments, as well as universities. The case of Rafaela in Argentina, multi-highlighted in the LED literature, is an example of the design and implementation of economic projects with locally shared objectives. The creation of the Office of Economic Planning has contributed to its strategic vision of economic development.¹⁶

2.2 The existence of formal and quasi-formal mechanisms that facilitate development processes and outcomes

As it is well known among academics, practitioners and other LED experts; certain institutions can originate, facilitate and/or consolidate local development processes (CAF, 2010; Rodríguez-Pose and Crescenzi, 2008). This refers to different mechanisms in which members from the local public, social and private sectors interact among them in relation to development issues [some authors such as Putman (2000) and Barreiro (2000) refer to this as social capital]. These mechanisms could be also considered as institutions in the sense portrayed by North (1991) because, under the LED approach, they are not only intrinsically shaped by, but also could directly influence the evolution of the prevailing local formal and informal rules or constraints, and, therefore, affect the development performance of places as shown by Chari (2004) in South India, the various and heterogeneous case studies presented in Sforzi (2003), and by Storper (2005) in his clarification of the role of society and community in economic development.

A variety of mechanisms can be found in local economic development best practices (Amin, 1999; Camejo and Gallicchio, 2004; Mirabella, 2004; Porter, 1990 and 1998; Storper, 1997). They contribute in different ways, mainly favouring the generation of information and positive externalities such as creating economies of scale in particular economic activities and facilitating the diffusion of knowledge or even the discovery of innovations (Albuquerque et al., 2002; Barreiro, 2000; CLAEH-ALOP, 2002; Iammarino, et al. 2008; Pike, et al. 2006; Potter, et al., 1999). These mechanisms could be partnerships

¹⁵ Their original names in Spanish are: Plan Estratégico del Área Metropolitana de Medellín and el Plan Estratégico Renovado de la Ciudad de Medellín (CAF, 2010).

¹⁶ Its name in Spanish is Secretaría de Planificación Económica (CAF, 2010).

between firms or organisations of diverse nature, development agencies, clusters of firms and/or networks taking diverse forms (Costa, 2008; Guiliani, 2007; Guiguere, 2008; Sforzi, 2003; Vázquez-Barquero, 2002).

Some of these mechanisms take into account the importance of attracting resources from outside and achieving synergies as far as other sub-national, national or even supranational actions can contribute to the development strategy of a locality (Boisier, 2005; Giordano, et al. 2005; Mochi, 2006). According to Bennett and McCoshan (1993), opportunities and access to a variety of resources arise from the economic and social networks of local agents among themselves and with external individuals. These networks provide support and information that allow businesses to link with markets and niches of economic opportunities. Thereby, internal and external connections are of great significance in a globalised world because they are a means to get information on markets and in some cases could help to the creation and dissemination of knowledge and technology, among other advantages (Giuliani et al., 2005; Giuliani, 2007; Helmsing, 2001a; Vázquez-Barquero, 2002; Winther, 2003).

A locality can build links with external agents (e.g. from national or supranational programmes, and multilateral organisations) in order to increase the availability of monetary, technical or human resources. In this sense, local development initiatives also seek to channel to their favour the changes in labour, goods and services' markets which have been the result of the national or central government adjustments in response to the globalisation process (Albuquerque, 2005; Pike, et al. 2006). Some of the LED experiences show that the resources of national programmes and others designed by multilateral organisations have been captured by local agents in localities aware of them and their requirements in the context of their own development objectives. The cases of Medellín (The National Vocational Training Agency and the Centre for Productive Development), Nueva Vizcaya (the Ministry of Labour and Social Welfare CIMO/PAC programme) and Jalisco (the Ministry of Economy's PYME programme) show the success in the attraction of federal programmes resources in support of their enterprise promotion strategies.

A recurrent characteristic of local economic best practices is the flexibility of their institutions and corresponding mechanisms. This means that adaptation to change in a highly competitive context is a desirable characteristic for a locality in order to be able to succeed in their development endeavours (Chari, 2004; Kebir and Crevoisier, 2008; Molina, 2005; Sammarra and Belussi, 2006; Rabellotti, 1999).

An example of a formal mechanism could be a legally constituted local development agency with well established procedures for diverse agents' participation, as well as its regulations for funding, budgeting, spending and accountability, among other aspects. In general, networks and/or clusters of firms could be considered quasi-formal mechanisms as they can operate within formal (i.e. contracts ruled by law) and/or informal means (Putnam, 2000; Giuliani et al. 2005). An experience that carefully designed the participatory process is the Northeast of Brazil where not only the development process was initiated and led by a development agency (The Northeast Bank) but also the so called 'development lighthouses' are open spaces of discussion organised in the different localities of this region.

In Cotacachi, Ecuador a major from an indigenous origin set up a development plan, based on a local diagnosis, through participatory mechanisms. The participatory process in this case is aided by the following institutional setting:

- A cantonal assembly is the main mechanism of citizen's involvement with strong public and social sector participation.
- A development council executes the policies agreed in the assembly.
- A technical team advises in the implementation of the development actions.
- Social committees include all the social organisations of the canton. Representatives of the social committees participate in the cantonal assembly.

Contrary to the case in Ecuador where the private sector was not involved¹⁷ most of the reviewed experiences present private sector involvement with participation of universities and the public sector along diverse partnerships and networks of different organisations. For example, new bodies promoting interactions and providing business training (Rafaela, Northeast of Brazil, Nueva Vizcaya, Jalisco and Chihuahua), financial assistance (Northeast Brazil, Medellín, Jalisco), trade promotion (Medellín and Nicaragua), technology and innovations development (Honduras¹⁸, Medellín, Nueva Vizcaya, Chihuahua) or employment observatories (Medellín), among others have been created and linked in these Latin American experiences. In addition, the

¹⁷ The economic power was in hands of non-indigenous landowners.

¹⁸ The group Emaism was created in the metallurgy sector in Honduras after actions that helped to change entrepreneurs' attitudes towards cooperation with other firms by letting them know each other while improving their skills (i.e. a training programme, and meetings to discuss the problems and challenges of the industry). The Centre of Resources and Technology promotes the networking of SME's and provides technical assistance. The main results of this experience initiated by UNIDO were an increase in sales and employment of 200% and 15%, respectively in a short period of time (UNIDO, 2001; UNIDO Website: September 2009).

presence of clusters is common from the small scale clusters in Honduras and Nicaragua, to larger ones in Chihuahua, Jalisco, Medellín, and Rafaela, among others.

The degree of institutionalisation and the type of institutions and resulting mechanisms vary among experiences even within the same industry and country such as the case of the electronics sector in Baja California and Jalisco, Mexico (Iammarino et al., 2008). In addition, Rabelotti and Schmitz (1999) found in their study of clusters in Italy, Brazil, and Mexico that, within the same type of mechanisms, great variations could be found in the ways firms interact with each other and benefit from that interaction. This depends on the size of clusters, firms and the market they serve, among other things such as the knowledge base of firms illustrated by Giuliani (2007) in her research about Italian and Chilean wine clusters. In the case of the apparel industry in Torreón, Mexico, Bair and Gereffi (2001) explain that were bridging ties (foreign buyers) and not precisely bonding ones (as a result of a lack of trust among cluster's firms) the kind of ties that were important for its success. By the same token, Giuliani, et al. (2005) found in their analysis of clusters in seven Latin American countries that collective efficiency of firms in terms of their upgrading processes varies considerably among different economic sectors.¹⁹

A different perspective of the role of networks is the power or influence relationships that could entail the prevalence of external interests in LED practices (Cockburn, 1977). However, this specific perspective will not be considered directly in this project as it demands a careful examination that, if pursued, would move us away from our main focus of analysis. Here, it can be said that the bottom-up approach tries to solve this possibility by emphasising the endogeneity aspect of the first fundamental characteristic described at the beginning of this section.

2.3 The presence of attitudes and aptitudes that favour participation and entrepreneurship

This refers to citizens' involvement in the development process. In other words, this is about the prevalence of habits, rooted behaviours or ideas that favour (or not) an active participation of the population in community and local issues (Albuquerque et al., 2002; Barreiro, 2000; CLAEH-ALOP, 2002; Potter, et al., 1999; Putman, 1993 and 2000; Swinburgh, 2006; Vázquez-Barquero, 1988 and 1999; Yabes and Pijawkal, 2008). In addition, literacy and a certain level of education and skills are necessary to be able to interact and contribute effectively to the process (Martinot, and Humphreys, 1994; Pike,

¹⁹ They considered traditional manufacturing, natural-based, software, and complex products clusters in their analysis.

et al. 2006). There are many ways to participate, for example: contributing in the diagnostic effort; helping to design, implement or even evaluate local development actions; building or being part of networks with local and external agents; and/or engaging in innovative productive activities (OECD, 2003). This implies the promotion of an entrepreneurial culture, and building and enhancing the social and human capital of places (Barreiro, 2000; Camejo and Gallicchio, 2004).

A comprehensive definition of entrepreneurship covers two fundamental aspects in the promotion of economic activities, self-employment and, arguably, any other human activity. People's attitudes is the first key element and refers to the inclination or habit to do something new or in a different way; while the second is related to people's aptitudes, which consider the ability or capacity to engage successfully in those new or innovative activities (CEC, 2003; OECD, 1998 and 2005). Bennett and McCoshan (1993) identify that motivation is a necessary but not a sufficient condition to create an enterprise environment (i.e. entrepreneurship). What do Bennett and McCoshan mean by enterprise environment? To answer this question let us look at the main literature about this topic. Schumpeter (1991) argues that the main characteristic of an entrepreneur is his/her capacity to innovate. The higher the rent which can be generated by an innovation, the more attractive is to be an entrepreneur. For Knight (1921), the essential feature of an entrepreneur is its willingness to take risks. He argued that many talented people do not become an entrepreneur because they are risk averse.

On the one hand, what Bennett and McCoshan (1993) refer to as motivation may not only be related to attitudes but also to the incentives provided by the higher rents that may result from engaging in entrepreneurial activities instead of being an employee. On the other hand, exposure to opportunities and access to the required resources seems to be intended to create an environment which reduces the risks of failure. Therefore, other determinants of entrepreneurship according to them are exposure to opportunities and access to resources including the required human capital. As it has been seen, the previous key elements of the LED perspective towards development allow creating a context in which information flows; generated by the results of the local diagnosis together with the participation and networks of local actors, contribute to knowledge diffusion related to both demand (e.g. consumer preferences' trends) and supply aspects (e.g. suppliers, research and development, etc.)(Barreiro, 2000).

This implies that one of the key characteristics of local economic development best practices is the presence of entrepreneurial attitudes and aptitudes; and,

consequently, stimulating and/or consolidating them might become an essential part of any LED strategy (Walzer, 2007). Most of the cases in the literature reveal that people's positive attitudes towards risk taking, change and innovation together with a combination of skills, education and/or experience are essential for undertaking successfully both economic and participatory or networking activities (i.e. Albuquerque et al., 2002; Chari, 2004; Cooke and Morgan, 1998; CLAEH-ALOP, 2002; Potter, et al., 1999; OECD, 2003).

An example related to a favourable attitude towards participation is the strong participatory culture found in the case of Cotacachi where indigenous people led the local development process. However, this case presents a lack of market oriented skills and attitudes meaning that cultural aspects might contribute to the involvement of local people, and actions are needed to improve other conditions. The cases in Nicaragua and Honduras are excellent examples because the different producers were reluctant to cooperate with competitors and after an effort of development agents (mainly from UNIDO) they agreed to work together and coordinate. They also agreed in participating in training to improve their skills. The result was economies of scale that let them to reduce costs, increase aggregate production and sell their products to a wider market.

Entrepreneurial attitudes can be found, to some extent in some experiences originated or led by the private sector or a private-public partnership, although part of the recommendations or strategies that followed after their diagnostic stage were to promote them together with entrepreneurial aptitudes. This is the case of the three mentioned experiences in Mexico (e.g. the setting up of the Centre for the Development and Innovation of Firms in Nueva Vizcaya). The case of Rafaela, for example, involves capacity building actions for both civil servants and entrepreneurs (i.e. the creation of the Municipal LED Training and Research Institute, and the Enterprise Development Centre). In the experience of Lac La Ronge (KDC), capacity building and empowerment actions have also been fundamental for its success. This case illustrates how a programme that in its origin was thought in terms of community development can grow and be successful in terms of LED (First Nation Forestry Programme Website, September 2009).

2.4 The presence of complementary traditional-type economic development tools

The context for local economic development could be improved by increasing the perceived economic potential of the locality. This implies to promote improvements in

infrastructure, public services and amenities; engaging in city marketing; the creation of mechanisms to increase transparency and accountability; and/or if the public debt and balance allow, tax incentives for firms, among other tools (Pike, et al. 2006; Rodríguez-Pose et al. 2007). Those policy actions are a complement of the LED policies related with the previous three key elements (i.e. entrepreneurship, capacity building and empowerment policies, along with creating mechanisms for citizens', social and private sector participation). This suggests again a carefully planned and coordinated approach towards LED.

The case of local infrastructure deserves further explanation. It can be thought that at the first stages of economic development (decades ago) water and energy supplies as well as sewage and waste disposal systems were the determinant infrastructure characteristics that firms took into account to open a business in a particular location. In the next stages, as markets were growing, the need to increase the quantity and quality of those characteristics was of great importance. Nowadays, as a result of the diversity and magnitude of economic activities, economic agents may consider a wider set of infrastructure characteristics (Biehl, 1991; Comfort, 1987; Gramlich, 1994; Pike, et al. 2006). As regards to transport, it is reasonable to think that it has always been a key factor to take into account.

Therefore, the infrastructure could be divided in three types (Biehl, 1991; CEC, 1991 and 1994; Comfort, 1987; Gramlich, 1994):

1. Basic: Transport, energy supply, water supply, sewage systems and telecommunications.
2. Productive: Provision of industrial sites linked to services, commercial structures, development of human resources, consultancy, and research and development facilities.²⁰
3. Social: Hospitals, educational facilities, protection measures for the environment, parks and gardens, as well as cultural and sports facilities.

The basic infrastructure is traditional in the economic development practice and most of the productive and social infrastructure pertain more to the most recent initiatives including the ones within the bottom-up approach to economic development. According to local characteristics, a balanced provision of the three kinds of infrastructure could improve the perceived economic potential and quality of life of territories, and therefore their attractiveness for local, national and foreign direct investment (CAF 2010; Pike et al. 2006; Ruiz Durán, 2005).

²⁰ Some of the social and productive infrastructure is often called soft infrastructure.

Most of the experiences analysed for this review have given incentives, improved some infrastructure and used city marketing. In particular, in the case of Campeche in Mexico a series of incentives from the state government and provision of land and certain basic and productive infrastructure together with low labour costs were enough to attract direct investment to the region. Despite the fact that this case had a private sector origin, the leading role was taken by the state government when a new state governor appointed some business people as members of his cabinet. Despite of the success of the initiative in terms of firms attracted and jobs created, the experience of Campeche lacks the characteristics of local value added production, cluster development, environment protection, and social and private participation (Mitchell Group Inc., 2003).

A more successful story is the case of Jalisco which illustrates how a combination of new strategies [i.e. elaboration of a development plan deeply based on the local reality, capacity building in selected areas, assistance for entrepreneurs, electronic government, research and development facilities (productive infrastructure), etc.] with, for example, the attraction of foreign direct investment embedded in the local productive milieu and building new infrastructure [i.e. telecommunications and transport (basic)] in a process led by the regional government with strong participation of the private sector, achieved significant development targets (Pike et al. 2006).

The characteristics of embeddedness and sustainability, and the presence of mechanisms that favour participation, cooperation, innovation and entrepreneurship in combination with complementary traditional-type economic development tools have been identified as fundamental elements for the success of the bottom-up approach in terms of improving the well-being of the local population. This implies that the design of a mixture of policy actions and their interactions to set, sustain and strengthen those key elements under a planned framework or guidance constitute a LED strategy. Although the fundamental elements are not present in all the experiences presented above, most of the cases such as Jalisco, Rafaela, and Lac La Ronge illustrate their complementarity and the comprehensiveness of the whole approach.

The different key elements considered in this section suggest that LED strategies are challenging to design and implement because they might involve a variety of tasks, complex relationships, and changes in attitudes and aptitudes. Some problems could appear such as in the case that some groups in a locality have more economic and/or political power so that the strategy might be biased in their favour (Lovering, 1999). In

addition, mistakes in the diagnosis of local strengths, weaknesses, opportunities and threats could occur (Pike, et al. 2006). Cooperation and coordination among different agents might also be difficult to achieve as illustrated by the case of Cotacachi. However, the different success stories exposed here illustrate that the bottom-up approach does work in diverse settings.

3. The rationale for the application of bottom-up strategies in Latin America and Mexico

3.1. Origin and motivations of the LED perspective in Latin America

According to some experts such as Altschuler (2006), Boisier (1999) and Helmsing (2001b), the bottom-up approach to economic development in Latin America has been motivated by European experiences as some strategies and institutions originally implemented in European localities during the last two decades of the twentieth century have been considered in this part of the world. In many Latin American countries LED has not only been seen as a response to economic globalisation (Giordano, et al. 2005), such as in Europe, but also as a way to tackle poverty and reinforce the democratisation efforts after dictatorships or long internal rebellions (Enríquez-Villacorta, 2006).

Decentralisation processes in Latin America have further contributed to the emergence of LED strategies across the continent as locally elected governments are closer to the people whose quality of life is to be improved (Albuquerque, 2004; CAF, 2010; Helmsing, 2001b). Furthermore, local governments are perceived as having the prerogative to develop links with other agents and levels of governments that could facilitate the local development process (Boisier, 2005; Enríquez-Villacorta, 2006; Mochi, 2006).

Bottom-up strategies and decentralisation processes are seen together in Latin America as the prevalence of poverty in a high proportion of the population²¹ as well as the increase in regional inequalities have been attributed to central or national government sectoral and neoliberal interventions unaware of local or regional capacities, needs and preferences (Helmsing, 2001a; Sánchez-Bernal, 1999). The presence of severe economic crises and the corresponding macroeconomic policy

²¹ The percentage of total population having incomes amounting to less than twice the cost of a basic food basket in 19 Latin American countries was 45.7% in 1990 and 42.5% in 2000 (Argentina, Bolivarian Republic of Venezuela, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic and Uruguay). Source: ECLAC, 2008 Statistical Yearbook for Latin America and The Caribbean: http://websie.eclac.cl/anuario_estadistico/anuario_2008/. The figure in 2000 represents, approximately, 180 million people (Wodon, et al. 2001).

responses of central or national authorities have made sub-national agents look for development alternatives (Albuquerque, 2004; Sánchez-Bernal, 1999). As a consequence, local economic development has been considered as a viable strategy towards trying to improve the quality of people's life in Latin American localities (CAF, 2010; Finot, 2001; Mochi, 2006).

Other experts such as De Franco (2000) and Mecati-Granado (2006) as well as the International Labour Organisation (ILO, 2005) identify the origin of LED in Latin America in the so called Agenda 21, Chapter 28. This has been an ambitious plan agreed at international, national and sub-national levels by organisations of the United Nations System, governments, and non-governmental organisations in the Rio Declaration on Environment and Development signed by UN member countries at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992.

The basis for action of Section III, Chapter 28 of the Agenda 21 states (UN Department of Economic and Social Affairs Website)²²:

'Because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and subnational environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development.'

De Franco (2000) and Rosales (2006) argue that the environmental and social inclusion aspects of the Agenda 21 could not be seen as complements of the globalisation process (i.e. supporting its economic trends) but as reactions that consider not only the economic dimension of development but also the social, political and environmental ones. However, Díaz-Malásquez (2009) considers that the promotion and consolidation of the comprehensive principles of Agenda 21 in Latin America has failed as a result of an incomplete and not coordinated effort of sub-national and national agents.²³ Gallichio (2004) agrees and adds that many programmes of international cooperation

²² http://www.un.org/esa/dsd/agenda21/res_agenda21_28.shtml (Accessed on September, 2009).

²³ The exception might be Peru as Steinberg and Mirandab (2003) note.

in Latin America have not provided conclusive evidence of sustainable local economic development because they have mainly been aid and welfare oriented without local embeddedness or without being part of a local strategy.

The bottom-up approach neither is thought to complement the globalisation of the economy nor has an aid or social welfare character or nature, and does not try to tackle the economic, political and social problems of places (Albuquerque, 2004; Helmsing, 2001b). Nonetheless, Altschuler (2006) and Manzanal (2002) stress that bottom-up experiences in Latin America, in general, and Argentina, in particular, have not been pervasive and continuous, and one of the main limitations has been that, in many cases, the new local responsibilities have not been accompanied with the resources and capacities necessary for a successful performance. This could hinder the expansion of this approach as its goals and outcomes are put at risk.

LED in Latin America, as anywhere else, is considered a multidimensional strategy as it involves creating the conditions for the development of places. Thereby, entails more than economic or physical aspects (Arocena, 1999 and 2002). This, in part, explains why short-run sound economic success cannot be expected (Stöhr and Taylor, 1981). Gallichio (2004) argues that the cornerstone of the bottom-up approach in Latin America should be the simultaneous treatment of local governance, social capital construction and economic development, the first two being essential for achieving the goals of the latter²⁴. This key factor has been illustrated by the cases in Nicaragua, Honduras, the Northeast of Brazil, Rafaela in Argentina, and Jalisco in Mexico, among others.

However, Trigilia (2002, p. 434) argues that 'the consequences of social capital (i.e. participation of local agents in the development process) for local development are not always positive', there is a need to 'distinguish under which conditions social capital can have a favourable impact on local development, instead of generating collusion, patronage, political dependence or even criminal economies'. In this sense, Gordin (2001) and Molyneux (2002) warn that Latin American politicians frequently encourage complicities and clientelistic networks for several purposes rarely related to society's sustainable well-being.

²⁴ This is because conditions in Latin America are poor not only in economic terms but also the institutional framework is weak, and national or central politicians still prioritise international agreements and macroeconomic stability (Arocena, 2001; Gallichio, 2004). Díaz-Malásquez (2009) emphasises these aspects and highlights the lack of continuity of development processes in Latin America due mainly to political changes and public finances constraints.

Corruption is an aspect that poses an additional challenge in Latin America for the success of LED strategies.²⁵ Corruption discourages and biases productive investment, and reduces the resources available for pursuing the goals of the different components of development plans (Leonardi, 1995; Robinson, 1998; Trigilia, 2002). Although some political scientists argue that corruption can contribute to economic growth, this only happens with a very limited scope (i.e. in concrete circumstances such as bribing authorities to facilitate the start-up of a business when regulation is heavy; but, although more research is needed, there are not clear long term benefits)(Robinson, 1998).

As a result of corruption and clientelistic practices, a common problem in Latin American countries is that the private and social sectors' members sometimes do not trust politicians or even each other (CAF, 2010; Enríquez-Villacorta, 2006; Seligson, 2002) making coordination and cooperation among them difficult (Albuquerque, 2004; Barbosa and Grippo, 2001; CAF,2010). The case of the apparel industry in Torreón mentioned above exemplifies this; though, the cases in Honduras and Nicaragua, among others, show that this problem can be overcome.

Portes and Landolt (2000) analyse the presence of social capital in some Latin American cases and identify that participation, cooperation and networking in development processes are fundamental factors in the success of economic initiatives. However, they might be difficult to promote and consolidate, and unexpected situations could appear when trying to build the necessary preconditions. For example, in countries governed in the past by military dictatorships, citizens' participation in public affairs might be hard to achieve in those regions and localities that suffered the worst repression (Camejo and Gallicchio, 2004). They add that 'there is no a general formula to put social ties to use in development. Instead, successful projects must be achieved by combining existing grassroots networks with careful provision of resources and external guidance. The latter cannot simply come down from the top in the form of development formulas, but must be embedded in the local environment, incorporating its definitions of the situation and its priorities' (Camejo and Gallicchio, 2004, p. 547). This endogenous character is precisely the core of the bottom-up approach towards economic development, as explained previously.

The bottom-up approach supposes a plural participation of local agents and the leading role is not necessarily taken by the local government. In contrast, some Latin

²⁵ Since 1995, Transparency International has published an annual Corruption Perceptions Index (CPI) where scores close to 10 refer to less corrupt countries. Between 1995 and 2009, Argentina, Brazil, Colombia and Mexico have had scores between 2.8 and 5.1 points. Top countries, such as New Zealand and Denmark have had scores between 9.3 and 9.6, while bottom countries such as China, Indonesia and Venezuela (Latin American) between 1.9 and 3.7 (Source: <http://www.transparency.org/>).

American experts see local governments as the main and leading actors in the LED process (Boisier, 1999; Enríquez Villacorta, 2006; Sánchez-Bernal, 1999; Silva, 2005). This could be because of the democratisation and decentralisation processes experienced in most countries and because, despite a call for civil society participation, Agenda 21 objectives attribute a significant role to the public sector. In practice, case studies' analyses have found a variety of actors initiating bottom-up development actions but, in the process, the role of government became fundamental in most of them (CAF, 2010; CLAEH-ALOP, 2002; Helmsing, 2001b).

Being aware of the opportunities and threats of economic globalisation and the role of external agents, experts on Latin America emphasise the need to reconcile the endogenous with the exogenous towards more effective and inclusive LED strategies (Arocena, 2001; Boisier, 2005; Helmsing, 2001b; Vázquez-Barquero, 2009). Therefore, although LED processes have clear economic or productive goals, they are also considered in Latin America (as elsewhere) as socio-political processes due to the challenges posed by the new roles of local actors and their relationships among them and with outsiders (Camejo and Gallicchio, 2004).

Considering this new role of local authorities in Latin America, experts propose to modernise the local government (Boisier, 2005; Mochi, 2006; Sánchez-Bernal, 1999) but this might not be in accordance with indigenous traditions of self-government. Therefore, other issue relevant in Latin American countries is the presence of indigenous population. Localities with a high proportion of indigenous residents are often the most lagging behind areas. According to Deruyttere (2001) in the year 2000, almost 90% of the indigenous people in Latin America lived in Peru, Guatemala, Bolivia, Ecuador and Mexico, being Mexico home of almost 10 million.

Deruyttere (2001) adds that the predominant actions to tackle the socio-economic problems of the indigenous population have been top-down approaches based on inserting them in the modern economy even if this implies losing part of their culture and identity. In many cases, the policies have been welfare or aid oriented with a paternalistic character creating dependence of this population on governmental programmes or the actions and resources of non-governmental and religious organisations. The bottom-up approach, as has been presented here, is not a paternalistic perspective and supposes taking into account the inclusion of all relevant groups or actors in LED from the beginning of the process as was illustrated in some of the examples presented above.

Finally, another aspect highlighted in the literature is the need of generating innovations in economic and organisational terms (Albuquerque, 2004). Thereby, the role of education and training organisations, research centres and others becomes essential for informing about the economic and institutional paths that could be followed to enhance the local capacity to set and achieve development goals. Many scholars think that the change towards this new role might not be easy to accomplish due to the resistance of old fashioned institutions and organisations, and to the fact that the most peripheral localities need a special effort and higher amount of resources to be able to fulfil their new roles (Boisier, 2005; Enríquez Villacorta, 2006; Rodríguez-Pose et al. 2007). However, some experiences in the previous section have illustrated that innovation has been stimulated by different institutions and mechanisms in Latin America. Disparities among localities could be addressed by the redistributive functions of national or central governments reminding us the importance of cooperation and coordination among sub-national and national actors, and even international ones.

To sum up, the literature on LED in Latin America places the origin of the bottom-up approach in international initiatives and experiences in the European and Agenda 21 contexts, as well as decentralisation processes. Latin American experts recognise the potential of the approach as a viable alternative for the development of places. Nevertheless, they highlight relevant aspects that could increase the complexity of LED processes in this part of the world. In the previous chapter a significant implication of the analysis of the definitions of the bottom-up approach was the need to strengthen local capabilities in diverse aspects and different stages of the development process. The specific circumstances that might add complexity and, therefore, have an impact on economic development outcomes under the bottom-up umbrella in Latin America relate precisely to those local aptitudes and attitudes. Table 1 summarises them.

Table 1. Latin American challenges for the success of bottom-up LED strategies

| Challenge | Main implications |
|---|---|
| 1. Rooted corruption practices and vested interests can cause that members of the public, private and social sectors do not trust each other, and/or a bias of development efforts in favour of particular groups. | <ul style="list-style-type: none"> a. Monopolist, oligopolistic, clientelistic or caciquism practices at the sub-national level can negatively affect the outcomes of bottom-up LED policies. a. Incomplete and not well-embedded strategies diminish the potential of LED policy actions putting in doubt the effectiveness of the approach. |
| 2. The heterogeneity within Latin American countries demands a proper identification of the resources and capacities necessary for the successful performance of sub-national actors in face of the new responsibilities that come with | <ul style="list-style-type: none"> a. Bottom-up attempts could fail if localities' circumstances are not identified properly. b. Regional disparities could increase if national government re-distributional policies fail or are non-existent. |

| | |
|--|---|
| decentralisation and democratisation processes. | |
| 3. Governmental dependence favoured by past centralist approaches (i.e. paternalism) alongside with recent democratisation and decentralisation processes put sub-national governments as the leading or sole actors in LED. | a. The benefits of the alleged closeness to people in terms of capturing local circumstances and development prospects as well as the accountability and sustainability of the LED process are at risk if an effective and stable participation of the local social and private sectors cannot be achieved. |
| 4. Strong presence of indigenous population in some Latin American regions. Efforts to address the development issues of localities with a high proportion of indigenous population have failed in the past as a result of a lack of respect for their culture, and/or opportunistic interventions of external actors. | a. Distrust and defensive attitudes are commonly found in these places, increasing the difficulty of starting a LED process. b. In addition, the paternalistic aspect of challenge 3 has been present in many governmental interventions directed to indigenous communities eroding the possibility of building or maintaining their social capital. |
| 5. Past repression by military or authoritative regimes in some countries of the region make harder to achieve citizen's participation in public affairs. | a. The benefits of being closer to the citizens in terms of both capturing their needs and wishes, and the accountability of the LED process are at risk if a balanced representation of local interests cannot be achieved. |

Once the general setting for the application of the bottom-up approach in Latin America has been explored, the following paragraphs go further by adding details of the Mexican development context during the last half of the XX century.

3.2. *Lack of success of the top-down approach in Mexico*

From 1954 to 1970 was the period of the so-called 'stabilising development' (*desarrollo estabilizador*). During those years the average annual rate of GDP per capita growth was around 3% accompanied by stable inflation and exchange rates. However, the economic growth of the country was pursued by a centre-led industrialisation strategy, based on a prolonged import-substitution policy. It is worth mentioning that federal or national regional or municipal oriented policy was practically absent in Mexico during the whole import-substitution period, and it was until the last decade of the 20th century when a more local focus and policies' coordination were considered with the creation of the Municipal Social Development Fund (*initiated in 1996*), the Micro-regions programme (*initiated in 2002*) and the so called Agenda from the Local (*initiated in 2003*) (Corro and Palavicini-Corona 2008; *Micro-regions and Agenda from the Local websites*).²⁶

²⁶ Strategies' name in Spanish: Microregiones, website: <http://www.microrregiones.gob.mx/>; Agenda desde lo Local, website: <http://www.desdelocal.gob.mx/> (Websites accessed on May 2010).

Following new discoveries of oilfields, the administrations which governed during the 1970s decided to intensify the centre-led growth through the expansion of the public sector both, as a bureaucracy and as a goods' and services' provider. All this financed by an increase in oil revenues from exports and a substantial internal and external debt (Aspe, 1993; Rodríguez-Oreggia and Rodríguez-Pose, 2004; Urquidi, 1996).

The consequences of those economic policies were severe. At the beginning of the 1980s, the Mexican producers in most sectors were incapable of competing in the world market and satisfying the internal demand. A dependency on the oil industry had been created (Sánchez-Reaza and Rodríguez-Pose, 2003). The public deficit was around 17% of the national GDP, the inflation rate was close to 100%, and the external debt grew from 4 billion dollars in 1970 to 88 billion dollars in 1982 (Aspe, 1993; Urquidi, 1996). To these internal circumstances, external factors should be added such as decreases in oil prices and high international interest rates. Hence, in 1982, the Mexican economy was immersed in one of its worst financial and economic crises.

Central government-led industrial and sectoral policy created, at the microeconomic level, severe distortions on markets which serious consequences to the competitiveness of Mexican firms; and, at the macroeconomic level, instability and therefore lack of confidence in the Mexican economy. Not surprisingly, inefficient firms could not compete in international markets after years of protectionism and state intervention in national markets. Trying to stabilise the economy, neoliberal economic policies (i.e. privatisation, public deficit reduction, tight monetary policy, and trade liberalisation) were the norm since the mid-1980s causing significant adjustments in markets and increasing disparities within the country at the individual (citizens) and regional level (Katz, 1998).

Despite the fact that public expenditure was uneven among Mexican regions, some studies have found a small tendency towards convergence among them at the end of the import-substitution period, and an increase in inequalities after the openness to trade initiated with the incorporation to the General Agreement of Trade and Tariffs (GATT) in 1986 (Sánchez-Reaza and Rodríguez-Pose 2002, 2003). As we saw in section two, experiences in Mexico illustrate some aspects of the bottom-up approach of economic development. One of them is the case of Jalisco, which was favoured by the mentioned state-led economic policy and, therefore, its potential to respond to the new economic challenges was greater than the potential of other regions (Pike, et al. 2006). Some municipalities in Jalisco, Nuevo León and in other few states greatly benefited during the import-substitution period in terms of federal public expenditure

that favoured the production of manufactures (Rodríguez-Oreggia and Rodríguez-Pose, 2004).

Mexican integration in international markets and progress towards a more democratic regime since the mid 1980s constituted an impulse for decentralisation and; thereby, a more active role of sub-national governments in social and economic matters (Giugale et al., 2000; Rodríguez, 1999). Rodríguez-Pose and Gill (2004) find a positive relation between decentralisation trends and divergence among Mexican states considering their GDP per capita. The lack of capacities and/ or enough resources in some places could be part of the explanation for this phenomenon (Rodríguez-Pose et al. 2007).

The decentralisation process in Mexico follows the trend identified by Rodríguez-Pose and Gill (2002) which consists in that, in most cases around the world, national authorities tend to decentralise responsibilities to sub-national governments but without an equivalent amount of resources to be able to perform their new functions effectively. In Mexico, municipalities have been more affected by that tendency than states as the latter have a higher number of own sources of income, and state authorities are a second filter for the transfer of great part of federal resources intended for municipal authorities' administration (Colmenares-Páramo 2002; Fiscal Coordination Law). Despite this insufficiency of decentralised monetary resources, the municipalities' main source of revenue has been federal government transfers in the form of conditional grants and revenue-sharing transfers (Moreno, 2003).

Financial resources are not the only problem for municipalities. They also lack administrative and organisational skills and there is a scarcity of transparency and accountability mechanisms (Martínez and Díaz, 2003). According to Cabrero (2003a) 64% of municipalities in 2002 did not have an administrative manual or normative framework for the organisation and functioning of the municipal administration; and 60% of them did not have an administrative unit or office dealing with monitoring public expenditure, as well as transparency and accountability issues. Moreover, half of the municipal presidents did not have any previous experience in public administration.

4. Considerations for studying the bottom-up approach in Mexico

4.1. The scale of analysis

Stöhr and Taylor (1981, p. 454) argue that LED refers fundamentally to 'a development which is determined at the lowest feasible territorial scale'. Although they do not make

clear what they exactly mean by a 'feasible territorial scale', their notion is useful when put together with the discussion presented here and the preceding chapter. The proximity of citizens and local actors to the development process as a key feature of the bottom-up approach suggests the lowest level of government or smallest jurisdiction within a country as a pertinent scale of analysis.

Marion Temple (1994) proposes a simplified pattern of territorial economic activity in Europe (figure 1 below).²⁷ This archetype refers mainly to the administrative or political spheres within a country; and a national government position or interactions with first, the closest supranational sphere, and second, with the rest of the world.

As far as Mexico is concerned, the local level refers to the municipalities while the regional sphere to the states. Despite the fact that Mexico's integration with Canada and the United States is far lower than that among countries in the European Union; the North American block could be considered the supranational sphere in figure 1 as a result of the complexity and intensity of the relations among these countries. Mexico's economic ties (i.e. remittances, labour, capital and trade flows) with Latin American countries are minimal in comparison with its ties with the other North American countries.

Figure 1



Source: Temple M., 1994. p 2.

²⁷ Armstrong and Taylor (1993) consider a similar pattern.

Finot (2001) suggests a similar pattern in his research on decentralisation in Latin America, and adds that within the local there could be considered what he calls base-communities (*comunidades base*) which have a fundamental role in the process of (participatory) development. He refers to neighbourhood boundaries where different organisations are based (i.e. indigenous groups' and residential associations, peasants or migrants' organisations, among others). Thereby, he proposes that in some cases even a lower level of intervention within the local is desirable for the provision of public goods and the creation of positive externalities according to the needs and preferences of a specific population.²⁸

The local could also refer to a group of municipalities either within the same state or province, or through the boundaries of several states or provinces within a country (e.g. the region of Nueva Vizcaya in Mexico), or even communities sharing boundaries with more than one municipality (Albuquerque, 2004; CAF, 2010; CLAEH-ALOP, 2002). It is also possible that the local could include localities sharing international boundaries as the case of the Iguazu Falls area in South America (Argentina, Brazil and Paraguay), or the project called Litoral between Argentina and Uruguay (Camejo and Gallicchio, 2004). The local economic development process in these cases could be much more complex as far as participation of local agents is concerned (i.e. coordination and cooperation in development actions).

As the task to identify minimal socioeconomic critical mass areas in Mexico could result to be complex, time consuming and inexact (Finot, 2001), the units of analysis for the purposes of this research project are municipalities, or the local sphere in terms of figure 1. Following Tödting (2011) and according to the literature discussion presented above, the bottom-up approach in this research refers to local development processes or policy actions designed and implemented by local (i.e. municipal) agents - and not by regional or national actors or international agencies- with the goal of satisfying local development needs and aspirations according to local preferences and circumstances as well as considering local interactions with actors representing other spatial scales.

4.2. The formal institutional context for LED in Mexican municipalities

Once the municipal level has been determined as the focus of analysis of this research, this section offers details on the LED context in Mexico. We review the Mexican

²⁸ This institutional setting supposes the direct participation of citizens in economic development. Finot (2001) illustrates this presenting some examples in Mexico (i.e. communities in Tabasco and Tlaxcala) and South America (i.e. neighbourhoods in Bolivia, Brazil and Colombia).

Constitution mandates in relation to municipal authorities' development functions and some relevant aspects of the Mexican decentralisation process initiated since the 1980s.

The review of the Mexican constitutional framework in relation to municipal development functions will contribute to identify if legal restrictions have prevented municipalities from fully engaging in bottom-up economic development processes. Article 115, in the fifth section of the Mexican Constitution, refers only to municipal issues covering from the general framework by which the municipal government is elected and organised to municipalities' specific functions. Article 115 establishes that municipal authorities cannot be re-elected for a consecutive period of government, and it sets particular public services to be delivered by municipalities such as sewage and clean water systems; garbage collection and disposal; public lighting; markets and cemeteries construction and administration; parks and streets' maintenance; among others. Municipalities are also entitled to formulate and manage their development plans, authorise and monitor land use in their jurisdiction, and grant construction licenses or permits, among others. It is noteworthy that Article 115 contemplates the possibility of the state delivering some of the mentioned services and performing some of the municipal functions when the municipal capacity is not enough to satisfy the local demands.

The main municipal sources of income considered in Article 115 are property taxes and federal transfers. Once the latter have been assigned by the federal government to the states, the state legislatures determine the assignation criteria and; therefore, the amount of monetary resources to be transferred to their municipalities (Law of Fiscal Coordination). Hence, municipal sources of revenue are limited and one of them depends on discretionary adjudications from state authorities (Martínez, 2003; Moreno, 2003).²⁹ Transparency and more certainty in the assignation of resources would let municipalities better plan and implement their development strategies (Martínez and Díaz, 2003).

Nonetheless, the lack of municipal resources is a complex phenomenon because even if they were allowed to levy other taxes, there is no guarantee that they would introduce new taxation schemes. In general, their efficiency to collect the property tax has been low as a result of insufficient administrative capacity and/or political reasons (Moreno, 2003). Moreover, another criticism regarding the conditional federal transfers

²⁹ According to Moreno (2003), on average municipalities revenue from their own sources (i.e. fees, surcharges, and taxes) did not exceed 25% of their total resources.

is that municipalities should be given more room to prioritise their expenditure, yet Herrera and Covarrubias (2003) show evidence that municipal expenses of non-conditional resources might not be assigned efficiently and suitably in relation to citizens' needs.

After 1987 and during the period of analysis up to nowadays there have been two important reforms in relation to strengthen the decentralisation process and the role of the municipal sphere in designing and delivering public services and policies. Firstly, in 1999, the Article 115 was modified to explicitly allow municipal authorities to set the rules and mechanisms for guaranteeing citizens' participation in public affairs.³⁰ In addition, it also establishes that the federal and states' governments must secure municipal participation in designing their regional development projects.³¹ Moreover, before the 1999 reform this article contemplated that bordering municipalities in the same state could agree to form partnerships among them if by doing so they could achieve a more efficient public service and policies' delivery. In 1999, this is also explicitly encouraged for bordering municipalities located in different states. However, they still need the approval of their state Congress (legislature) in both cases.

Secondly, the 2001 major reform of Article number 2 of the Constitution, gives special recognition of indigenous groups rights. This required to reform Article 115 in order to explicitly contemplate the right of indigenous communities to organise themselves in the municipal sphere in order to participate in public affairs and even rule their political, social and economic lives according to their culture. These articles also establish that it is imperative that indigenous groups or communities have a permanent representation in the municipal government in mixed municipalities.³²

In short, as far as the bottom-up approach to LED is concerned, the Mexican Constitution grants municipalities the faculty of planning their development, encouraging citizens' participation in public affairs, and coordinating with both other levels of government and other municipalities. Moreover, local authorities have had the

³⁰ *'Los ayuntamientos tendrán facultades para aprobar, de acuerdo con las leyes en materia municipal que deberán expedir las legislaturas de los Estados, los bandos de policía y gobierno, los reglamentos, circulares y disposiciones administrativas de observancia general dentro de sus respectivas jurisdicciones, que organicen la administración pública municipal, regulen las materias, procedimientos, funciones y servicios públicos de su competencia y aseguren la participación ciudadana y vecinal' (Constitución Política de los Estados Unidos Mexicanos, p. 75).*

³¹ *'Los Municipios, en los términos de las leyes federales y Estatales relativas, estarán facultados para: a)... c) Participar en la formulación de planes de desarrollo regional, los cuales deberán estar en concordancia con los planes generales de la materia. Cuando la Federación o los Estados elaboren proyectos de desarrollo regional deberán asegurar la participación de los municipios' (Ibid. p. 77).*

³² *'Elegir, en los municipios con población indígena, representantes ante los ayuntamientos'. 'Las comunidades indígenas, dentro del ámbito municipal, podrán coordinarse y asociarse en los términos y para los efectos que prevenga la ley' (Ibid. p. 2 and 76).*

important faculty of regulating the use of land in their jurisdictions increasing the relevance and pertinence of designing and implementing strategic development plans at the local level. These factors together with the democratisation process experienced since the 1980's have contributed to a blossoming of LED strategies in Mexico.³³

Nevertheless, municipal authorities allege lack of monetary resources. They have not been allowed to stay in office for two consecutive periods and the duration of their mandate is, generally, three years. All this has generated an incentive for setting mainly short term 'development' goals. This should not be a problem as the Mexican Constitution does not limit the duration of municipal administrations as it does for the national and state mandates (i.e. six years). Thereby, reforms at the state level can be pursued by municipalities to increase their municipal mandates to more than three years.³⁴ In addition, as there are no restrictions for the involvement of the social and private sectors in the development process, the mechanisms for participation could secure the long-run perspective of LED strategies and their continuity. The lack of resources of any kind can also be overcome under a bottom-up approach strategy as it entails interactions of local actors with external agents. For instance, technical support was offered by UNIDO for improving production processes in the cases of Honduras and Nicaragua; and resources of the federal Economy ministry in Mexico were assigned for the benefit of some of the Jalisco development projects, among other examples from the experiences presented above.

A relevant precedent for the bottom-up development approach in Mexico is the already mentioned *Municipal Social Development Fund* which mechanism of operation included the formation of *community committees* within municipalities. Each committee selected representatives to participate in the so-called *Municipal Committees' Coordination Body* where, correspondingly, representatives were elected for their participation in the *Municipal Social Development Council* integrated by them and municipal authorities. This council had the function of determining the municipal priorities and, therefore, the projects to finance with the fund's resources (Corro and Palavicini-Corona, 2008).

Critics to this mechanism highlight the fact that the structure of citizens' participation was rigid and that alternative forms needed to be considered according to local social and cultural characteristics (Arellano and Rivera, 1997). In addition, some municipalities

³³ This goes in line with the findings published by the OECD in 1998 in the document entitled *Decentralisation and local infrastructure in Mexico: A new public policy for development*, Organisation for Economic Cooperation and Development, Paris.

³⁴ In 2006, Torreón, Coahuila was the first municipality in Mexico that started a four years period as a result of a local political reform (Pardo and Ordaz, 2007).

failed to obtain the resources of the fund as they were not able to integrate all the technical particularities of the selected projects. This illustrates the need of considering the capabilities of local agents as a prerequisite to properly identify the starting point of the development strategy, and the importance of vertical governmental coordination and cooperation.

The Mexican Constitution consideration of the heterogeneous capacity of municipalities to perform their functions efficiently suggests that municipalities need to take also into account their own capabilities when designing development plans. However, the municipalities still need to identify and recognise their deficiencies. In this respect, the already mentioned federal government initiative called *Agenda from the Local* has as main goal to help municipal authorities to identifying areas for improvement in diverse aspects of their administration from raising revenue to delivering public services and implementing economic development strategies.

5. Final remarks and conclusions

In light of the characteristics of the development of places, the definitions of the bottom up perspective towards it, and the general background that has made this approach to be seen as a pertinent alternative for pursuing places' development goals - all them discussed in the second chapter -; details of its fundamental elements have been presented here as well as the Latin American context that explains why some scholars and practitioners recommend its implementation in this region.

The first section explained and illustrated the key elements of the bottom-up approach. The comprehensive aspect of the bottom-up strategies is emphasised by their different fundamental elements. They confirm that LED processes are not only economic or socioeconomic processes but also socio-political, and suggest that there are general conditions for the success of bottom-up strategies where place specificity is crucial. For example, citizens' participation took a completely different form in Cotacachi, Ecuador than in the Northeast region in Brazil as part of two different bottom-up development experiences.

The literature on the topic warns that bottom-up strategies' positive results are not guaranteed by emphasising that the strategy needs to be locally embedded, meaning that a deep diagnosis of the local conditions is required together with a truly and active involvement of diverse local agents. In addition, a high degree of vertical and horizontal cooperation and coordination among the different agents during the LED

process is essential. The supportive or complementary role of national policies or even international development programmes is also crucial but needs to be embedded in *the local* and avoid creating dependence on external agents' assistance (Vázquez-Barquero, 2009).

The LED experiences discussed here confirm that the initiative to start an endogenous development process in a locality and its leadership are not always taken by the local authorities, with other agents from academic or business sectors, among others, having an important role. In addition, the bottom-up approach can reach positive outcomes in a diversity of localities and regions such as rural areas as the cases in Canada, Ecuador and Nicaragua illustrated, and also in urban industrialised ones such as Medellín in Colombia and some localities of the Jalisco experience in Mexico, among others.

In Latin American countries the emergence of the bottom-up strategies towards LED, as in the rest of the world, obeys mainly to the need to respond to the challenges, threats, and opportunities related to the process of integration of the world economy; and to the lack of success of top-down approaches. The case of Mexico illustrates some of the problems of the top-down approach related not only with the import-substitution and sectoral driven economy period but also with the effects of economic adjustment due to economic crises and the challenges of globalisation, afterwards. Democratisation processes in Latin America have also accompanied a trend towards a new leading role of local actors in economic development, again, in a context of disenchantment with national policies designed to tackle economic crises and poverty.

One of the main findings about Latin America is that LED processes need to start, in many cases, from building preconditions for economic development success such as building basic infrastructure alongside with individual and social capacity and trust. In addition, the Latin American context poses special challenges in relation to the inclusion of indigenous population in development processes, and other issues related with regional disparities, paternalism, clientelism and corruption.

A simplified pattern of territorial economic activity for the purpose of delimitating the scope of action of LED strategies in this research (i.e. municipalities) was also provided in this chapter based on the regional economics literature and our discussion on the bottom-up perspective. In Mexico, since the beginning of the democratisation and decentralisation processes in the 1980s, the legal framework in place allows LED to be embraced by Mexican municipalities and, after several reforms, explicitly encourages

development cooperation and coordination among governmental authorities as well as citizens' participation.

Up to now the theoretical and contextual frameworks for the analysis of the impact of the bottom-up approach on the development of Mexican localities have been put in place. Chapter 4 goes further by setting the methodological considerations for the quantitative analysis towards testing our research hypothesis.

CHAPTER 4

The contribution of the bottom-up approach towards economic development: A quantitative approach to analyse Mexican municipalities

1. Introduction

The aim of this chapter is to set the base to examine quantitatively if local economic development (LED) strategies have had a significant effect on the development of Mexican municipalities. Since 1990, bottom-up strategies towards the economic development of places have been recommended by scholars and multilateral organisations, and accepted by NGOs and local actors around the world (Pike et al., 2006; Potter, et al. 1999). Despite the numerous success cases documented by academics and practitioners, the impact of bottom-up strategies on the development of places has not sufficiently been assessed (Gordon and Low, 1998).

This need for systematic, multi-case evaluations of LED policies was already noted two decades ago by Hughes (1991) and Teitz (1994), who recognised the need to undertake better analysis and evaluations of the processes and outcomes of the diversity of LED strategies being implemented at that time. One decade later the OECD (2003, 2004a) reiterated this need to systematically evaluate whether LED strategies were actually making a difference and to what extent that was the case. However, almost ten years later, the situation has not changed much (Barberia and Biderman, 2010; Crescenzi and Rodríguez-Pose, 2011). There is a significant dearth of analyses undertaking a systematic monitoring of a large number of LED strategies and those which have tended to wander into this uncharted territory have by-and-large remained firmly anchored in a case-study methodology (e.g. CAF, 2010; Potter et al., 1999; Pike et al., 2006). We are not aware of any study that has aimed to evaluate in a systematic way the impact of the LED strategies implemented by a large number of local authorities, using quantitative methods.

The aim of this part of our research is precisely to examine, using a quantitative approach, to what extent has the consideration of bottom-up key elements by a large number of local authorities resulted in a significant improvement in development levels. The hypothesis to be tested is that bottom-up LED fundamental elements have played a significant role in the development of the Mexican municipalities where they have been implemented. To test it, in this and the following chapter a quantitative analysis is proposed and carried out to estimate the potential effect of LED strategies at the municipal level in Mexico during the period 1990-2005. In other words, a quantitative study is used to capture whether bottom-up policies and key features matter.

The main limitation in proposing a model specification to study the effects of bottom-up strategies in Mexico is the scarcity of information on these strategies, and of relevant databases at the municipal level for the control variables. In addition, the response variable cannot be the change in GDP or income per capita which is more widely used to analyse the economic performance of places. Instead, a municipal development index (MDI) is calculated and used as dependent variable.

The chapter is organised in four further sections. The first informs on the selection of the response variable, while the second unveils the municipal human development situation in Mexico captured by the municipal indexes calculated for 1990 and 2005. The third section links the human development concept with the bottom-up approach towards the development of places. Finally, the fourth section introduces the model specification as well as the LED explanatory and control variables.

2. Human development: a development index for Mexican municipalities

One of the traditional ways of measuring development has been to resort to the evolution of GDP per capita. GDP per capita has been routinely used by much of the literature on economic growth as the key proxy for economic development. However, in recent years there have been significant criticisms of this measure and appeals for the elaboration of alternative indicators of development (e.g. Stiglitz et al., 2009).

The Human Development Index (HDI), calculated by the United Nations Development Programme (UNDP), has been little by little gaining ground as a viable alternative or complementary measure to GDP per head. As a consequence – and despite the fact that the HDI is not devoid of critics – it has been increasingly proposed by numerous authors as the proxy of choice for measuring development (Dasgupta and Weale, 1992; UNDP, 1993 and 2009; Streeten, 1994; Anand and Sen, 2000a and 2000b). In the case of Mexican municipalities, in addition to the arguments presented above, the absence of data on GDP per capita at the local level for the years analysed pushes us towards the elaboration of an HDI-like indicator as our development proxy of choice. We call this indicator the municipal development index (MDI). The HDI is explained and discussed in the first part of this section alongside with the main criticisms made to its methodology. The proposed MDI is presented and discussed in the final part of the section.

2.1 Human development: the concept, the HDI and its main criticisms

For Streeten (1994) the main advantage of the concept of human development is its focus on individuals considered alone and as a group. This author emphasises that human development is both a means to higher productivity and an end in itself because, for example, there is evidence that higher incomes caused by higher productive capacity are not, in many cases, closely related to improvements in human development dimensions such as education and health.

The idea of human beings as ends of development processes is supported by Anand and Sen (2000a, p. 84) who see on it an 'emphasis placed on what people get from development, not only what they put into it'. In other words, human development considers more than just economic development goals (Sagar and Najam, 1998). Human development encompasses essential aspects for the quality of people's life such as being educated and socially integrated, avoiding diseases and getting comfortable housing, among other things (Anand and Sen, 2000a). However, Anand and Sen, (2000b) recognise the significance of human development not only as an end but also as a means because it has also been proved that improvements in human capital have contributed to a better economic performance in many cases.

The first well-known measure trying to capture some of the dimensions of the concept of human development is the HDI proposed by the UNDP in 1990 to assess the human development situation of countries. The components of this index are education (captured by literacy rates and school enrolment ratios), life expectancy at birth as a proxy for health, and GDP per capita as an indicator of the standard of living. It is worth noting that the GDP per capita is adjusted to consider diminishing returns in its contribution to human development (i.e. it is computed using the logarithm of the GDP per capita). For each component, the minimum and maximum values are fixed in absolute terms and a single index is calculated on a scale of 0 to 1 according to the following general formula (UNDP, 2000):

$$\text{Index} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}}$$

The corresponding minimum and maximum values for each component are (UNDP, 2000):

1. *Life expectancy: 25 and 85 years, respectively.*
2. *GDP per capita (purchased power parity adjusted): 100 dollars and 40,000 dollars, respectively.*

3. *Education:*

- ❖ *Literacy rate: 0% and 100%, respectively (weight: 2/3).*
- ❖ *Combined school enrolment ratio: 0% and 100%, respectively (weight: 1/3).*

The overall index is computed as the arithmetic average of the three indexes, and countries are ranked and classified according to how close their HDI is to one (UNDP, 2000). To give an example, the calculation of the HDI for Mexico in 1998 is done as follows:

1. *Life expectancy at birth: 72.3 years*
2. *GDP per capita: 7,704 dollars*
3. *Education:*
 - ❖ *Literacy rate: 90.8% *(2/3)*
 - ❖ *Combined school enrolment ratio: 70% *(1/3)*

Applying the general formula, the indexes for each component are:

1. *Life expectancy index: **0.79***
2. *Adjusted GDP per capita index: **0.73***
3. *Education index: **0.84***

After summing them up and dividing the result by three, the HDI_{1998} equals **0.786**. Hence, under the classification of the UNDP, in 1998 Mexico was one of the countries with a medium level of human development. These countries were the ones with a HDI between 0.500 and 0.799. The countries considered with a high level of human development had figures higher than 0.799; and the ones with a low level, figures lower than 0.500. Nowadays, the UNDP uses a slightly different classification, including the 'very high human development countries' that are the ones with HDI above 0.899 (UNDP, 2009).

According to Anand and Sen (2000a), Sen (2000), and Sagar and Najam (1998), the HDI provides a plural but simplified picture of some of the human development dimensions with the advantages of great salience, communicability, and comparability among countries and of a country's situation over time. Another advantage seen by the UNDP (1993) and Streeten (1994) is that most of its indicators are relatively stable from year to year. For example, once an individual learns to read and basic mathematics, or 'a mother knows the importance of health and education for her children; this knowledge is not lost even when the income drops' (Streeten, 1994, p. 236).

However, in the 1993 Human Development Report, the UNDP recognises that the concept of human development is much broader than what can be captured in a

single measure such as the HDI. Sen (2000, p. 22) warns that 'it would be a great mistake to concentrate too much on the Human Development Index, or on any other such aggregative index. These are useful indicators in rough and ready work, but the real merit of the human development approach lies in the plural attention it brings to bear on developmental evaluation, not in the aggregative measures it presents as an aid to digestion of diverse statistics'.

The main criticisms to the HDI are related to the possible redundancy of its components and the arbitrary selection of them and their weights (McGillivray, 2007; Noorbakhsh, 1998; Sen, 2000; Streeten, 1994; UNDP, 1993). Experts in multidimensional indices of well-being accept that finding an undisputable mathematical process to describe individuals' multidimensional well-being by one single index represents an enormous challenge commonly known as the indexing problem (Decancq and Lugo, 2009).

Decancq and Lugo (2009) reviewed data-driven, normative and equal weighting schemes commonly used to set well-being dimensions' weights, finding for all of them advantages and disadvantages. They argue that the main drawback of the weights obtained by statistical techniques is that they are sensitive to new observations. This means, for example, that the weights obtained from some years' data of a particular country could be different than the ones obtained for other years, making calculations difficult to compare. According to them, equal weighting has often been defended for its simplicity which implies not only that the computations are easy but also that when all attributes are equally considered, messing up with different normative criteria that are difficult or impossible to reconcile is avoided. They conclude stressing that researchers need to be cautious when interpreting their results in light of the chosen weighting scheme and the reasonability of its implied trade-offs between dimensions. The reasonability of such trade-offs could be evaluated based on the analysis of actual interactions among attributes for what there might not be a widely accepted theoretical framework and could still be influenced by normative aspects.

Some researchers have applied several techniques such as the principal components analysis (PCA) and computed alternative indexes to test for redundancy and figure out proper weights, finding results that do not support omitting or assigning different weights to the actual components of the HDI (Tatlidil, 1992; Noorbakhsh, 1998). Furthermore, some economic historians suggest, for example, not leaving health out of the calculation as findings show that the main cause of improvements in mortality rates since the end of the nineteenth century, in both developed and developing countries,

has not been related to increases on households' income but public policies and advances on science (Crafts, 1997).

As far as the selection of components is concerned, some authors have suggested the inclusion of other dimensions such as freedom, the rule of law, peace, equality among citizens and environmental protection (Noorbakhsh, 1998; Sagar and Najam, 1998; UNDP, 1993). Dasgupta and Weale (1992) as well as Anand and Sen (2000) argue that the actual HDI encompasses essential dimensions that provide a reasonable picture of the level of living at an aggregate level without further complicating computations due to methodology issues and information constraints. Instead of including more components, some researchers recommend to calculate complementary measures when possible with the advantage of keeping the communicability and comparability of the original instrument (Ranis and Frances 2000; Neumayer, 2001).

Other of the main criticisms is that the HDI only represents a country average that does not tell anything about large inequalities that could be found among regions within countries. However, one of the main advantages of its methodology is that, if data is available, it can be calculated at a regional (state or provincial) level, and furthermore, at a local (municipal) level (Crafts, 1997). The latter is one of the calculation efforts that have been increasingly considered since the appearance of the HDI in 1990. In Mexico, it has been calculated at the municipal level only for the years 2000 and 2005 after a careful and time consuming process of data collection and computations to estimate figures for the income per capita component (UNDP, 2008).

Finally, the UNDP (1993) recognises that the HDI could not be very helpful for the group of countries that have already achieved the highest values. As a result, other measures have been proposed such as the Human Poverty Index for developed countries (HDI-2), and the already mentioned complementary measures for evaluating other dimensions such as the direct effect of economic growth on the environment, and hence, on the quality of people's life (Neumayer, 2001). In the case of this research effort, the large differences among Mexican municipalities and the number of poor people living in the country make it pertinent and relevant to use the basic dimensions considered originally by the UNDP (Ranis and Frances, 2000).

2.2 *A development index for Mexican municipalities (MDI)*

The main message of the literature on the HDI discussed in the previous paragraphs is that the HDI could be seen as an alternative or complementary measure to evaluate

and compare the development of places. The MDI includes a number of indicators which cover the same dimensions considered in the elaboration of the HDI: health, education, and standard of living. The indicators included in each dimension are adapted to the availability of data for Mexican municipalities. This subsection presents its components and details of its calculation (See figure 1).

Figure 1. Components of the development index for Mexican municipalities (MDI).

| Health | Education | Standard of living |
|--|---|---|
| 1. % of children who survived out of every 100 that were born alive. | 2. Adult literacy rate 3. Average number of approved (passed) years of education for people older than 14 years old. | 4. % of dwellings with sewage, electricity and water inside the building. 5. % of dwellings with floor other than bare land (cement, wood, tile, etc.) |

In the health dimension, we substitute life expectancy by the percentage of children who survive their first year of life. No other indicator as a possible proxy of a long and healthy life was found in municipal Mexican databases for the two years of interest (1990 and 2005). The education variables basically reproduce those included in the HDI, with the exception of substituting the combined primary, secondary and tertiary gross enrolment ratio, by the average number of years of education of those 15 and older in any given municipality.

For the standard of living dimension, the HDI resorts to income per capita (UNDP, 1993). The HDI considers income per capita as the indicator for having access to the resources needed for a decent standard of living (UNDP, 1993). Anand and Sen, (2000b, p. 100) note that by including income per capita, the HDI takes 'note of various capabilities that people value intensely and which are not reflected in figures of life expectancy and literacy'. For example, some places achieve improvements in health and education but their population might still suffer from low quality consumption of goods and services (Crafts, 1997; Rannis and Frances, 2000; UNDP, 1993).

However, as comparable income per capita data are not available for Mexican municipalities for the years analysed, we calculate the municipal development index (MDI) using a series of quality of housing characteristics as an approximation for the standard of living in any given Mexican municipality. We depict the standard of living by the inclusion of the percentage of dwellings in a municipality with sewage, electricity and water inside the building and the percentage of dwellings with floor other than bare land. The advantage of resorting to quality of housing indicators is that it does not have the problem of diminishing returns associated with the inclusion of

income in the HDI (Noorbakhsh, 1998; Sagar and Najam, 1998). It also avoids the heavily criticised selection of the minimum and maximum income values (Streeten, 1994; UNDP, 1993).

To give an example, the calculation of the MDI for the municipality of Aguascalientes in the state of the same name in 1990 is done as follows:

1. *% of surviving children: 89.60*
2. *Standard of living:*
 - ❖ *% of dwellings with all main services: 84.05*
 - ❖ *% of dwellings with floor other than bare land: 94.93*
3. *Education:*
 - ❖ *Literacy rate: 94.34*
 - ❖ *Average years of education: 7.32*

Applying the general formula presented in the preceding sub-section, the indexes for each component are:

1. *Health: **0.89***
2. *Standard of living: **0.89***
3. *Education: **0.78***

Where the minimum and maximum values for each component of the MDI index are:

1. *Health: 0% and 100%, respectively.*
2. *Standard of living:*
 - ❖ *% of households with all main services: 0% and 100%, respectively.*
 - ❖ *% of households with floor other than bare land: 0% and 100%, respectively.*
3. *Education:*
 - ❖ *Literacy rate: 0% and 100%, respectively.*
 - ❖ *Average years of education: 0 and 12 years, respectively³⁵.*

Then, after summing them up and multiplying the result by one third, Aguascalientes' MDI₁₉₉₀ equals **0.853**.

Alternative indices can be calculated using the same information to modify the original index in consideration of a common criticism done to the HDI in the literature on the topic (Neumayer, 2001). That is, the sum of health, education and income attributes makes them perfect substitutes, meaning that there is a constant rate at which an improvement in any attribute can be exchanged for an improvement in another for all levels of all components (Desai, 1991). This might not be realistic because as Decanq and Lugo (2009, p. 6) reckon 'the amount of money needed to compensate for a year

³⁵ As the highest average years of education in the data for the years analysed are between eleven and twelve years (excluding one locality in Mexico City), is twelve years the number which is considered as the maximum for calculations. The minimum in the whole data set is 0.55 years.

less of life should be quite different whether the person is in her youth or reaching the end of a normal life'.

To tackle this problem and reflect more directly the impact of the performance of each component index on the overall one, Sagar and Najam (1998) propose a product of components instead of a sum. This allows the HDI to be more sensitive in low performing dimensions with the advantage that if there is a serious deprivation in one of them, the overall index cannot be high. For example, if one faraway rural municipality has health and education indexes equal to 0.96 due to an excellent provision of these public services, together with a 0.50 for the standard of living component due to low quality housing, the MDI equals 0.81, while the multiplicative option (MMDI) equals 0.46. If, instead, it had 0.81 in each of its component indices, the MDI would still be 0.81 while the MMDI would equal 0.53. Both alternatives will be considered as possible response variables in this study. In the last case, municipalities with a multiplicative index lower than 0.250 are considered the least developed, in the medium level of development are the localities with a MMDI between 0.250 and 0.500, and a high level of development is indicated by figures above 0.500.

Before relating the human development and LED ideals as a prerequisite to use the proposed development index as the response variable to analyse the impact of LED strategies on the development of Mexico, the following section discloses the main findings of its calculation for Mexican municipalities.

3. Municipal development indexes in Mexico in 1990 and 2005

This section presents the situation of human development in Mexican municipalities as captured by the additive (MDI) and multiplicative (MMDI) indexes. The information is organised geographically dividing the country in three regions: North, Centre and South.³⁶ The results for 1990 are disclosed first, then for 2005 and; finally, we unveil the findings in relation to the municipalities that improved most and the ones that could not increase their index at all.

3.1 MDI and MMDI in 1990

³⁶ See Map 1 in Annex 1. Northern states: Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo León, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas; Central states: Colima, Estado de México, Guanajuato, Hidalgo, Jalisco, Morelos, Puebla, Tlaxcala, Querétaro, Michoacán, Nayarit and the Northern part of Veracruz (151); Southern states: Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Yucatán and the Southern part of Veracruz (55).

In the North of Mexico, the maximum value of the MDI in 1990 is found in the municipality of San Pedro Garza Garcia (0.9263) in the state of Nuevo León. This municipality has been part of the conurbanisation of the state's capital city of Monterrey which also observed one of the highest indexes in the region (0.8732). However, the highest municipal averages of this indicator alongside with the lowest variability among municipalities within the same state are found in Baja California (0.8123), Baja California Sur (0.7747) and Aguascalientes (0.7609). The minimum value is identified in the municipality of Aquismón (0.4454) in the state of San Luis Potosí. The municipalities of this state also observe the lowest MDI average in the region (0.6074). The largest differences among municipalities within the same state in the North of Mexico were found in the states of Chihuahua, Tamaulipas and Nuevo León. The average MDI considering all the municipalities in the whole region is 0.7168.

In the South of Mexico, the maximum value of the MDI in 1990 is found in the municipality of Santa Cruz Amilpas (0.8833) in the state of Oaxaca. The highest municipal average of this indicator (0.7042) and the lowest variability among municipalities within the same state are found in the oil producer state of Tabasco. The minimum value is identified in the municipality of San Martín Peras (0.2726) in the state of Oaxaca. The municipalities of this state observe the lowest MDI average (0.5133) and the largest differences among municipalities within the same state in the South of Mexico. Other states with low municipal MDI averages are Chiapas (0.5312) and Guerrero (0.5288). The average MDI considering all the municipalities in the whole region is 0.6052.

In the Centre of Mexico, the maximum value of the MDI in 1990 is found in the industrialised municipality of Coacalco (0.9162) in the state of Mexico. The highest municipal average of this indicator (0.7434) is found in the state of Colima. The minimum value is identified in the municipality of Tehuipango (0.2991) in the Northern part of the state of Veracruz. The municipalities of the state of Puebla observe the lowest MDI average (0.5619), while the largest differences among municipalities within the same state are found in the state of Hidalgo. The smallest municipal differences are found in the state of Morelos and the average MDI considering all the municipalities in the whole region is 0.6566.

Table 1. MDI, 1990: Bottom and top 20 municipalities

| MDI 1990, Bottom 20 | | | MDI 1990, Top 20** | | | | |
|---------------------|-----------------------------|----------|--------------------|--------------------------|-----------------|--------|------------|
| | Municipality | State* | MDI | Municipality | State* | MDI | Difference |
| 1 | San Martín Peras | Oaxaca | 0.2726 | Benito Juárez | Mexico City | 0.9513 | 0.6787 |
| 2 | San Miguel Santa Flor | Oaxaca | 0.2747 | San Pedro Garza García | Nuevo León | 0.9263 | 0.6515 |
| 3 | Santa María Texcatitlán | Oaxaca | 0.2767 | San Nicolás de los Garza | Nuevo León | 0.9201 | 0.6434 |
| 4 | Santa María la Asunción | Oaxaca | 0.2772 | Coacalco | México | 0.9162 | 0.6390 |
| 5 | Tehuipango | Veracruz | 0.2991 | Cuauhtémoc | Mexico City | 0.9140 | 0.6149 |
| 6 | San Bartolomé Yucuañe | Oaxaca | 0.3029 | Miguel Hidalgo | Mexico City | 0.9055 | 0.6027 |
| 7 | Mixtla de Altamirano | Veracruz | 0.3030 | Coyoacán | Mexico City | 0.8994 | 0.5965 |
| 8 | San Bartolomé Ayautla | Oaxaca | 0.3072 | Cananea | Sonora | 0.8891 | 0.5818 |
| 9 | Coicoyán de las Flores | Oaxaca | 0.3281 | Metepiec | México | 0.8888 | 0.5606 |
| 10 | Mitontic | Chiapas | 0.3288 | Venustiano Carranza | Mexico City | 0.8883 | 0.5595 |
| 11 | Santo Domingo Tepuxtepec | Oaxaca | 0.3337 | Guadalajara | Jalisco | 0.8869 | 0.5532 |
| 12 | San Antonio Sinicahua | Oaxaca | 0.3345 | Santa Cruz Amilpas | Oaxaca | 0.8833 | 0.5489 |
| 13 | Chamula | Chiapas | 0.3356 | Cuautitlán Izcalli | México | 0.8801 | 0.5445 |
| 14 | San Lorenzo Texmelucan | Oaxaca | 0.3365 | Azcapotzalco | Mexico City | 0.8799 | 0.5435 |
| 15 | Meñlatónoc | Guerrero | 0.3371 | San Luis Potosí | San Luis Potosí | 0.8747 | 0.5376 |
| 16 | Santa Lucía Miahuatlán | Oaxaca | 0.3384 | Guadalupe | Nuevo León | 0.8744 | 0.5360 |
| 17 | Texcatepec | Veracruz | 0.3406 | Chihuahua | Chihuahua | 0.8740 | 0.5335 |
| 18 | San Juan Cancuc | Chiapas | 0.3414 | Monterrey | Nuevo León | 0.8732 | 0.5318 |
| 19 | San Lorenzo Cuaunecuiltitla | Oaxaca | 0.3452 | Iztacalco | Mexico City | 0.8720 | 0.5269 |
| 20 | Santa Cruz Acatepec | Oaxaca | 0.3480 | Zacatecas | Zacatecas | 0.8707 | 0.5227 |

* See Map 1, Annex 1 in this chapter to see the states location by region.

** Mexico's City jurisdictions are included in the table as a reference to the level of MDI in the rest of the country.

As far as the MMDI for 1990 is concerned, in the North of Mexico, the maximum value of the MMDI in 1990 is found once more in the municipality of San Pedro Garza Garcia (0.6697). The highest municipal averages of this indicator are found in the states of Baja California (0.2750) and Baja California Sur (0.1917)). The minimum values are identified in the municipalities of Morelos, Chihuahua; Santa Catarina, San Luis Potosí; and San Nicolas, Tamaulipas. The municipalities of the state of San Luis Potosí observe the lowest MMDI average in the region (0.0397). The largest differences among municipalities within the same state in the North of Mexico were found in the state of Nuevo León while the smallest in Baja California. The average MMDI considering all the municipalities in the whole region is 0.1344.

In the South of Mexico, the maximum value of the MMDI in 1990 is found again in the municipality of Santa Cruz Amilpas (0.4901). The highest municipal average of this indicator (0.0886) is found in the oil producer state of Tabasco. The minimum values are found predominantly in the states of Chiapas, Guerrero, Oaxaca and Yucatán where households in many of their municipalities did not have access to sewage, clean water inside dwellings and electricity in 1990. The municipalities of Oaxaca observe the lowest MMDI average in the region (0.0109). The largest differences among municipalities within the same state in the South of Mexico are found in Quintana Roo while the

smallest in the state of Guerrero. The average MMDI considering all the municipalities in the whole region is 0.0419.

In the Centre of Mexico, the maximum value of the MMDI in 1990 is found again in the municipality of Coacalco (0.6151). The highest municipal average of this indicator (0.1868) is again found in the state of Colima. The minimum values are identified in municipalities of the state of Puebla and in the Northern part of the state of Veracruz. As in the MDI calculations, the municipalities of the state of Puebla observe the lowest MMDI average (0.0199). The largest differences among municipalities within the same state are found in the state of Colima, while the smallest municipal differences are found in the state of Puebla. The average MMDI considering all the municipalities in the whole region is 0.0831.

Table 2. MMDI, 1990: Bottom and top 20 municipalities

| MMDI 1990, Bottom 20* | | | MMDI 1990, Top 20** | | | MMDI | Difference |
|-----------------------|---------------------------|----------|---------------------|--------------------------|-----------------|--------|------------|
| Municipality | State*** | MMDI | Municipality | State*** | MMDI | | |
| 1 | Bejucal de Ocampo | Chiapas | 0.0000 | Benito Juárez | Mexico City | 0.7862 | 0.7862 |
| 2 | Francisco León | Chiapas | 0.0000 | San Pedro Garza García | Nuevo León | 0.6697 | 0.6697 |
| 3 | San Juan Cancuc | Chiapas | 0.0000 | San Nicolás de los Garza | Nuevo León | 0.6291 | 0.6291 |
| 4 | Atlamajalcingo del Monte | Guerrero | 0.0000 | Cuauhtémoc | Mexico City | 0.6195 | 0.6195 |
| 5 | Malinaltepec | Guerrero | 0.0000 | Coacalco | México | 0.6151 | 0.6151 |
| 6 | Coatecas Altas | Oaxaca | 0.0000 | Miguel Hidalgo | Mexico City | 0.5828 | 0.5828 |
| 7 | Fresnillo de Trujano | Oaxaca | 0.0000 | Coyoacán | Mexico City | 0.5524 | 0.5524 |
| 8 | Huautepec | Oaxaca | 0.0000 | Meteppec | México | 0.5220 | 0.5220 |
| 9 | La Trinidad Vista Hermosa | Oaxaca | 0.0000 | Venustiano Carranza | Mexico City | 0.5167 | 0.5167 |
| 10 | Magdalena Mixtepec | Oaxaca | 0.0000 | Guadalajara | Jalisco | 0.5132 | 0.5132 |
| 11 | Magdalena Ocotlán | Oaxaca | 0.0000 | Cananea | Sonora | 0.5092 | 0.5092 |
| 12 | Magdalena Zahuatlán | Oaxaca | 0.0000 | Santa Cruz Amilpas | Oaxaca | 0.4901 | 0.4901 |
| 13 | Mixistlán de la Reforma | Oaxaca | 0.0000 | Azcapotzalco | Mexico City | 0.4821 | 0.4821 |
| 14 | San Agustín Tlaxotepec | Oaxaca | 0.0000 | San Luis Potosí | San Luis Potosí | 0.4764 | 0.4764 |
| 15 | San Andrés Nuxiño | Oaxaca | 0.0000 | Cuauhtitlán Izcalli | México | 0.4732 | 0.4732 |
| 16 | San Andrés Tepetlapa | Oaxaca | 0.0000 | Zacatecas | Zacatecas | 0.4699 | 0.4699 |
| 17 | San Antonino Monte Verde | Oaxaca | 0.0000 | Monterrey | Nuevo León | 0.4635 | 0.4635 |
| 18 | San Antonio Sinicahua | Oaxaca | 0.0000 | Guadalupe | Nuevo León | 0.4606 | 0.4606 |
| 19 | San Antonio Tepetlapa | Oaxaca | 0.0000 | Chihuahua | Chihuahua | 0.4594 | 0.4594 |
| 20 | San Baltazar Loxicha | Oaxaca | 0.0000 | Iztacalco | Mexico City | 0.4565 | 0.4565 |

* Other 137 municipalities located mainly in Southern states exhibit a MMDI equal to zero as a result of null access to services.

** Mexico's City jurisdictions are included in the table as a reference to the level of MDI in the rest of the country.

*** See Map 1, Annex 1 in this chapter to see the states location by region.

3.2 MDI and MMDI in 2005

In the North of Mexico, the maximum value of the MDI in 2005 is found once more in the municipality of San Pedro Garza García (0.9691). The highest municipal averages of this indicator alongside with the lowest variability among municipalities within the same state are found, as in 1990, in Baja California (0.8818), Baja California Sur (0.8544) and

Aguascalientes (0.8676). The smallest MDI average in the region (0.6920) is observed in the state of San Luis Potosí while the minimum value is identified in the municipality of Batopilas (0.4580) in the state of Chihuahua. The municipalities of this state also observe the largest differences among municipalities within the same state in the North of Mexico. The average MDI considering all the municipalities in the whole region is 0.8075. Maximum, minimum and average MDI figures for each state are higher than in 1990.

In the South of Mexico, the maximum value of the MDI in 2005 is found in the municipality of San Sebastian Tutla (0.9456) in the state of Oaxaca. As in 1990, the municipalities of this state observe the lowest MDI average (0.6044) and the largest differences among municipalities within the same state in the South of Mexico. The highest municipal averages of this indicator are found in the states of Quintana Roo (0.7882) and Tabasco (0.7846). The minimum value is identified in the municipality of Santa María La Asunción (0.3839) in the state of Oaxaca. The average MDI considering all the municipalities in the whole region is 0.7246. Maximum, minimum and average MDI figures for each state are higher than in 1990.

In the Centre of Mexico, the maximum value of the MDI in 2005 is found in the municipality of Coacalco (0.9559), and the highest municipal average of this indicator (0.8423) is found again in the state of Colima. The minimum value is identified in the municipality of Eloxochitlan (0.4503) in the state of Puebla, where its municipalities observe the lowest MDI average (0.6623) in the region. The largest differences among municipalities within the same state are found in the state of Nayarit, while the smallest municipal differences are found in the states of Colima and Morelos. The average MDI considering all the municipalities in the whole region is 0.7556. Maximum, minimum and average MDI figures for each state are higher than in 1990.

Table 3. MDI, 2005: Bottom and top 20 municipalities

| MDI 2005, Bottom 20 | | | MDI 2005, Top 20* | | | Difference | |
|---------------------|------------------------------|----------|-------------------|--------------------------|-------------|------------|--------|
| Municipality | State | MDI | Municipality | State | MDI | | |
| 1 | Santa María la Asunción | Oaxaca | 0.3839 | Benito Juárez | Mexico City | 0.9834 | 0.5995 |
| 2 | Tehuipango | Veracruz | 0.3894 | San Pedro Garza García | Nuevo León | 0.9691 | 0.5797 |
| 3 | Mixtla de Altamirano | Veracruz | 0.3971 | San Nicolás de los Garza | Nuevo León | 0.9613 | 0.5642 |
| 4 | Coicoyán de las Flores | Oaxaca | 0.4028 | Coacalco de Berriozábal | México | 0.9559 | 0.5532 |
| 5 | San Martín Peras | Oaxaca | 0.4141 | Cuauhtémoc | Mexico City | 0.9510 | 0.5369 |
| 6 | San Bartolomé Ayautla | Oaxaca | 0.4210 | Coyoacán | Mexico City | 0.9502 | 0.5292 |
| 7 | Huautepec | Oaxaca | 0.4257 | San Sebastián Tutla | Oaxaca | 0.9456 | 0.5199 |
| 8 | Mitontic | Chiapas | 0.4272 | Apodaca | Nuevo León | 0.9426 | 0.5154 |
| 9 | San Pedro Ocopetatlillo | Oaxaca | 0.4283 | Miguel Hidalgo | Mexico City | 0.9394 | 0.5111 |
| 10 | San Miguel Santa Flor | Oaxaca | 0.4300 | Azcapotzalco | Mexico City | 0.9386 | 0.5086 |
| 11 | San José Tenango | Oaxaca | 0.4309 | Metepéc | México | 0.9384 | 0.5075 |
| 12 | Santa Lucía Miahuatlán | Oaxaca | 0.4317 | Villa de Álvarez | Colima | 0.9377 | 0.5060 |
| 13 | Zapotitlán Tablas | Guerrero | 0.4323 | Cuatitlán | México | 0.9376 | 0.5053 |
| 14 | Santa Ana Ateixtlahuaca | Oaxaca | 0.4329 | Guadalupe | Nuevo León | 0.9375 | 0.5046 |
| 15 | Eloxochitlán de Flores Magón | Oaxaca | 0.4360 | Cuatitlán Izcalli | México | 0.9365 | 0.5005 |
| 16 | San Jacinto Tlacotepec | Oaxaca | 0.4416 | Chihuahua | Chihuahua | 0.9355 | 0.4939 |
| 17 | San Lorenzo Cuaunecuiltitla | Oaxaca | 0.4418 | Venustiano Carranza | Mexico City | 0.9352 | 0.4935 |
| 18 | Atlixac | Guerrero | 0.4443 | Iztacalco | Mexico City | 0.9327 | 0.4884 |
| 19 | Asunción Ocotlán | Oaxaca | 0.4446 | Ciudad Madero | Tamaulipas | 0.9316 | 0.4870 |
| 20 | Metlatónoc | Guerrero | 0.4475 | Monterrey | Nuevo León | 0.9310 | 0.4834 |

* Mexico's City jurisdictions are included in the table as a reference to the level of MDI in the rest of the country.

As far as the MMDI for 2005 is concerned, in the North of Mexico, the maximum value is found again in the municipality of San Pedro Garza Garcia (0.8641). The highest municipal average of this indicator is found in the state of Baja California (0.4860). The minimum values are identified in the municipalities of Morelos, Chihuahua; Santa Catarina, San Luis Potosí; and San Nicolas, Tamaulipas. The municipalities of the state of San Luis Potosí observe the lowest MMDI average in the region (0.1075). The largest differences among municipalities within the same state in the North of Mexico were found in the states of Nuevo León and Tamaulipas, while the smallest in Baja California. The average MMDI considering all the municipalities in the whole region is 0.3090. Maximum, minimum and average MMDI figures for each state are higher than in 1990.

In the South of Mexico, the maximum value of the MMDI in 2005 is found in the municipality of San Sebastian Tutla (0.7481) as in the MDI calculation for this year. The highest municipal average of this indicator (0.2542) is found in the touristic state of Quintana Roo. The minimum values are found predominantly in the states of Chiapas, Oaxaca, the Southern part of the state of Veracruz and Yucatán where many households in some of their municipalities still did not have access to sewage, clean water inside the dwelling and electricity in 2005. Again, the municipalities of Oaxaca observe the lowest MMDI average (0.0360) in the region. The largest differences among municipalities within the same state in the South of Mexico are found once more in

Quintana Roo, while the smallest in the state of Guerrero. The average MMDI considering all the municipalities in the whole region is 0.1194. Maximum, minimum and average MMDI figures for each state are higher than in 1990.

In the Centre of Mexico, the maximum value of the MMDI in 2005 is found, as in the MDI, in the municipality of Coacalco (0.7925). The highest municipal average of this indicator (0.3921) is found once more in the state of Colima. Again, the minimum values are identified in municipalities of the state of Puebla and in the Northern part of the state of Veracruz. The municipalities of the state of Puebla observe the lowest MMDI average (0.0696), while the largest differences among municipalities within the same state are found in the state of Querétaro, and the smallest in the state of Puebla. The average MMDI considering all the municipalities in the whole region is 0.2069. Maximum, minimum and average MMDI figures for each state were higher than in 1990.

Table 4. MMDI, 2005: Bottom and top 20 municipalities

| MMDI 2005, Bottom 20* | | | MMDI 2005, Top 20** | | | | |
|-----------------------|--------------------------|----------|---------------------|--------------------------|-------------|--------|------------|
| | Municipality | State | MMDI | Municipality | State | MMDI | Difference |
| 1 | Santiago Amoltepec | Oaxaca | 0.0000 | Benito Juárez | Mexico City | 0.9447 | 0.9447 |
| 2 | Santiago Apoala | Oaxaca | 0.0000 | San Pedro Garza García | Nuevo León | 0.8641 | 0.8641 |
| 3 | Santiago Nejapilla | Oaxaca | 0.0000 | San Nicolás de los Garza | Nuevo León | 0.8222 | 0.8222 |
| 4 | Santiago Nundiche | Oaxaca | 0.0000 | Coacalco | México | 0.7925 | 0.7925 |
| 5 | Santiago Tetepec | Oaxaca | 0.0000 | Cuauhtémoc | Mexico City | 0.7834 | 0.7834 |
| 6 | Santiago Tilantongo | Oaxaca | 0.0000 | Coyoacán | Mexico City | 0.7740 | 0.7740 |
| 7 | Santiago Tlazoyaltepec | Oaxaca | 0.0000 | San Sebastián Tutla | Oaxaca | 0.7481 | 0.7481 |
| 8 | Santo Domingo de Morelos | Oaxaca | 0.0000 | Azcapotzalco | Mexico City | 0.7221 | 0.7221 |
| 9 | Santo Domingo Ixcatlán | Oaxaca | 0.0000 | Metepéc | México | 0.7205 | 0.7205 |
| 10 | Santo Domingo Ozolotepec | Oaxaca | 0.0000 | Miguel Hidalgo | Mexico City | 0.7204 | 0.7204 |
| 11 | Santo Domingo Tlatayapam | Oaxaca | 0.0000 | Villa de Álvarez | Colima | 0.7180 | 0.7180 |
| 12 | Santos Reyes Yucuná | Oaxaca | 0.0000 | Apodaca | Nuevo León | 0.7152 | 0.7152 |
| 13 | Taniche | Oaxaca | 0.0000 | Guadalupe | Nuevo León | 0.7057 | 0.7057 |
| 14 | Yaxe | Oaxaca | 0.0000 | Cuautitlán | México | 0.7052 | 0.7052 |
| 15 | Yogana | Oaxaca | 0.0000 | Venustiano Carranza | Mexico City | 0.7046 | 0.7046 |
| 16 | Magdalena Mixtepec | Oaxaca | 0.0000 | Cuautitlán Izcalli | México | 0.7037 | 0.7037 |
| 17 | Fresnillo de Trujano | Oaxaca | 0.0000 | Chihuahua | Chihuahua | 0.7013 | 0.7013 |
| 18 | Chiconamel | Veracruz | 0.0000 | Iztacalco | Mexico City | 0.6943 | 0.6943 |
| 19 | Xoxocotla | Veracruz | 0.0000 | Guadalajara | Jalisco | 0.6868 | 0.6868 |
| 20 | Tekantó | Yucatán | 0.0000 | Ciudad Madero | Tamaulipas | 0.6839 | 0.6839 |

* Other 70 municipalities located mainly in Southern states exhibit a MMDI equal to zero as a result of null access to services.

** Mexico's City jurisdictions are included in the table as a reference to the level of MDI in the rest of the country.

To sum up, maximum, minimum and average figures of municipal indexes considering all regions were higher in 2005 than in 1990. As expected, there are few differences between the results provided by the two measures. However, tables 1 to 4 reveal that the differences between the bottom and top municipalities diminish between 1990 and 2005 for the MDI, while they increase in the case of the MMDI. This is because, as

explained, the MMDI does not capture any improvement if any of its components equals zero as it is the case of the bottom municipalities in relation to housing characteristics.³⁷

The municipal indexes for 1990 and 2005 confirm what is already well known due to other studies analysing regional differences in Mexico considering various periods of time and other measures (Dussel, 2003; Katz, 1998; Rodríguez-Oreggia, 2005; Silva, 2003). The North shows better results than the Centre, and the latter better than the South. The Northern municipalities comprising the metropolitan area of Monterrey, Nuevo León have the highest municipal indexes in Mexico in both years, while the worst figures are found in municipalities of the Southern states of Oaxaca, Guerrero and Chiapas. In the Centre, some municipalities of Colima and the municipalities comprising the metropolitan area of Guadalajara, Jalisco have the highest municipal indexes in the region together with some industrialised municipalities of the state of Mexico such as Coacalco and Metepec.

3.3 *Change in municipalities' indexes between 1990 and 2005*

Let us now look at the main features of the indexes' changes observed between 1990 and 2005. Northern municipalities that improved the most were located in the state of Aguascalientes and Zacatecas considering the MDI, and Aguascalientes and Coahuila in terms of the MMDI. The smallest improvements were identified in Baja California and Baja California Sur for the MDI and San Luis Potosí for the MMDI. On average, the Central municipalities that improved the least were located in the states of Morelos and Nayarit for the MDI, while for the MMDI were located in Puebla, the North of Veracruz and Morelos. The municipalities with the highest increases on average were found in the states of Hidalgo and Jalisco for the additive index, and Colima and Jalisco for the multiplicative one. In the South, the municipalities of the state of Quintana Roo had the best performance while the ones of the state of Tabasco the worst considering the MDI. In relation to the MMDI, the municipalities of Quintana Roo and Oaxaca were the best and worst, respectively.

Nationally, as far as the MDI is concerned, Central municipalities experienced the highest average improvements in their municipal indexes followed by Southern and then by Northern ones. In contrast, Northern municipalities showed the highest MMDI's average increases followed by Central and Southern municipalities, subsequently. As explained before, the multiplicative version of the index (MMDI) weights less an

³⁷ Nevertheless, only 70 municipalities were in this case in 2005 in comparison to 137 in 1990.

improvement in one of its components than the additive version (MDI) when the other components do not improve at all, thereby the MMDI change between 1990 and 2005 favour less the performance of Southern municipalities than the MDI.

The states with the highest municipal average increases in the MDI calculation were Zacatecas (North) followed by Hidalgo (Centre) and Quintana Roo (South); while the states with the lowest improvements were Baja California (North) followed by Morelos (Centre) and Baja California Sur (North). The states with the highest municipal average increases in the MMDI calculation were Aguascalientes (North) followed by Coahuila (North) and Colima (Centre), while the states with the lowest municipal improvements were Oaxaca (South) followed by Guerrero (South) and Chiapas (South). In all regions and both indexes, the municipalities where the states' capital is located have higher figures than the municipal average in their respective state.

Considering the MDI, the municipalities with, by far, the largest improvements were Santiago Lalopa in Oaxaca (South), Camocuautla in Puebla (Central Mexico), San Bartolomé Yucuañe (Oaxaca), Santa María Temaxcalapa, (Oaxaca), and Sochiapa in Northern Veracruz (Central Mexico) as shown in table 5.³⁸ Only nine municipalities did it worst in the whole country (i.e. 0.38% of the total), one in Puebla and the rest in Oaxaca.

³⁸ The largest improvements for the MDI refer to changes higher than 0.2600 units. Nationally, the average of maximum changes between 1990 and 2005 is 0.1655.

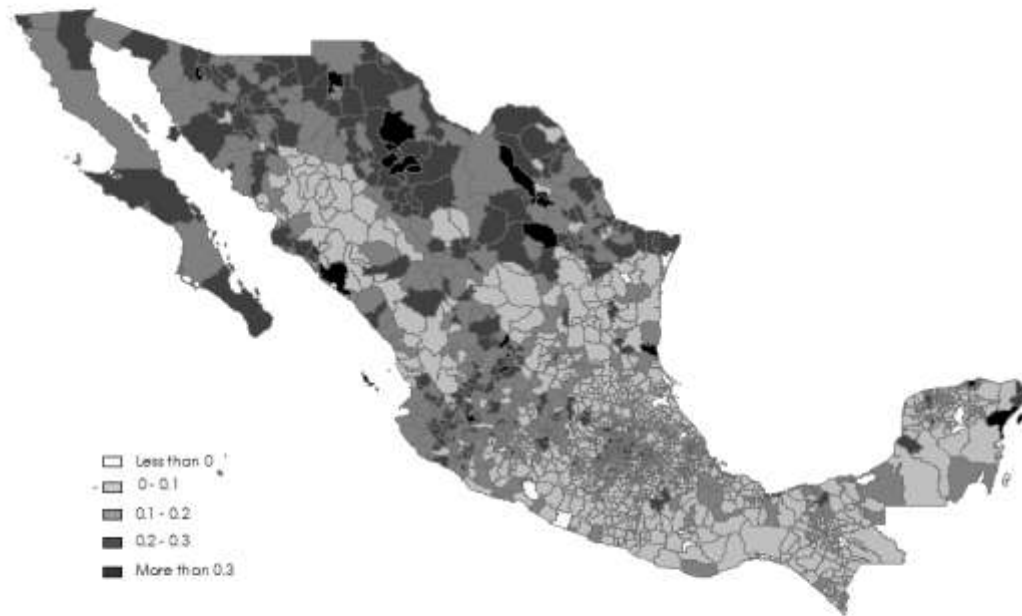
Table 5. MDI: 25 best and worst municipal performances

| MDI, 25 Largest improvements | | | MDI, the worst 25 | | | |
|------------------------------|-------------------------------|-----------|-------------------|------------------------------|-----------|---------|
| | Municipality | State | Change | Municipality | State | Change |
| 1 | Santiago Lalopa | Oaxaca | 0.2972 | Santa Cruz Amilpas | Oaxaca | -0.0437 |
| 2 | Camocuautla | Puebla | 0.2830 | San Francisco Cahuacuá | Oaxaca | -0.0361 |
| 3 | San Bartolomé Yucuañe | Oaxaca | 0.2803 | San Lucas Quiavini | Oaxaca | -0.0356 |
| 4 | Santa María Temascalapa | Oaxaca | 0.2769 | San Agustín Amatengo | Oaxaca | -0.0332 |
| 5 | Sochiapa | Veracruz | 0.2640 | San Blas Atempa | Oaxaca | -0.0303 |
| 6 | San Baltazar Yatzechi el Bajo | Oaxaca | 0.2437 | Santa Ana | Oaxaca | -0.0247 |
| 7 | Santa María Yalina | Oaxaca | 0.2289 | Natividad | Oaxaca | -0.0179 |
| 8 | Sunuapa | Chiapas | 0.2235 | San Gregorio Atzompa | Puebla | -0.0084 |
| 9 | Chapultenango | Chiapas | 0.2197 | San Francisco Cajonos | Oaxaca | -0.0027 |
| 10 | Francisco León | Chiapas | 0.2174 | Axutla | Puebla | 0.0024 |
| 11 | San Miguel Yotao | Oaxaca | 0.2160 | San Lorenzo Victoria | Oaxaca | 0.0030 |
| 12 | San Jacinto Amilpas | Oaxaca | 0.2136 | La Magdalena Tlatlauquitepec | Puebla | 0.0048 |
| 13 | Santa María Yosoyúa | Oaxaca | 0.2106 | San Juan Ihualtepec | Oaxaca | 0.0078 |
| 14 | Santa María Texcatitlán | Oaxaca | 0.2023 | Ejutla de Crespo | Oaxaca | 0.0080 |
| 15 | Ixhuatlancillo | Veracruz | 0.2020 | Asunción Ocotlán | Oaxaca | 0.0091 |
| 16 | Zapotitlán de Méndez | Puebla | 0.2013 | San Nicolás | Tamulipas | 0.0104 |
| 17 | Ciénega de Zimatlán | Oaxaca | 0.2010 | San Jacinto Tlacotepec | Oaxaca | 0.0107 |
| 18 | Zongozotla | Puebla | 0.1986 | Peribán | Michoacán | 0.0117 |
| 19 | Tarímbaro | Michoacán | 0.1969 | Santa Cruz Xitla | Oaxaca | 0.0120 |
| 20 | Tuxcacuesco | Jalisco | 0.1947 | San Pedro Mártir | Oaxaca | 0.0136 |
| 21 | Tlalnahuayocan | Veracruz | 0.1937 | Santa María Tecomavaca | Oaxaca | 0.0183 |
| 22 | Santa Catarina Ticuá | Oaxaca | 0.1898 | Santa Ana Tavela | Oaxaca | 0.0191 |
| 23 | Banderilla | Veracruz | 0.1884 | Santa Ana Ateixtlahuaca | Oaxaca | 0.0199 |
| 24 | San Pablo Etla | Oaxaca | 0.1876 | La Compañía | Oaxaca | 0.0202 |
| 25 | San Juan Yaé | Oaxaca | 0.1873 | San Pedro Tapanatepec | Oaxaca | 0.0203 |

As far as the MMDI is concerned, the municipalities experiencing the largest improvements were Corregidora in Querétaro (Centre), Apodaca in Nuevo León (North) and San Jacinto Amilpas in Oaxaca (South).³⁹ Only 92 municipalities did it worst in the whole country (i.e. 3.8% of the total), 74% of them in Oaxaca and the rest mainly in Yucatán (South) and Puebla (Central Mexico). Figure 2 presents a map showing the change in the MMDI by municipality during the period of analysis. It illustrates that, overall, Northern municipalities exhibit the highest increases, while Southern ones, the lowest.

³⁹ The largest improvements for the MMDI refer to changes higher than 0.4500 units. Nationally, the average of maximum changes is 0.3230.

Figure 2. Map of the variation in the MMDI by municipality between 1990 and 2005



To sum up, between 1990 and 2005 the municipal indexes indicate that both large and small improvements in human development can be found in municipalities located in any of the three Mexican regions. However, overall, the Northern municipalities kept experiencing the best circumstances while Southern municipalities continued showing the worst development scenarios in the country, particularly municipalities in the state of Oaxaca.

4. The concept of human development and the LED approach

Most of the characteristics of LED approaches are ingrained in the different definitions of LED. Potter, et al. (1999, p. 21) define local development as 'a wide ranging concept that can be best seen as a process' through which local actors (e.g. local government, community-based groups, firms) together design and implement a development strategy 'using as best as possible the resources of the territory' (see also OECD, 1993). The aims of this process hinge around the improvement of the quality of life of the local people, by expanding their economic and social opportunities (Pike et al. 2006), with a

view of making the process sustainable – from an economic, social, political and environmental perspective – in the medium and long-term (Helmsing, 2001a; Vázquez-Barquero, 2009; Forsyth, 1996). LED approaches ‘emphasise local control, using the potentials of local human, institutional and physical capabilities’ (Helmsing, 2001b, p 3). This implies an approach to development that is both embedded in the territory and sustainable.

In other words, as explained with detailed in the first chapters, the literature on LED clearly emphasises that pursuing LED entails the embeddedness of the approach through the participation of local agents; a deep diagnosis of the resources and characteristics of the territory; and a strategic perspective to tackle the identified weaknesses, profit from the opportunities and strengths, and face the identified development challenges. The local control of the development process is, therefore, the result of a continuous interaction between local authorities, civil society and the private sector.

This implies that the ability of individuals to contribute to the development process becomes crucial for its success. Healthy and educated citizens can more effectively participate in different activities -such as designing, implementing or evaluating local development actions; building or being part of networks with local and external agents; or engaging in innovative productive activities- than citizens with low levels of these basic human dimensions (Barreiro, 2000; Camejo and Gallicchio, 2004; OECD, 2003; UNDP, 1990). Therefore, the LED characteristics related with the local management of the process, and with the attitudes and aptitudes that favour participation and entrepreneurship are closely related with the people's well-being ideals of the HDI. More specific links are explained below.

An aspect shared by the ideals of human development and the LED approach is the preoccupation on sustainability. Improving the health, nutrition and education of the people enhances their ability to experience more fulfilling lives with a lasting effect in the future (Anand and Sen 2000a). This also refers to both, efficiency gains that allow producing more with the same or less amount of resources, and increasing awareness of the potential environmental implications of economic development in relation to intergenerational equity.

Increasing human (i.e. education's quantity and quality) and social capital (e.g. networking) has been seen as beneficial in monetary and non-monetary terms not only by proponents of the human development concept but also by scholars outside the

HDI debate such as Martinos and Humphreys (1994), Silva, (2008), and Woolcock, (1998). Thereby, investment in human development has become one of the accompanying actions of development strategies around the world since the outset of the 1990s. A LED strategy promotes the enhancement of individuals' capacity (individually and as a group) to face the challenges and make the best of opportunities in their social and productive lives in a context of economic transformations, environmental consciousness and social inclusion in the development process (Pike et al. 2006).

As it was shown in the previous chapter, most of the cases reviewed reveal that people's positive attitudes towards risk taking, change and innovation together with a combination of skills and knowledge are essential for undertaking successfully participatory, networking and economic activities. The policy actions used in LED strategies to stimulate an active and effective role of local agents in the development process are capacity building, empowerment and entrepreneurship promotion tools, together with the creation of participation and networking mechanisms.

The concepts of empowerment, capacity building, and entrepreneurship are very close to each other because people's involvement in the local economic development process requires both willingness to participate actively and capacity to do it effectively. Capacity building and empowerment strategies can be designed and implemented by the public, social and/or private sectors and refer to any actions that have an impact on the following (Bennett and McCoshan, 1993; Dreier, 1996; Eade, 1997; FAO Website; English Local Government Association, 2007; World Bank Website):

- a. *Human resource development*. This is a process that has the goal of equipping individuals with the understanding and access to information, knowledge and training that enable them to perform effectively (i.e. healthcare and nutrition guidelines, basic education skills, workforce skills workshops, leadership workshops, and courses for civil servants, among others). In addition, the empowerment approach focuses on mobilising the self-help efforts of the population rather than providing them only with social welfare (e.g. the empowering of disadvantaged sections of the population such as indigenous groups). In this sense, empowerment strategies include both aptitudes' and attitudes' contents such as improving literacy with activities that encourage people to reflect on their circumstances in order to find ways to improve them.
- b. *Organisational development*. This refers to the design and implementation of management structures and processes within organisations which encourage and allow them to build productive networks. An example of actions that

promote this is: organisational capacity workshops within governmental organs and offices, workers or peasant unions, business associations, communities' representations and so on.

Creating and improving the mechanisms for the general public, social and private sector participation in local development processes refer to actions that have an impact on the institutional framework such as (Dreier, 1996; Eade, 1997; Gaventa and Valderrama, 1999; English Local Government Association, 2007):

- a. Making legal and regulatory changes to allow local organisations and agencies in all sectors and the public in general to participate actively in the development process in a regular basis.
- b. The proliferation of pro-participation activities and mechanisms such as the distribution of brochures to raise awareness and give information on participatory events; the organisation of public budget consultations, neighbourhood or local forums or meetings open to the public, network building events; and the creation and management of partnerships or relationships between members or representatives of different organisations and sectors, among others.

As far as entrepreneurship promotion is concerned, two of the deterrents to start a business are the 'fear of failure' and a passive attitude towards enterprise (i.e. the thought that there is no reason to complicate one's life, it is easier to be an employee) (OECD, 2004a, p. 23). Although the reason of such a fear might be personal, social or cultural; education systems could improve people's aptitudes and; therefore, help them to build more confidence. The second deterrent, also originated by personal or social factors, might be addressed by actions taken early in the educational system as it is discussed below (CEC, 2002). In addition, making easy to open new businesses and avoiding that paying taxes becomes a complicated task and a heavy burden for start-ups are other governmental actions that might contribute to tackle both deterrents (Drucker, 1985; OECD, 1998).

Experts argue that superior education organisations have an important role in teaching to manage a business (aptitudes) and in researching for innovations that should be linked to local economic activities (EC, 2002; OECD, 2005).⁴⁰ However, lower levels of

⁴⁰ 'At the level of tertiary education, entrepreneurship teaching will provide the students with specific training on how to start (and run) a business, including the capacity to draft a real business plan and the skills associated with methods of identifying and assessing business opportunities. Also, it will encourage and support embryonic business ideas (for instance by providing special loans, business facilities, mentorship, etc.)- so that well-researched projects can be put into practice and finally reach the market' (European Commission, 2002, p.15).

education have a crucial role in stimulating both attitudes and aptitudes as the following EC's objectives for developing personal entrepreneurial qualities through education suggest: develop ability to solve problems, motivation to act critically, personal initiative and creativity, a cooperative attitude, communication skills, adaptability to change or a low risk-averse attitude towards new ideas, and willingness to assume responsibilities (EC, 2002, p.16). Additionally, the EC has set some recommendations to include entrepreneurship in the curricula of educational systems or organisations. These suggestions were the result of problems identified in European Commission's and the OECD's experiences (Palavicini-Corona, 2007):

- a. Education to promote entrepreneurship should be embedded in a well-structured framework or program covering the majority of students.
- b. There should be enough resources for training teachers and for doing research on the topic of education and entrepreneurship.
- c. There should be a balance between education for entrepreneurial attitudes and education for entrepreneurial skills.
- d. Educational actions for entrepreneurship should be evaluated.
- e. Promoting entrepreneurship through education should be part of a strategic development plan with a strong coordination and cooperation among research and education organisations, businesses, civil sector and governments.

The existence of an environment favourable or attractive for investing and living in a locality is also stressed in the LED literature. For example, according to local characteristics, a balanced provision of the three kinds of infrastructure (basic, productive and social) could improve the perceived economic potential and quality of life of territories, and; therefore, their attractiveness for local, national and foreign direct investment (Pike et al. 2006). The links with the HDI dimensions are evident. The health and education dimensions are linked to productive and social infrastructure, and the standard of living dimension with all of them.

It is important to remember that the endogenous nature of LED strategies allows them to be applied to face the development challenges and pursue the development goals of places with different levels of development. Countries with a high proportion of their population living with an income close to the poverty line show low levels of some or all the indicators for the dimensions considered by the HDI (UNDP, 1990; 1993). According to the World Bank (2004a), more than half the population of Mexico lived in poverty in 1994 and some gains have been achieved after the 1994-1995 economic crisis. This

'Dans la plupart des pays (d'Amérique latine), l'université a aidé les entrepreneurs dynamiques en particulier à acquérir des connaissances techniques, mais pas les autres qualifications nécessaires au processus entrepreneurial' (OCDE, 2005, p. 105).

implies that if LED strategies were implemented at some point during the period 1990-2005 and have had some impact on the development of Mexican municipalities, it could be captured by analysing their effect on the MDI. The same in the case of more developed localities where the success of policies pursuing the improvement of people's skills or capabilities could, for example, attract investment from outside or increase local productivity (Noorbakhsh and Paloni, 2001). In the end, not only the knowledge dimension could be positively affected by those policies but also the command over resources needed for improvements in other aspects of individuals' quality of life such as the quality of housing.

As it has been explained, the standard of living dimension is being analysed in the MDI by computing indicators on the housing characteristics of municipalities. As it is well known in the real estate literature (Englund, 1998; Gourieroux and Laferrere, 2009; Grether and Mieszkowski, 1974; Sheppard, 1999), areas with better housing characteristics are more expensive than low quality housing neighbourhoods and, consequently, lower levels of housing characteristics' indicators are observed in places where high proportions of low income earners and unemployed live (Anand and Sen, 2000b). On that ground, if LED strategies have been successful in favourably affecting the standard of living dimension of municipal residents, this could also be captured by studying their effect on the change of the MDI between 1990 and 2005.

Another relevant and useful way to link the LED approach to human development measures in Mexico is that children from impoverished households commonly help their parents to support the family by working in the informal sector after school or instead of attending school (Edmonds and Pavcnik, 2005; Levison and Moe, 2001). If LED strategies have had a positive impact on the employment and income of adults, it can be expected an improvement on the MDI for 2005 as a result of an increase in the average years of education in comparison to 1990.⁴¹

Ranis and Frances (2000) find that achievements in human development in developing countries are positively related to well prioritised expenditures and female participation in development or anti-poverty programmes. As seen, a fundamental element of the LED approach is the identification of challenges and opportunities through a deep diagnosis of weaknesses and strengths in light of local needs, aspirations and resources. All this constitute a prerequisite to define the development goals and, consequently, the concrete strategy towards them. The LED approach does not explicitly encourage

⁴¹ There is a need to consider the effect of a federal government programme called 'Oportunidades' which gives transfers to households conditional to children's school enrolment.

gender equality or a higher role of women in development processes but promotes a higher involvement of all people.

Following Streeten (1994), we have argued that higher levels of health, knowledge and standard of living indicators could be seen as both means and ends in both approaches (LED and human development). Therefore, both approaches see individuals as active agents rather than only passive subjects. From all the above, it seems that those three basic dimensions could be enhanced by a combination of empowerment, capacity building and entrepreneurial related policies, together with the design of networking and participatory mechanisms and the provision of public services and other traditional incentives and policies within a local strategic framework.

5. The proposed model

Up to now, the background and rationale related to the selection of the dependent variable for the analysis of the impact of LED strategies on the development of Mexican localities has been exposed in detail. In this section, the model specification is introduced alongside with its independent variables (i.e. LED and control variables).

In order to assess whether the effort by localities to try to implement the key features and policy actions linked to LED leads to better development outcomes, a quantitative methodology is proposed and developed. This quantitative approach consists in computing a multiple linear regression of an empirical model that takes the following general form:

$$\Delta MDI_{it-0} = \alpha + \beta_1 LED_i + \gamma_1 X_i + \varepsilon_i$$

where ΔMDI_{it-0} is the dependent variable, depicting the change in development levels – measured by the change in the development index for Mexican municipalities (MDI) – between time t (2005) and time 0 (1990) in municipality i . LED is the independent variable of interest, representing a vector of the key LED constituents which municipalities have implemented. X is a vector of control variables, including a number of factors which may affect the development potential of Mexican municipalities, while ε is the error term.

In relation to the dependent variable, it has been noted that two possibilities of the municipal development index could be used in the computations. That is, an additive version (MDI) and a multiplicative one (MMDI). Almost all Mexican localities improved their municipal index through the years between 1990 and 2005 according to the MDI (99.6%); while for the MMDI a vast majority of Mexican localities did (96.2%). Only a small

percentage of the observed variation in the difference of the MDI between 2005 and 1990 is explained by the variation in the municipalities' independent variables, while for the multiplicative version is much higher. For example, when including all independent variables in the regression, 15.2% of the variation in the MDI difference between 2005 and 1990 is explained by the explanatory variables while this figure is 68% for the MMDI difference. As a result, and considering that experts on indexes ponder higher a multiplicative calculation (e.g. Sagar and Najam, 1998), only the findings of the model computations using the MMDI as a response variable will be the focus of attention.⁴²

As far as the LED independent variables are concerned, in the third chapter, the fundamental characteristics of the LED approach were explained with detail in light of LED experiences around the world with a special focus on Latin America. In addition, the previous section of this chapter has given more details on the specific mechanisms and policy actions that are common to the bottom-up approach towards the development of places. The explanatory variables considered here have a close relationship with those key characteristics and main LED toolkit.

As noted previously, the main limitation in proposing a model to study the effects of the LED approach in Mexico is the lack of information, in general, and on its strategies, in particular. For this reason, experts were contacted all over the country to gather information to build a municipal LED database. The LED explanatory variables are suggested also considering the expected amount of time that participants would need to gather the requested information. As the amount of information that is needed to cover the main aspects of LED is not small and considering that individuals would participate for good will without getting any economic retribution, the questions had to be designed the easiest as possible to be answered (See Annex 2). As a consequence, only categorical variables are considered alongside with some of their relevant combinations.

The information for the first 5 LED variables was obtained by asking in which municipalities the corresponding LED constituents could be identified during the period of analysis. For example, in the case of the promotion of capacity building and empowerment, the associated categorical variable takes the form of a dichotomous variable. Therefore, from an Excel list of the municipalities in each state, the experts had to assign, in the corresponding column, a number 1 to the municipalities where this feature was present.

⁴² Considering the municipalities in the LED database created for this study only 1.7% of them did not improve their multiplicative index between 1990 and 2005.

The first two LED variables refer to the endogenous and sustainable character of the LED approach with a strategic focus. The diagnosis of the local economy is the basis for the design of a local strategic plan which increases the possibility of success as it guides the implementation and evaluation of development actions (Cities Alliance, 2006; Vázquez-Barquero, 2009). Environmental considerations in local development policies and public services' delivery are intended to increase the quality of people's life and keep resources and the environment in good condition for future generations (United Nations, Agenda 21⁴³).

The third and fourth variables relate to policies implemented to foster entrepreneurship, empower citizens and build capacity. Empowering local actors and the provision of capacity building is considered to enhance their productivity and effective participation in the development process (Bennett and McCoshan, 1993; Haughton, 1998), while increasing self-employment by promoting the creation of innovative start-ups has been seen as an useful tool for stimulating economic development (OECD, 2003).

Closely related to the endogenous and sustainable aspect of the strategy are the mechanisms for the public, social and private sector involvement in the development process considered in the fifth LED explanatory variable. An institutional framework that allows for local actors participation is considered to better capture local needs and wishes, and to improve accountability and the chances of continuity of the development strategy in case of the occurrence of diverse vicissitudes such as political (Mochi, 2006; Potter, et al. 1999).

The sixth and seventh variables are ordinal level explanatory variables.⁴⁴ In this case, experts were requested to assign, in the corresponding *Excel* column, a value depending on the level of the relevant feature in each municipality. The sixth variable intends to capture the degree of local collaborative links or networking within and outside the locality. Internal and external links have been seen as means of cooperation and coordination, as well as information and knowledge exchange

⁴³ http://www.un.org/esa/dsd/agenda21/res_agenda21_28.shtml

⁴⁴ Ordinal variables are categorical variables that can be treated in practice as if their measurement indicated an interval or a nominal level. An interval level treatment of categorical variables is suggested when the researcher deems relevant to focus on analysing the effect of the ordering or ranking of the categories or, in other words, when levels of some underlying feature can be captured directly by a categorical variable (Greene, 2003).

towards better outcomes in LED (Storper, 1997; Swinburn, 2006). The detailed categorisation of this variable is as follows:⁴⁵

- ❖ 3: Strong presence of external and internal links or networks (i.e. clusters of firms exporting part of their output; local firms benefitting from state, national or international programmes; and interactions between different levels of government, as well as among local organisations or members of different sectors within a municipality and outside).
- ❖ 2: Low presence of external and internal links or networks (i.e. some of the above linkages).
- ❖ 1: None external or internal links or networks.

Finally, the seventh variable is not entirely related to the LED approach because only tries to capture the effect of the origin of governmental interventions that might have an impact on the municipality. Municipal dependence from state and national level interventions in LED will be considered here as an indication of the predominance of a top-down approach instead of bottom-up. The detailed categorisation of this variable is as follows:⁴⁶

- ❖ 5: Only locally originated LED strategies
- ❖ 4: Mainly locally originated LED strategies
- ❖ 3: Balance between state and/or federal and locally generated LED strategies
- ❖ 2: One or few locally originated LED strategies
- ❖ 1: Not locally originated LED strategies

Table 6 below provides a summary of the model specification for each one of the LED variables and an explanation of their expected results.

⁴⁵ Taking into account that collaborative mechanisms might be difficult to establish and consolidate as illustrated in chapter 3, the highest degree of networking was considered when all the possible mechanisms were in place, a medium level when some of them were set, and the lowest level when no mechanisms had been established. The design also took into account the difficulty in determining or evaluating the effectiveness of the mechanisms in place, which, if attempted, apart from the time limitation of experts and ourselves, could have put at risk the comparability of the data among a large number of municipalities.

⁴⁶ The same categorisation of the sixth variable was not considered in this case because the extreme cases would not capture the reality of a large number of municipalities where most but not all LED strategies had been originated either by the municipality or the other levels of government.

Table 6. LED related variables

| Variable | Expected effect on the MMDI difference |
|---|--|
| 1. Dummy variable with 1 for a municipality that elaborated a LED plan based on a diagnosis of the local economy (Development plan). | Positive, indicating that municipalities with a LED plan improved more than the ones without it during the period of analysis. |
| 2. Dummy variable with 1 for a municipality that incorporated sustainable development in the form of environmental considerations in LED policies and public services' delivery (Sustainability). | Positive, meaning that municipalities that incorporated sustainability in their actions did it better than the ones which did not. |
| 3. Dummy variable with 1 for a municipality that introduced development actions to foster entrepreneurship (Entrepreneurship). | Positive, suggesting that municipalities that considered the promotion of entrepreneurship in their policies did it better than the ones that did not. |
| 4. Dummy variable with 1 for a municipality that introduced local capacity building or empowerment actions (Capacity building). | Positive, indicating that municipalities which implemented empowerment tools and/or capacity building policies did it better than the ones which did not. |
| 5. Dummy variable with 1 for a municipality that introduced or where specific channels or mechanisms for the general public, third or private sectors participation in development processes existed (Participation mechanisms). | Positive, meaning that municipalities with participation mechanisms or channels did it better than the ones without them. |
| 6. Categorical variable referring to municipalities that introduced or where specific links among local agents and also between them and agents located outside the locality existed (Development links). | Positive, implying that the higher the degree of integration of local agents into internal and external networks, the higher their improvement in the development indicator. |
| 7. Categorical variable indicating the degree of independence of LED strategies from states or federal initiatives. (Autonomy) | Positive, indicating that the higher the independence from other levels of intervention in designing policies the better the LED outcomes reflected in the change in the MMDI. |
| 8. Pertinent LED variables' interactions (Int). | In all cases positive (see <i>below</i>). |

The interactions try to capture the complementarity between the main LED explanatory variables. In order to capture these complementarities we combine particular LED constituents into one variable. The most relevant are defined as follows:

1. Int₁₊₄: This interaction suggests that capacity building and empowerment policies might have a positive impact depending on the identification of local weaknesses and economic opportunities and strengths during the diagnostic effort.
2. Int₁₊₃: This combination indicates that policies to promote entrepreneurship have a favourable effect if there is a diagnosis of the locality and a planned guidance.
3. Int₄₊₅: This interaction tests if the existence of mechanisms for local agents' participation could have a positive effect in the development of places where capacity building and empowerment policies are implemented than in the ones where not.

4. Int₃₊₄: This interaction implies that empowerment and capacity building policies could increase the effectiveness of pro-entrepreneurial actions.
5. Int₁₊₆: This combination suggests that a development plan have a positive impact the more links the local agents have among themselves and between them and agents located outside the locality.

The rest of independent variables are detailed in table 7. These variables are commonly known as control variables. In this case, the information limitation still exists but to a lesser extent because some pertinent control variables can be proposed based on the 1990 National Census municipal databases generated by the National Statistics and Geographic Information Institute (INEGI), and published in its website.⁴⁷ These variables refer mainly to the socioeconomic situation prevalent in Mexican municipalities in 1990. The rationale of the control variables is based on the idea that the general situation of municipalities at the beginning of the period of analysis needs to be taken into account to better capture the impact of policies that could have been carried out from then onwards. For instance, holding everything else constant, richer municipalities in terms of income per capita are expected to perform better during the period of analysis; while places with high children mortality are expected to perform worse. Localities with communications' infrastructure within their territory in 1990 such as airports or maritime ports are expected to perform better; while places with low literacy rates are expected to perform worse.

Table 7: Control variables

| Variable | Rationale | Expected impact |
|--|--|---|
| Income per capita (Ln Income per capita) | Income per capita provides an indication of the economic strength of the municipalities. Economically strong localities tend to have better access to services and infrastructure. | Positive, indicating that those municipalities with higher income per capita in 1990 achieved a higher improvement in the MMDI between 1990 and 2005. |
| Percentage of surviving children out of every 100 that were born alive (% Children) | This is an indicator of health, the healthier the population, the more able is to make the best of their daily lives. | Positive, meaning that the higher the proportion of surviving children, the higher the improvement in the MMDI. |
| Literacy rate (% Literacy rate) | This is an indicator of fundamental skills. The higher the proportion of people with reading and writing skills the more capable are to make the best of their daily lives. | Positive, meaning that municipalities with higher proportion of literates did it better than others. |
| Average number of approved | This is an indicator of people's | Positive, meaning that the higher |

⁴⁷ www.inegi.org.mx

| | | |
|--|--|--|
| years of education for people older than 14 years old (Average education) | capacity. The higher the number of approved years in school, the higher the chances of a better life. | the average years of schooling, the higher the improvement in the MMDI. |
| % of households with sewage, electricity and drinkable water inside the building (% Services) | This is an indicator of the standard of living. The higher the standard of living, the better people's context or environment for further improvements. | Positive, indicating that the higher the share of households with all these services in 1990, the higher the improvement in the MMDI. |
| % of dwellings with floor other than bare land (% Floor material) | The higher the standard of living, the better people's context for further improvements. | Positive, indicating that the higher the share of dwellings with floor other than bare land in a municipality, the higher the improvement in its MMDI. |
| % Indigenous households | Indigenous groups in Mexico have historically been excluded from the rest of Mexican mainstream social and economic flows. | Negative, meaning that the higher the percentage of municipal households where the head of them spoke an indigenous tongue in 1990, the lower the improvement in the MMDI. |
| Share of people employed in services from the total of employment in the municipality (Tertiary sector) | Tertiary economic activities have increased their share of GDP and total employment in both developed and developing countries in the new era of globalisation. | Positive, the higher the share of employment in the tertiary sector, the higher the improvement in the MMDI. |
| Share of people working in primary economic activities from the total of working people (Primary sector) | A strong dependence in the primary sector is associated with low economic performance in developing countries. | Negative, the higher the share of employment in the primary sector, the lower the improvement in the MMDI. |
| % of migrants in the total municipal population according to people's place of birth (Migrants) | Municipalities attracting capital and labour benefit from a virtuous circle as businesses create new jobs that, in the end, allow the whole local economy to grow. | Positive, the higher the share of migrants of the total municipal population, the higher the improvement in the MMDI. |
| Categorical variable indicating if the municipality was urban or not (Urban) | Urban-rural economic differences have been growing in favour of urban areas for centuries. | Positive, indicating that urban municipalities did it better than rural ones. |
| Dummy indicating the existence of a port or airport (Port or airport) | Communications infrastructure facilitates economic activity impacting favourably the people's standard of living. | Positive, municipalities with an airport or port are expected to improve more than the ones without any of them. |

Two pairs of control variables deserve special attention. First, the average years of education and the literacy rate could be highly correlated. The reason to include both is that, taking into account the HDI literature, the former is considered more as a means indicator and the latter as an ends one. However, if when calculating the correlation

matrix its correspondent bivariate coefficient is high, one of them will be dropped out. The same case for the indicators of standard of living related with housing characteristics. Although common sense might indicate that the higher the standard of living the better all the dwellings conditions and characteristics, in 1990s Mexico, in some areas people could build or rent homes built with proper floor and ceiling materials but without access to services such as electricity or clean water, while in other areas they could be able to secure a place with provision of some public services but still being poor enough for building or renting a proper house. This might impact differently on the development prospects of places as access to fundamental services as a starting point characteristic might have a higher impact on further development outcomes than just better housing characteristics in terms of house materials (without access to those public goods).

6. Concluding remarks

The aim of this chapter was to set the base to examine quantitatively if local economic development (LED) strategies have had a significant effect on the development of Mexican localities. The chapter was organised in four main sections. The first informed on the selection of the response variable, while the second on the main findings of the calculations for the proposed municipal indexes; the third linked the human development concept with the bottom-up approach towards the development of places; and the last introduced the proposed empirical model, its LED related independent variables, and municipal characteristics prevalent in 1990 as control variables.

The main message of the literature on the HDI discussed here was that despite of some methodological weaknesses the HDI has been seen as an alternative or complementary measure to evaluate and compare the development of places. The use of the proposed MDI obeys mainly to the lack of comparable information on GDP per capita for Mexican localities for 1990 and 2005. The similarities in the ideals of the human development and LED approaches were clarified as a prerequisite to use the proposed MDI as a response variable to analyse the impact of LED strategies on the development of Mexico. The proximity of the development goals in both approaches makes the MDI a useful measure for this research endeavour. The MDI includes the same dimensions than the HDI, but with some variations on its components due to data unavailability. Incorporating housing attributes as indicators of the standard of living avoids the largely criticised treatment of income in the HDI. A multiplicative version of the MDI will be considered in the model computations as suggested by some HDI critics.

In relation to the municipal indexes' calculations, the MDI and MMDI for 1990 and 2005 reveal human development improvements in all Mexican regions as their minimum, average and maximum municipal indexes were higher in 2005 than in 1990. Overall, the Northern municipalities continued experiencing the best performance while Southern ones kept showing the worst development scenarios in the country.

Finally, the selection of explanatory variables was influenced by the need to take into account the non-existence of data on LED strategies at the municipal level in Mexico. This demanded a data collection design that could allow the construction of a LED dataset for Mexican municipalities. The following chapter informs on the details of the data collection process and the LED database main features. Furthermore, the main findings of the model proposed and explained here will be unveiled and discussed. Model diagnostics results in relation to the validity of the model specification and its corresponding findings will also be presented.

ANNEX 1, MAP 1: REGIONAL DIVISION OF MEXICO



Note: Taking into account the shape and boundaries of the state of Veracruz, its Northern part is considered in this analysis to be located in Central Mexico while its Southern part in the South. The former integrated by 151 municipalities and the latter by 55.

ANNEX 2: LED DATABASE QUESTIONNAIRE⁵⁰

PLEASE ANSWER EACH QUESTION FOR ALL THE MUNICIPALITIES THAT YOU KNOW THE REQUESTED INFORMATION. THE LIST OF MUNICIPALITIES CONSIDERED IN THIS RESEARCH PROJECT REFERS TO THE ONES THAT EXISTED IN 1990.

The following questions refer to development actions or policies implemented by individuals or organisations within the public, private or/and third sectors (i.e. NGOs) based in each municipality at any moment between 1990 and 2004. Please write down the exact year of implementation if possible. Please use the provided formats were you will find the list of municipalities (excel file). Questions 8 and 9 are optional.⁵¹

1. Which municipalities elaborated a **Local Economic Development (LED) plan** with a long term perspective linked to a **diagnosis** of the local economy?
2. Which municipalities incorporated **sustainable development or environmental considerations** in LED policies and public services' delivery?
3. Which municipalities introduced local policies or strategies to foster **entrepreneurship** (i.e. access to finance and/or business incubators; organisation of workshops on business plan elaboration, marketing and so on)?
4. Which municipalities introduced **local capacity building or empowerment strategies**?
5. Which municipalities introduced or in which of them **specific channels or mechanisms for the general public, third (social) and private sectors participation** in development processes existed during the period of analysis?
6. For each municipality, please allocate a number between 3 and 1 indicating the degree of presence of **links among local agents** and also **between them and agents located outside** their locality considering the following:
 - 3: Strong presence of external and internal links or networks (i.e. clusters of firms exporting part of their output; local firms benefitting from state, national or international programmes; and interactions between different levels of government,

⁵⁰ Further information on capacity building and empowerment policy actions alongside with participation mechanisms was provided, and participants were encouraged to ask in case of any questions. In the end, none of experts requested any clarification or asked doubts about the questionnaire.

⁵¹ The intention of questions 8 and 9 was to gather possible relevant information that could later enlighten the selection of case studies for the second part of our research.

as well as among local organisations or members of different sectors within a locality and outside).

2: Low presence of external and internal links or networks (i.e. some of the above linkages).

1: None external or internal links or networks.

7. For each municipality, please allocate a number between 5 and 1 indicating **the degree of municipal dependence on states' or federal initiatives with impact on the municipality** considering the given period of time and the following:

5: Only locally generated LED strategies

4: Low degree of dependence (mainly locally generated LED strategies)

3: Medium (balance between state and/or federal and locally originated LED strategies).

2: High degree of dependence (one or few locally originated LED strategies)

1: Total dependence (not locally generated LED strategies)

8. In your opinion which were the **main advantages or strengths**, if any, of each municipality for improving their economic development during the period of analysis.

9. In your opinion which were the **main disadvantages or weaknesses**, if any, of each municipality for improving their economic development during the period of analysis.

The following questions refer only to the year 1990:

10. Which was the **main economic activity** in 1990 in each municipality (1. primary: agriculture, stockbreeding and fisheries; 2. secondary: manufactures, extractive and construction industries, and electric energy; or 3. tertiary: services)?

11. In which municipalities a **port or airport** existed?

CHAPTER 5

Quantitative assessment of the bottom-up approach in Mexican municipalities: findings, conclusions and further research

1. Introduction

The aim of this chapter is to examine quantitatively if bottom-up economic development fundamental characteristics and policies have had a significant effect on the development of Mexican municipalities during the period between 1990 and 2005. Although a large amount of LED bottom-up experiences have been documented by experts, the impact of LED key elements on the development of places has not been quantitatively assessed in general, and in Mexico, in particular (Barberia and Biderman, 2010; Gordon and Low, 1998; OECD, 2003). As noted in the previous chapter a quantitative analysis is useful to see whether bottom-up key elements matter. The analysis undertaken here is a first approximation to identify quantitatively the specific effects of LED fundamental characteristics and policies.

Impact evaluation exercises commonly consider particular targeted programmes to be assessed to find out their net outcomes and compare them with programmes' goals. This helps to advice on the continuity of policies and designing further strategies (Melvin et al., 2000; Ravallion, 2001). The analysis proposed here does not intend to evaluate the results of a sole local experience nor advice on its further developments but to identify the concrete effects of the different LED key elements when they have been considered by the lowest tiers of government in their development strategies. To do this, the experience of Mexican municipalities has been selected as Mexico is one of the countries where these strategies have been promoted by some regional and local agents since the 1990s (Albuquerque, et al. 2002; Bair and Gereffi, 2003; Helmsing, 2001b; Mazza and Parga, 1999; Mitchell Group Inc., 2003; Pike, et al. 2006; Ruiz-Durán, 2000a and 2000b; Rabellotti and Schmitz, 1999, among others), and because the Mexican institutional framework allows municipal governments to engage in promoting social and economic development as noted in chapter 3.

The following section offers insights into the data collection process, LED in Mexican municipalities, and a discussion on model diagnostics.. In a further section the model results are unveiled and commented in light of the key elements of the LED approach and the characteristics of the LED dataset. In the final section some conclusions and lessons are offered.

2. LED database and model diagnostics

2.1 Data collection process

LED strategies are expected to have an impact mainly in the medium and long runs. However, the data collection design considered policies implemented at any moment between 1990 and 2005 as policy actions carried out close to 2005 might also have had a short run effect. As explained in the previous chapter, the data for building the LED database were gathered by means of a structured elite questionnaire about the level of engagement in LED of all Mexican municipalities between 1990 and 2005. Originally, the questionnaire was aimed at experts in economic and social development based in academia, federal government officials, and non-governmental organisations working in municipalities. The last two groups of experts are familiar with the development context and specificities of different municipalities as a result of the implementation and sometimes also evaluation of federal or state government programmes for targeted communities or individuals. In the end, only academics were considered because members of non-governmental organisations and federal government officials might have had vested interests related mainly to political affinities and/or their work performed in different municipalities. By the same token, state and municipal politicians and public servants were not contemplated because could have had vested interests in favour of their party affiliations, political mentors or protégés.

In addition, there was a preference to invite scholars because regional (state) universities are well established around Mexico with relatively easy electronic access to information about their faculties and their work. Another useful resource to identify academics whose research interests have been close to the municipalities was the CONACYT's National Researchers System database.⁵³

From a total of 280 individuals that, in the end, were contacted, 40 academics accepted the invitation to participate. This covered all the 31 states of the country.⁵⁴ When notified that a scholar who had agreed to participate could not bring together the information requested, we had the possibility of looking for someone else. However, in the cases that it was not any indication of withdrawal after sending the material and

⁵³ CONACYT is the National Council of Science and Technology.

⁵⁴ Mexico City's localities, called delegations, were excluded as a result of the fact that the concentration of the federal government in this jurisdiction has a strong impact on its economy. Mexico City's authorities started to be elected since 1997 for the chief of government and from 2000 for the head of delegations' governments. As this research comprises the period between 1990 and 2005, the latter represents an additional reason for Mexico City's localities not to be included in this study. By the same token, by law, the authorities of the delegations have slightly different functions than their municipal equivalents, as well as Mexico City's chief of government in comparison with the state (regional) governors.

further communications, we could not know if the required information would be received or not.⁵⁵ In the end, the LED database was built with almost 40% of the Mexican municipalities that existed in 1990 (See figure 1).⁵⁶ Information was received from 21 states covering all their municipalities for 14 of them. As a result, regression calculations could not be done with information about the whole population of municipalities but with a sample of them. However, it is thought that the representativeness of the sample is not far from the population's one as the sample's LED database is integrated by a similar share of municipalities in the categories of the MMDI's classification than the respective share in the whole set of them considering the MMDI calculated for 1990 and excluding Mexico's City localities.⁵⁷

Also from figure 1, it could be said that the North of Mexico is underrepresented. However, Northern states in 1990 despite large territories had only 453 municipalities in total, while Central and Southern states had 975 and 944, respectively.⁵⁸ Furthermore, looking at the proportions of inhabitants, the share of the municipalities' population in our sample is similar to the share of all the municipalities' population in 1990 considering the mentioned geographical division of Mexico in North, Centre and South.⁵⁹

⁵⁵ Participants were kindly asked to notify if for some reason they could not continue and to inform for which municipalities they would not be able to answer the questions. In some cases, this gave us the opportunity to look for other people to answer the questionnaire for the missing localities.

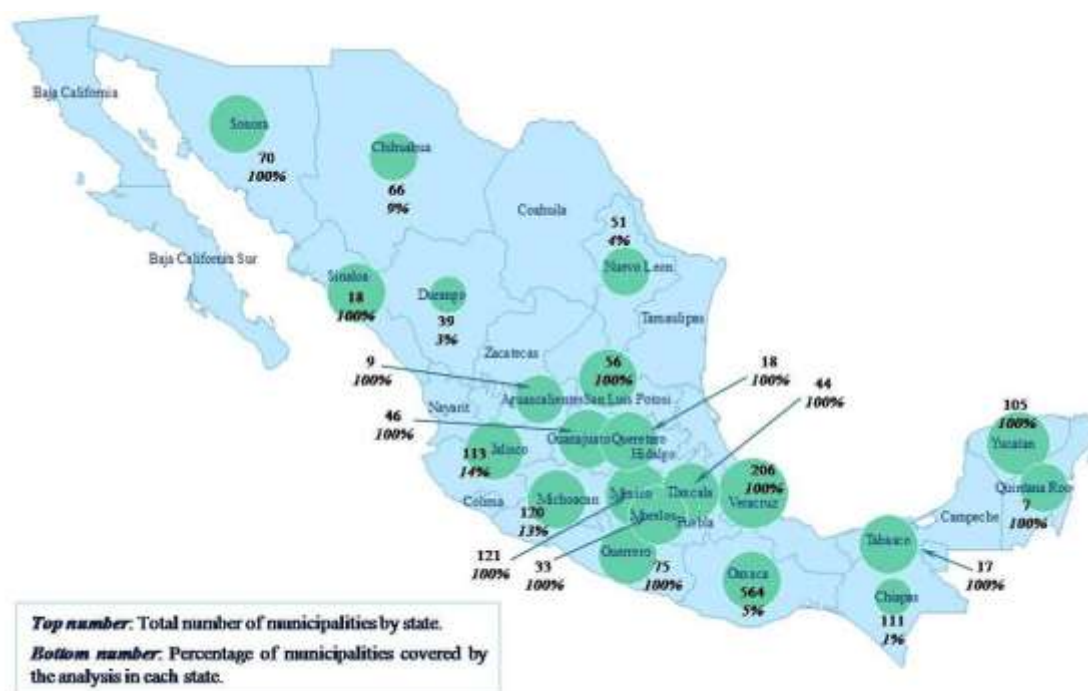
⁵⁶ There were more localities in Mexico in 1990 than 2371 (the number of municipalities for which municipal indexes were calculated) but, as noted, Mexico City's localities were left out of the analysis as well as the municipalities created at any point during the period of analysis or that their names were modified and could not be identified in INEGI's databases used for indexes calculations.

⁵⁷ For the whole set of Mexican municipalities in 1990 the shares are 94.3, 5.2 and 0.5 percent for municipalities with low, medium and high levels of human development, respectively; while for the resulting sample the shares are 92.5, 6.9 and 0.6 percent.

⁵⁸ The share of municipalities in 1990 in the North of Mexico is 19.1% of the total, while in the sample is 18%. In the Centre and South the shares are 41.1% and 39.8%; respectively, while in the sample are 49.6% and 32.4%.

⁵⁹ For the total population in 1990 the shares are 28.9, 50.9 and 20.2 percent for the North, Centre and South, respectively; while for our sample the proportions are 20.6%, 59.7% and 19.7%, respectively.

Figure 1. Municipalities in the sample by State



As background for the discussion on the results of the model computations, the main aspects of the LED database are presented in the following sub-section.

2.2 LED in Mexican municipalities 1990-2005

The results of the survey indicate that during the period of analysis LED had become rather common across local jurisdictions in Mexico. More than one in two of the municipalities considered in the analysis had incorporated specific LED criteria in order to promote development. Nationally, the highest occurrences in terms of the number of LED criteria considered by municipalities during the period of analysis are five LED criteria, incorporated by 31.1% of them, followed by none of the criteria in 23.4% of municipalities. The lowest occurrences are for six and three criteria (9.8% and 10%, respectively). Interestingly, the criterion most prevalent in Mexican municipalities was the existence of internal and external links or networks among development actors followed by capacity building and empowerment policy actions. The consideration of the environmental aspect of sustainability in local development strategies was the least popular of the LED criteria followed by the promotion of entrepreneurship (Table 1).

Table 1: Number of municipalities incorporating each LED criterion 1990-2005

| | |
|--|--------------------|
| 1. LED plan with a long term perspective based on a diagnosis of the local economy. | 421 (46.8%) |
| 2. Environmental considerations. | 245 (27.3%) |
| 3. Policies or development actions to foster entrepreneurship. | 380 (42.3%) |
| 4. Capacity building or empowerment policy actions. | 439 (48.9%) |
| 5. Existence or creation of participation mechanisms for private, public, social sectors and the general public. | 421 (46.8%) |
| 6. Links or networks of cooperation and coordination within and outside the municipality. | 574 (63.9%) |

The rest of the findings of the LED database presented below are organised by regions starting by the North and followed by Central and Southern Mexico, successively.

The LED database for the North of Mexico includes 162 municipalities located in 7 states of a total of 12 (35.8% of all Northern municipalities). The information of all the municipalities was obtained for the states of Aguascalientes, San Luis Potosí, Sinaloa and Sonora. On average, Sonora's municipalities pursued more LED actions during the period of analysis, while municipalities in Aguascalientes did not consider LED related actions at all. Overall, municipalities holding states' capital cities incorporated a high number of LED criteria in their policy actions.

Interestingly, among the localities that included more than four LED criteria in their development strategies can be found municipalities with different economic vocations. For example, industrialised ones such as Nogales, Sonora and San Pedro Garza Garcia, Nuevo León are in this group alongside with agricultural and aquaculture based local economies such as Navojoa in Sonora; agricultural and fisheries based economies such as Caborca, Sonora; fisheries' and touristic ones such as Guasave and Mazatlán in Sinaloa; and mining and manufactures based economies such as Parral, Chihuahua. The predominant LED characteristic or policy in Northern municipalities between 1990 and 2005 was the interaction of local actors among themselves and with external agents, followed by the creation or existence of mechanisms for the participation of the general public, and public, private and social sectors in the development process. The least popular criterion was entrepreneurship promotion.

If the municipalities with more than four LED criteria are considered to have embraced the bottom-up approach towards their economic development, 36.4% of Northern municipalities did so. Only 9.3% of Northern municipalities in our sample contemplated

less than two LED criteria. These figures should not be seen as a clear indication of the prevalence of this approach as a complete strategy towards municipal development because informants, in general, reported that not all the criteria were present at the same time or well integrated within a development strategy between 1990 and 2005. In other words, LED related policy actions were not coordinated or did not have a long term perspective in many cases during the period of analysis. This is mainly because LED related policies, when taken into account, were part of different municipal development plans due to the fact that, by law, municipal authorities were in office only three years without the possibility of consecutive re-election.⁶³ Moreover, if six LED criteria in municipal strategies are considered, only 12.3% of municipalities seem to have adopted the LED approach in a more comprehensive way during the period of analysis in the North of Mexico.

Let us have a look to the same figures but now for Central Mexico. The LED database in this region includes 445 municipalities located in 8 states of a total of 12 (45.6% of all its municipalities). The information of all municipalities was obtained for the states of Guanajuato, Mexico, Morelos, Querétaro, Tlaxcala and the North of Veracruz. On average, in the North of Veracruz more LED strategies were implemented at the municipal level during the period of analysis, while municipalities in Guanajuato did not apply LED related policies at all.

Overall, municipalities holding states' capital cities incorporated a high number of LED criteria in their policies. More than four LED criteria were considered in 38.4% of Central municipalities, while 32.1% of them contemplated one or none of them. The latter municipalities were mainly located in the states of Mexico (43.4%) and Guanajuato (28.7%). The presence of more than five LED criteria in municipal strategies was observed only in 7.6% of Central municipalities which were located in the states of Mexico (26.5%), Tlaxcala (5.9%), Morelos (26.5%) and the North of Veracruz (41.1%). Municipalities with different traditional economic strengths were identified in this group. For example, heavily industrialised municipalities such as Coacalco and Metepec in the state of Mexico; mixed local economies such as Apizaco, Tlaxcala and Valle de Bravo, Mexico (agriculture, manufactures and services); and agricultural municipalities such as Xochitepec, Morelos and Chicontepec, Veracruz. The predominant LED criterion in Central municipalities was the interaction of local actors among themselves and with external agents, followed by the incorporation of capacity building and empowerment

⁶³ In 2006, Torreón, Coahuila was the first municipality in Mexico that started a four years period as a result of a local political reform (Pardo and Ordaz, 2007).

tools in their development strategy. The environmental aspect of sustainable development was the least frequently found criterion in this region.

As far as the South of Mexico is concerned, the LED database in this region includes 291 municipalities located in 7 states of a total of 8 (30.8% of all its municipalities). The information of all municipalities was obtained for the states of Guerrero, Quintana Roo, Tabasco, Yucatán and the South of Veracruz. On average, in the touristic state of Quintana Roo and the South of Veracruz more LED strategies were identified at the municipal level during the period of analysis, while municipalities in Guerrero and Yucatán did not apply LED related policies at all.

The most popular LED criterion in Southern municipalities was the interaction of local actors among themselves and with external agents, followed by the design of strategic development plans. As in Central municipalities, environmental protection was the least predominant LED criterion in this region. As in the other Mexican regions, municipalities holding states' capital cities in the South also seem to have incorporated a high number of LED criteria in their policies. More than four LED criteria were considered in 25.1% of Southern municipalities, while 61.9% of them contemplated one or none of the LED criteria. The presence of more than five LED criteria in municipal strategies was observed only in 2.7% of Southern municipalities which were located mainly in the state of Quintana Roo (62.5%). This group is more homogenous in relation to their main economic activities than the corresponding group for Central and Northern municipalities as primary and tertiary activities predominate. For example, agriculture in Jaltipan, Veracruz; fisheries in Felipe Carrillo Puerto and Othon Blanco, Quintana Roo; and tourism in Cozumel and Benito Juárez, Quintana Roo.

To sum up, the LED database reveals that within Mexican regions the South presents the highest proportion of municipalities showing a lack of LED characteristics and policy actions between 1990 and 2005 followed by Central municipalities (61.9% and 32.1%, respectively). The highest proportion of localities where five or more LED criteria were identified by experts is found in Central Mexico closely followed by Northern municipalities (38.4% and 36.4% respectively). Finally, it is important to note that one of the main sources of information of the experts were the municipal development plans designed by local administrations that, by law, changed every three years. In this context, more than two LED related strategies were frequently not identified in the same administration's plan and not necessarily there was coordination and continuity of development actions between administrations. In addition, the consideration of certain strategies in a development plan does not guarantee that they were in fact

implemented; and if so, it is not possible to know to what extent as, in many cases, there is not enough information to determine with precision, for example, the expenditure per capita in LED actions or the percentage of total local expenditure assigned to particular LED related policies.⁶⁴

2.3 Model diagnostics

As far as model diagnostics are concerned, correlations between independent variables are not a problem if they are not highly associated because a multiple linear regression model is precisely designed to allow and adjust for them (Agresti and Finlay, 2009). In the case of multicollinearity (i.e. high linear association confirmed by significant correlation factors higher than 0.79) the estimated model presents large standard errors and low precision for the parameters of the correlated variables. However, it can be fixed easily by removing one of them (Wooldridge, 2008). Tables 1, 2, 3, 4 and 5 in the Annex show the correlation among all independent variables. First, as expected, average education is highly correlated with the literacy rate; second, there is a high correlation between average education and both the share of the tertiary sector in municipal employment, and the income per capita; third, there is a strong correlation between the shares of employment in the tertiary and primary sectors in total municipal employment; fourth, as expected, correlations between LED interactions are high; and finally, the rest of the variables show a weak correlation. Taking into account these five aspects, average education and tertiary sector were removed from the calculations and LED interactions are included in the model one at a time.⁶⁵

To be sure that the results were valid for statistical inference, two further tests were performed. First, variance inflation factor (VIF) values were computed for each predictor to confirm the non-presence of multicollinearity after omitting average education and tertiary sector.⁶⁶ No indication of multicollinearity was observed (see Table 6 in the Annex). Second, we tested for heteroscedasticity (i.e. non-constant variance) by plotting studentised residuals for the model (Agresti and Finlay, 2009). If homoscedasticity is found the validity of a multiple regression model is not violated. This means, in terms of the

⁶⁴ The Mexican Institute for Competitiveness (IMCO), a Mexican NGO, in its Competitiveness Index 2010 Report evaluates the Mexican states competitiveness with a focus on financial transparency. One of the findings is that states' governments, in general, fail in reporting the precise allocation of their expenses. At the municipal level this is even worse (IMCO, 2010).

⁶⁵ There is also a strong correlation between floor material and literacy rate but when testing for multicollinearity after the model computations were done, this problem was not found and, hence, none of these variables was removed.

⁶⁶ The VIF is the result of dividing 1 by the so called tolerance. The tolerance is an indicator of the percent of variance in the parameter that cannot be accounted for by the other parameters, thereby very small values (i.e. values less than 0.10) mean that the variable associated with a parameter is redundant and, as a rule of thumb, a coefficient whose VIF value is greater than 10 may indicate the presence of multicollinearity (Chen, et. al. 2003).

mentioned plot that its points form a band of roughly even width instead of an evident increasing or decreasing pattern (Wooldridge, 2008). This test showed the presence of mild heteroscedasticity as there is a decreasing shape for the response variable's fitted values close to zero.⁶⁷ A viable solution in this case is the calculation of the model coefficients using weighted least squares (Greene, 2003). After computing regressions using different weights (i.e. different variables were used as the source or base of the weight), although most of the time the variation in the MMDI difference explained by the explanatory variables slightly increased, no substantial difference was observed in the effects of the independent variables on the dependent one (i.e. parameters kept the signs and similar significance levels of the original ordinary least squares computations).

The last but not least preoccupation in terms of model diagnostics is the possible presence of endogeneity. This is because it can produce biased and inconsistent parameter estimates in regression calculations. Endogeneity in a model specification refers to the correlation between independent variables and the error term. This could be caused by three situations: reverse causality between a response and an explanatory variable; simultaneity originated by any of the independent variables being explained by a specification that includes the dependent variable; or a problem of omitted variables where the omitted variable is correlated with any of the independent ones (Greene, 2003; Wooldridge, 2008).

The main concern with the proposed specification in relation to endogeneity is that the components of the MMDI for 1990 are included as independent variables and, at the same time, the dependent variable is constructed by subtracting the values of the MMDI in 1990 from the MMDI values in 2005. However, reverse causality and simultaneity do not make sense in this case as they would mean that the municipal development index in 1990 was caused, influenced or partly originated by what happened after this year. As far as omitted variables are concerned, not other relevant variables to a great extent different from the already considered in the proposed model were identified at the municipal level, being the variables selection after multicollinearity correction and the rest of tests performed the most appropriate taking also into account the availability of information.

3. Findings

⁶⁷ For example, see figure 1 in the Annex 2 which refers to the computation including all LED variables after correcting for multicollinearity and leaving out non-significant controls.

To investigate to the fullest the impact of LED key characteristics and policies in the development of places, different perspectives are taken into account. In the first set of regressions we intend to assess whether a greater engagement with different LED elements makes a difference for economic development. We therefore consider the number of LED criteria taken into account during the period of analysis by each municipality. The second set of regressions looks at the specific effect of particular LED policies and characteristics. The third and final group of regressions looks at the potential combinations among different LED criteria. The estimation of the model is done by means of heteroscedasticity-consistent ordinary least square (OLS) regression analysis. To maximise the precision with which the effects of interest can be estimated and in search of parsimony (i.e. models without unnecessary control variables are simpler and therefore easier to explain), not significant independent variables not related to the LED bottom-up approach were left out of the final calculations (Agresti and Finlay, 2009). The different groups of regressions are now presented in turn.

3.1 Model considering the number of LED criteria

The results of the analysis considering only the number of LED criteria pursued by different Mexican municipalities are presented in table 2. First, the situation when none LED policy actions or characteristics were present in municipal strategies was computed. In other words, a dummy variable is considered with 1 for a municipality that did not have or incorporate any of the LED criteria and; therefore, 0 for any other case (i.e. from the ones that considered at least one to the municipalities that took into account all of them). The results highlight that there seems to be a positive and significant association between engaging in LED at the local level and improvements in the level of development across Mexican municipalities, once other factors which may affect development are controlled for. The simple fact of pursuing any type of LED actions makes a difference for future development levels. In other words, Mexican municipalities which during the period of analysis did not get involved with or implement a single of the LED criteria (LED0) tend to have significantly lower levels of improvement of their municipal development index (Table 2, Regression 1). This means that not designing or implementing any of the bottom-up approach key elements, undermines the development potential of a municipality.

Table 2. Model with the number of LED criteria

| <i>Dependent variable:</i> <i>MMDI difference 2005-1990^a</i> | (1) | (2) | (3) | (4) |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| LED0 | -1.161** (.476) | -0.920* (.544) | | |
| LED1 | | | 0.718 (.663) | -0.201 (.674) |
| LED2 | | | 1.889*** (.652) | 1.397** (.675) |
| LED3 | | | 1.433* (.753) | 1.119 (.756) |
| LED4 | | | 1.810*** (.660) | 1.659** (.731) |
| LED5 | | | 0.594 (.549) | 1.334* (.724) |
| LED6 | | | 1.375* (.821) | 1.113 (.895) |
| Ln Income per capita | 0.163 (.518) | 0.120 (.512) | 0.302 (.526) | 0.115 (.512) |
| % Literacy rate | 0.058** (.028) | 0.026 (.027) | 0.050* (.028) | 0.021 (.027) |
| % Services | 0.175*** (.014) | 0.146*** (.014) | 0.174*** (.014) | 0.142*** (.014) |
| % Floor material | 0.087*** (.014) | 0.080*** (.013) | 0.089*** (.014) | 0.083*** (.013) |
| % Indigenous households | -0.012* (.006) | -0.008 (.006) | -0.013** (.007) | -0.010 (.006) |
| Primary sector | -0.039*** (.012) | -0.059*** (.012) | -0.037*** (.012) | -0.061*** (.012) |
| Migrants | 0.068*** (.021) | 0.063*** (.022) | 0.065*** (.021) | 0.056** (.022) |
| Urban | -2.188*** (.679) | -1.666** (.682) | -2.081*** (.682) | -1.619** (.682) |
| Regional controls | No | Yes | No | Yes |
| n = 898 | R ² =.674, df=888 | R ² =.717, df=877 | R ² =.677, df=883 | R ² =.720, df=872 |

Notes: ^aDifference multiplied by 100. *** Significant at 1 percent level; ** at 5 percent level; and * at 10 percent level. Results after correcting for multicollinearity and leaving out non-significant controls. *df* stands for degrees of freedom.

Regression 2 in table 2 analyses the same situation but correcting for the possible effects of spatial autocorrelation on results. In other words, regional variables were added in the form of dummy variables for each state and geographical area of the country (North, Centre and South) where the municipalities are located. The results of regression 2 indicate that the results of regression 1 are robust to the inclusion of regional controls.

All the possibilities of LED criteria considered by municipalities are computed leaving the non-presence of LED key elements or policies as the baseline or reference category in regressions 3 and 4. That is, a categorical variable is included with seven categories; hence, only six dummy variables are needed to identify the category of each municipality in our sample. This shows that from 1 to 6 LED criteria, controlling for the rest of explanatory variables including the other categories, in all cases except one, parameters have a positive effect on the MMDI difference, confirming that the expected improvement in the MMDI between 1990 and 2005 is higher for the municipalities that

included any of the LED elements than for the ones that did not. Most of the coefficients are statistically significant as shown in table 4 (columns 3 and 4).

However, the effects of including more LED criteria on subsequent economic development are not as straightforward. When no regional controls are introduced, the coefficients are positive and significant for the variables depicting the municipalities applying two, three, four and six different LED criteria (LED2, LED3, LED4 and LED6) (Table 2, Regression 3). When regional dummies are introduced in the analysis (Table 2, Regression 4), the coefficients are significant for the municipalities applying two, four and five LED elements (LED2, LED4 and LED5). The highest returns are evident for those local authorities applying two and four LED criteria, with no further evidence that the identification of all the LED elements considered in the analysis leads to greater development outcomes. Hence, identifying more LED criteria applied in municipalities during the period of analysis does not guarantee greater future development outcomes.

3.2 Model considering the LED variables

First, the LED variables are included one at a time to analyse their effect separately together with the control variables. In this case, designing a strategic development plan, implementing empowerment and capacity building policies, and building internal and external links or networks have a statistically significant positive impact on the MMDI change between the years of study as shown in regressions 1, 4 and 6 in table 3. In other words, the municipalities which considered these LED elements improved more than the ones which did not. The rest of LED variables have a contrary impact than expected but are not statistically significant. Second, all LED variables are incorporated in the computations. Again, designing a strategic development plan, implementing empowerment and capacity building policies, and building internal and external links or networks have a statistically significant positive impact on the MMDI change between the years of study, controlling for the rest of independent variables (Regression 8).

Entrepreneurship promotion becomes statistically significant indicating a negative relation with the MMDI difference. This would suggest that municipalities that considered the promotion of entrepreneurship in their policies did it worse than the ones that did not. According to the literature on the topic, the reasons of this might be that many start-ups failed because whether their economic activities were not properly identified (situation reflected in their products not being innovative enough or demanded at all); firms not benefiting from local resources as well as local and external productive or commercial

networks; lack of financial resources; insufficient business support services; or a combination of them (Audretsch, 2004; Fullard, 2002; OECD, 2004b).

The variable indicating the degree of independence of municipal development strategies from states or federal initiatives also presents a statistically significant negative coefficient. The regression parameter indicates that the higher the independence from other levels of intervention the worse the impact on the MMDI difference. However, let us recall from the previous section that this variable is not entirely related to the LED approach because only tries to capture the effect of low dependence of the municipal development process on national and state level interventions with impact on the municipality. To illustrate this, from the five possibilities for this semi-categorical variable where 1 indicates total dependence and 5 total independence, the average for the 898 municipalities is 2 with only 2.7% of them experiencing a high degree of autonomy in development strategies (i.e. experts reported numbers higher than 3 only for 24 municipalities). Therefore, what has been captured here is the effect of moving slightly away towards more independence but still within a low degree of municipal autonomy.⁶⁸

When the regional categorical variables are included, the results corroborate the positive impact of development plans, capacity building and development links on municipal development. The significance levels for the parameters of the first and last improve while the negative parameter for entrepreneurship stops being significant. However, the coefficient of the sustainability variable is negative and becomes statistically significant. Although this would require further examination of the municipalities were the environmental part of sustainable development was incorporated, some authors have found that environmental considerations sometimes can increase the costs of services' delivery and productive activities without a clear gain for local agents (Klooster, 2006).

⁶⁸ This might be because despite the decentralisation process in Mexico, federal government policies keep being substantial and state governmental interventions in many municipalities are still predominant (Courchene and Díaz-Cayeros, 2000; Giugale et al., 2000; Martínez-Uriarte 2003). For example, since 1992 the states have been in charge of the provision of basic education within a federal regulatory framework (Merino, 2003). Health and education systems are mainly a federal and state level responsibility but this does not excludes the possibility of municipal interventions (Calderón and Segura, 2007; Guillén-López et al. 2006; Pardo and Ordaz, 2007; Rodríguez-Castillo, 2007).

Table 3: Model with the main LED variables

| <i>Dependent variable:</i> | | | | | | | | | |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <i>MMDI difference 2005-1990^A</i> | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Ln Income per capita | 0.198 (.520) | 0.425 (.511) | 0.458 (.517) | 0.196 (.519) | 0.424 (.522) | 0.268 (.516) | 0.487 (.517) | 0.293 (.525) | 0.035 (.512) |
| Development plan | 0.726* (.377) | | | | | | | 0.793* (.485) | 1.186** (.537) |
| Sustainability | | -0.402 (.403) | | | | | | -0.420 (.423) | -0.950** (.483) |
| Entrepreneurship | | | -0.251 (.368) | | | | | | -0.763* (.460) |
| Capacity building | | | | 0.740* (.364) | | | | 1.113** (.498) | 1.150** (.489) |
| Participation mechanisms | | | | | -0.079 (.376) | | | -0.719 (.524) | -0.615 (.602) |
| Development links | | | | | | 0.453* (.281) | | 0.639* (.348) | 1.131*** (.368) |
| Autonomy | | | | | | | -0.312 (.303) | -0.753** (.351) | -1.244*** (.376) |
| % Literacy rate | 0.061** (.028) | 0.068** (.028) | 0.062** (.028) | 0.065** (.028) | 0.064** (.028) | 0.058** (.028) | 0.066** (.028) | 0.064** (.028) | 0.039 (.027) |
| % Services | 0.173*** (.014) | 0.179*** (.014) | 0.180*** (.014) | 0.178*** (.014) | 0.179*** (.014) | 0.176*** (.014) | 0.180*** (.014) | 0.181*** (.014) | 0.138*** (.015) |
| % Floor material | 0.085*** (.014) | 0.078*** (.014) | 0.079*** (.014) | 0.083*** (.014) | 0.080*** (.014) | 0.085*** (.014) | 0.080*** (.014) | 0.085*** (.014) | 0.088*** (.014) |
| % Indigenous households | -0.016** (.006) | -0.016** (.006) | -0.016*** (.006) | -0.015** (.006) | -0.016*** (.006) | -0.015** (.006) | -0.015** (.006) | -0.011* (.006) | -0.003 (.007) |
| Primary sector | -0.042*** (.012) | -0.037*** (.012) | -0.037*** (.012) | -0.040*** (.012) | -0.037*** (.012) | -0.038*** (.012) | -0.038*** (.012) | -0.038*** (.012) | -0.061*** (.012) |
| Migrants | 0.067*** (.021) | 0.074*** (.021) | 0.073*** (.021) | 0.065*** (.021) | 0.072*** (.021) | 0.069*** (.021) | 0.075*** (.021) | 0.071*** (.021) | 0.056** (.022) |
| Urban | -2.064*** (.685) | -2.263*** (.683) | -2.169*** (.685) | -2.239*** (.680) | -2.235*** (.686) | -2.265*** (.681) | -2.196*** (.682) | -2.118*** (.699) | -1.792*** (.682) |
| Regional controls | No | No | No | No | No | No | No | No | Yes |
| <i>n= 898, df (1 to 7)= 888</i> | <i>R</i> ² =.673 | <i>R</i> ² =.672 | <i>R</i> ² =.672 | <i>R</i> ² =.673 | <i>R</i> ² =.672 | <i>R</i> ² =.673 | <i>R</i> ² =.672 | <i>R</i> ² =.679 | <i>R</i> ² =.723 |

Notes: ^ADifference multiplied by 100. *** Significant at 1 percent level; ** at 5 percent level; and * at 10 percent level. Results after correcting for multicollinearity and leaving out non-significant controls. *df* stands for degrees of freedom.

3.3 Model considering LED variables' interactions

The third group of regressions considers the combination between different LED criteria. These combinations indicate complementarity between LED key elements (Regressions 1 to 5 in Table 4). The rationale behind including this type of interactions between the LED components reflects the possibility that the impact of development strategies may not be related to either the overall number of criteria used by municipality or to specific individual LED interventions, but to the combination of different types of interventions. As most of our LED variables are dichotomous, and to add emphasis on the effects of different combinations of bottom-up criteria, the interactions are new variables built summing up the relevant LED constituents instead of the more commonly used process of multiplying the pertinent variables and include their product together with the individual original ones in model computations (Agresti and Finlay, 2009). In table 6 we include a

number of combinations which, a priori, could be considered to have an influence on development.

Table 4: Model with interactions

| <i>Dependent variable:</i> <i>MMDI difference 2005-1990</i> ⁺ | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|-----------------------|--------------------------|-----------------------|-----------------------|--------------------------|-----------------------|---------------------------|--------------------------|-------------------------|---------------------------|
| Development plan & entrepreneurship | 0.165 (.224) | | | | | 0.474 (.304) | | | | |
| Development plan & capacity building | | 0.502** (.216) | | | | | 0.790*** (.284) | | | |
| Capacity building & entrepreneurship | | | 0.168 (.211) | | | | | 0.577** (.270) | | |
| Capacity building & participation mechanisms | | | | 0.230 (.213) | | | | | 0.546* (.282) | |
| Development plan & development links | | | | | 0.429** (.199) | | | | | 0.743*** (.231) |
| Ln Income per capita | 0.308 (.523) | 0.112 (.523) | 0.307 (.522) | 0.261 (.525) | 0.146 (.522) | 0.158 (.510) | 0.090 (.509) | 0.104 (.510) | 0.159 (.509) | 0.048 (.509) |
| % Literacy rate | 0.064** (.028) | 0.063** (.028) | 0.065** (.028) | 0.064** (.028) | 0.057** (.028) | 0.029 (.027) | 0.025 (.027) | 0.032 (.027) | 0.028 (.027) | 0.019 (.027) |
| % Services | 0.177*** (.014) | 0.175*** (.014) | 0.178*** (.014) | 0.178*** (.014) | 0.173*** (.014) | 0.141*** (.015) | 0.141*** (.014) | 0.144*** (.014) | 0.145*** (.014) | 0.136*** (.014) |
| % Floor material | 0.082*** (.014) | 0.085*** (.014) | 0.081*** (.014) | 0.082*** (.014) | 0.087*** (.014) | 0.080*** (.013) | 0.082*** (.013) | 0.078*** (.013) | 0.079*** (.013) | 0.085*** (.013) |
| % Indigenous households | -0.016** (.006) | -0.015** (.006) | -0.016** (.006) | -0.015** (.006) | -0.015** (.006) | -0.010* (.006) | -0.011* (.006) | -0.011* (.006) | -0.010 (.006) | -0.010 (.006) |
| Primary sector | -0.039*** (.012) | -0.042*** (.012) | -0.039*** (.012) | -0.040*** (.012) | -0.041*** (.012) | -0.061*** (.012) | -0.061*** (.012) | -0.061*** (.012) | -0.061*** (.012) | -0.060*** (.012) |
| Migrants | 0.070*** (.021) | 0.064*** (.021) | 0.070*** (.021) | 0.068*** (.021) | 0.067*** (.021) | 0.061*** (.022) | 0.053** (.022) | 0.058*** (.022) | 0.055** (.023) | 0.057*** (.022) |
| Urban | -2.211*** (.682) | -2.118*** (.681) | -2.252*** (.683) | -2.174*** (.682) | -2.164*** (.680) | -1.700** (.681) | -1.674*** (.679) | -1.795*** (.682) | -1.698** (.681) | -1.718** (.678) |
| Regional controls | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes |
| <i>n</i> = 898, <i>df</i> (1 to 5) = 888 | R ² = .671 | R ² = .673 | R ² = .671 | R ² = .672 | R ² = .673 | R ² = .717 | R ² = .719 | R ² = .718 | R ² = .718 | R ² = .720 |

Notes: ⁺ Difference multiplied by 100. *** Significant at 1 percent level; ** at 5 percent level; and * at 10 percent level. Results after correcting for multicollinearity and leaving out non-significant controls. *df* stands for degrees of freedom.

The consideration of a strategic development plan alongside the presence of links and networks within and outside the municipality is positive and statistically significant (Regression 5). Empowerment and capacity building endeavours have also a statistically significant positive impact when implemented within the insights and guide of a strategic development plan than when this is not the case (Regression 2).

The results after adding the regional variables improve again as significance levels increase and two other interactions become statistically significant (Regressions 6 to 10). There is also evidence that both entrepreneurship efforts and participation mechanisms are effective when accompanied by capacity building actions than if this is not the case. Although less meaningful, all other possible interactions between LED variables were tested obtaining non-statistically significant results.

3.4. Control variables results

In all regressions, almost all the control variables have the expected sign, underlining the robustness of how other independent variables influence local development in Mexico. Two factors have a particularly strong negative association with improvements in the MMDI during the period of analysis. The higher proportion of indigenous households and the percentage of people employed in the primary sector are always or almost always (in the case of the proportion of indigenous households in the locality) negatively and significantly connected to changes in local development. A strong specialisation in agriculture has a stronger negative influence than the presence of large pockets of indigenous populations.

Among the factors which are associated with improvements in the MMDI, the quality of local housing stands out. Localities with dwellings with better access to utilities and housing conditions, such as floor material, managed to improve their development indicator more than areas where these conditions were absent. Literacy rates played, as expected, a positive role in subsequent development. The impact of literacy rates tend to be, however, not significant in certain regressions. Migration also played, as expected, a positive role in development. In other words, the coefficient tells that immigrants contributed to improve the MMDI at a larger extent in municipalities with large proportions of them. This might be because labour was required in many of the main recipient localities in 1990 such as construction workers, shops' and cleaning staff, waiters or waitresses in touristic and oil producing places, as well as *maquila* workers (i.e. labour for mass production of final goods normally using imported intermediate materials) in the border with the United States of America.⁶⁹

As urban-rural economic differences seem to have been growing in favour of urban areas around the world, urban municipalities were expected to do it better than rural ones. However, a negative coefficient indicates that urban localities did it worse than rural ones during the period of analysis. This might be because a locality with less than 2500 inhabitants is considered rural as defined by INEGI. In other words, most of the municipalities in the country in 1990 were considered urban according to this definition⁷⁰. Finally, the coefficients for the natural logarithm of income per capita tend to be

⁶⁹ By 1990 two types of localities had received most of immigration flows of both skilled and non-skilled workers: the large cities of Monterrey, Guadalajara, the Federal District and their corresponding conurbanisation areas; and the oil producing areas of Campeche. The rest of migration flows to other parts of Mexico was mainly of low skilled individuals and concentrated in the booming touristic sites of Quintana Roo (Cancun, Cozumel and Isla Mujeres) and in the Mexican-U.S border localities of Ciudad Juarez in Chihuahua and Tijuana in Baja California. In all cases migration exerted serious pressure on their infrastructure including housing and public services' delivery (Rebolledo, 2007; Santibáñez, 2008; Sierra, 2009; Vargas, 2009).

⁷⁰ This implies that 84% of Mexican municipalities were urban in 1990. For the LED database this figure is 91.8%.

positive, pointing towards certain level of economic divergence during the period of analysis, but the coefficients are not significant.

4. Conclusions and final remarks

Despite the growing presence of bottom-up strategies towards economic development around the world since the beginning of the 1990s, there are not studies analysing the specific effect of their mechanisms, policies or characteristics considering a large number of localities. The quantitative study carried out here consisted on an econometric analysis of the impact of different particular key elements of this approach on the development of Mexican municipalities between 1990 and 2005. In other words, the use of this methodology intended to identify the concrete effect of each of the LED constituents considering (controlling), at the same time, for the rest of LED elements and for other aspects that might have also partially influenced the development of localities during the period of analysis. The main constraint found in applying this methodology to the case of Mexican municipalities was the lack of information on endogenous municipal strategies towards their development. As a result, the research design also involved building a LED database for Mexican municipalities, which implied gathering information with the help of experts all around Mexico.

In this chapter we have tackled the question of whether LED strategies really work in a systematic way, using a quantitative analysis for the case of Mexico, one of the countries in the world where LED strategies have been more widespread. In order to address this issue, we constructed, with the help of local experts, a database of the development efforts conducted by 898 Mexican local governments (40% of the total) in order to improve the living and development conditions of their respective territories. The LED efforts of Mexican municipalities were measured across six different key LED criteria during the period between 1990 and 2005. The LED criteria included whether the local authority had engaged in the design of a development plan; whether the municipality had incorporated environmental sustainability as a policy matter; whether it had implemented policy actions aimed at fostering entrepreneurship; whether it had encouraged the development of local capacity; whether participation and voice mechanisms were in place; and, finally, whether links among local agents and with agents outside the locality had been set up. Whether development activities had had a more or less local origin and focus was also considered. A large number of variables for each municipality were used in order to control for other aspects which may have affected changes in human development at the local level.

Six are the main findings of this analysis. First, LED from below in Mexican municipalities has not been pervasive as a comprehensive strategy. For example, only the development strategies of 24 municipalities of a total of 898 seem to have had a municipal origin, focus and leadership during the period of analysis according to the LED database designed and built for this research.⁷¹ In other words, the bottom-up approach in the period of analysis was not recognised as such at the municipal level in the majority of Mexican municipalities even when some of its policies were undertaken or the presence of some of its key elements was identified.

Second, the initial set of model computations let us to confidently support that the expected improvement in the MMDI between 1990 and 2005 was higher for the municipalities where any number of the bottom-up LED elements was identified than for the ones where none was found.⁷² Third, the second set of regressions provide enough evidence to maintain that the municipalities that designed a strategic development plan based on a diagnosis of local circumstances, implemented empowerment and capacity building policies, and built or already had internal and external links or networks improved more than the ones that did not.

Fourth, the rest of LED variables provided contrary than expected coefficients but statistically non-significant. Only entrepreneurship promotion and sustainability had a statistically significant negative relation with the MMDI difference in one of all the regressions. These results might demand the use of alternative variables to better measure the corresponding LED elements or deeper analyses to unveil other possible factors that might be contributing to observe an inverse effect. For example, success in entrepreneurship promotion entails a coordinated and strategic approach beyond the sole provision of finance to start-ups, training to their owners and workers, or access to incubators or technology research and development information or facilities (OECD, 2004b). To increase the chances of building a useful LED database, we tried to avoid that putting together the requested information would imply a heavy workload to voluntary and not remunerated respondents.⁷³ Hence, the correspondent dummy variable for entrepreneurship took a one in case of a municipality undertaking any action related to its promotion and not a comprehensive set of policies towards it.

⁷¹ Some of the cases where more than four LED elements were identified and presented a high level of autonomy, are the municipalities of Chihuahua in the state of the same name, Zapopan in Jalisco, San Pedro Garza Garcia in Nuevo Leon and Coacalco in the state of Mexico.

⁷² Controlling for the rest of independent variables in all cases reported in this document.

⁷³ Although participants had the responsibilities of a full time job engaged in what resulted a time consuming task. On average, respondents reported dedicating 43 hours and 53 minutes; and it took them, from the day we provided the material, two months and a half to send the requested information back.

Anyway, the fact that these two variables are only significant in one regression and not in the others points to a lack of robustness in these associations.

Fifth, the third set of computations offered also some conclusive results in relation to the suggested LED variables' interactions. In particular, both, the presence of links and networks within and outside the municipality, and empowerment and capacity building endeavours have a statistically significant positive impact when guided by the existence of a strategic development plan.

Sixth, as far as the control variables are concerned, in the three sets of regressions and as expected, the coefficients referring to the municipal conditions in relation to literacy, dwellings' floor material and access to public services, indicated that the better the conditions in 1990 the higher the improvement in the MMDI. In addition, the municipalities with a large proportion of immigrants in 1990 did it better during the period of analysis than less receptive ones. On the contrary, the higher the proportion of indigenous households and the higher the people employed in the primary sector in municipalities, the lower the improvements in their MMDI. In other words, municipalities either with high proportions of indigenous households or with primary economic activities as main sources of employment improved less than others.

Model diagnostics were performed inspecting for the presence of multicollinearity and heteroscedasticity that could affect the efficiency of regressions' results. No problems were found. The evidence in favour of a positive impact of the LED approach on the development of places was confirmed when regional variables were incorporated to the three sets of models' computations as part of model robustness checks. In fact, in most cases the results improved.

The analysis performed here was an effort to identify quantitatively the effects of LED key features and policies in Mexico. The results of this analysis provide what might be considered as the first clear proof that considering development strategies at the local level in an emerging country deliver greater human development. In a country like Mexico, the mere fact of considering implementing actions, no matter how modest, aimed at promoting development at the local level, has paid off. By designing and implementing local development strategies a city or a town may not become a new Silicon Valley, but, as our research has shown, doing nothing may not be a viable option for localities aiming to improve the living conditions of its citizens.

Further studies with a larger timeframe and resources could try to incorporate the rest of municipalities and even contribute to build databases with some interval scale information instead of only the categorical values proposed here for the suggested LED related variables. Moreover, the publication of the results of the National Population and Housing Census 2010 during the first years of the second decade of the 21st century will let to expand the period of analysis to dig deeper on the effects of the bottom-up approach to LED in this Latin American country. The widespread presence of this approach around the world makes relevant the application of similar exercises to test LED related variables not only in other Latin American countries but also in different contexts such as transition economies, African countries or even developed ones. When possible, the inclusion of other pertinent independent variables is recommended as LED considerations matter but other factors also influence the development of places.

As noted in the introduction of this thesis, one of the reasons why the case of Mexico was selected is its formal institutional setting, which allows sub-national levels of government to engage in social and economic development. Democratization and decentralisation efforts since the end of the 1980s have contributed to transfer greater responsibilities and resources to sub-national authorities, among other aspects favouring their active role in promoting development (Cabrero, 2003b; Ruiz Durán, 2005; Vargas 2006). By the same token, the qualitative analysis presented in the following two chapters is also designed considering municipalities located in a Mexican state with an institutional context that stands out for the proximity of local actors and citizens to the decision-making process of their local authorities (Acedo, 2003; Olmedo, 1999). Thus, the qualitative analysis intends to provide some knowledge on the specific shape and features of the effects of the LED constituents discovered during the quantitative study with a special focus on the mechanisms of participation, the development planning process and the development interactions of local agents.

ANNEX: Tables and figures of correlations and multicollinearity tests

Table 1: Correlations between LED variables

| | Ln Income per capita | D1 | D2 | D3 | D4 | D5 | SC6 | SC7 |
|-------------------------------|----------------------|--------|--------|--------|--------|--------|--------|--------|
| Ln Income per capita | 1.000 | .280** | .214** | .161** | .259** | .222** | .394** | .456** |
| Development plan (D1) | .280** | 1.000 | .199** | .429** | .520** | .658** | .394** | .202** |
| Sustainability (D2) | .214** | .199** | 1.000 | .152** | .143** | .261** | .353** | .259** |
| Entrepreneurship (D3) | .161** | .429** | .152** | 1.000 | .544** | .566** | .380** | .234** |
| Capacity building (D4) | .259** | .520** | .143** | .544** | 1.000 | .558** | .522** | .416** |
| Participation mechanisms (D5) | .222** | .658** | .261** | .566** | .558** | 1.000 | .400** | .247** |
| Development links (SC6) | .394** | .394** | .353** | .380** | .522** | .400** | 1.000 | .527** |
| Autonomy (SC7) | .456** | .202** | .259** | .234** | .416** | .247** | .527** | 1.000 |

** Correlation is significant at the 0.01 level.

Table 2: Correlations between control variables

| | Ln Income per capita | % Children | Average education | Literacy rate | % Services | % Floor material | % Indigenous households | % Tertiary | % Primary | Migrants | Dummy Urban | Port or airport |
|-------------------------|----------------------|------------|-------------------|---------------|------------|------------------|-------------------------|------------|-----------|----------|-------------|-----------------|
| Ln Income per capita | 1.000 | .572** | .806** | .721** | .709** | .658** | -.498** | .706** | -.722** | .543** | .088** | .282** |
| % Children | .572** | 1.000 | .645** | .627** | .492** | .586** | -.229** | .536** | -.494** | .436** | -.061 | .256** |
| Average education | .806** | .645** | 1.000 | .861** | .779** | .736** | -.490** | .803** | -.785** | .592** | .034 | .259** |
| % Literacy rate | .721** | .627** | .861** | 1.000 | .638** | .802* | -.537** | .606** | -.617** | .437** | -.086** | .197** |
| % Services | .709** | .492** | .779** | .638** | 1.000 | .673** | -.472** | .662** | -.682** | .443** | -.015 | .215** |
| % Floor material | .658** | .586** | .736** | .802* | .673** | 1.000 | -.444** | .601** | -.659** | .422** | -.100** | .183** |
| % Indigenous households | -.498** | -.229** | -.490** | -.537** | -.472** | -.444** | 1.000 | -.325** | .318** | -.283** | -.148** | -.084* |
| % Tertiary | .706** | .536** | .803** | .606** | .662** | .601** | -.325** | 1.000 | -.855** | .586** | .143** | .295** |
| % Primary | -.722** | -.494** | -.785** | -.617** | -.682** | -.659** | .318** | -.855** | 1.000 | -.572** | -.146** | -.201** |
| Migrants | .543** | .436** | .592** | .437** | .443** | .422** | -.283** | .586** | -.572** | 1.000 | .153** | .233** |
| Dummy Urban | .088** | -.061 | .034 | -.086** | -.015 | -.100** | -.148** | .143** | -.146** | .153** | 1.000 | .031 |
| Port or airport | .282** | .256** | .259** | .197** | .215** | .183** | -.084* | .295** | -.201** | .233** | .031 | 1.000 |

** Correlation is significant at the 0.01 level.

*Correlation is significant at the 0.05 level.

Table 3: LED and control variables' correlations

| | D1 | D2 | D3 | D4 | D5 | SC6 | SC7 |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|
| % Children | .125** | .144** | .003 | .104** | .119** | .214** | .358** |
| Literacy rate | .179** | .248** | -.021 | .123** | .106** | .307** | .392** |
| % Services | .268** | .181** | .144** | .153** | .186** | .329** | .403** |
| % Floor material | .075* | .118** | -.062 | .057 | .004 | .176** | .367** |
| % Indigenous households | -.189** | -.109** | -.114** | -.206** | -.184** | -.292** | -.138** |
| % Primary | -.080* | -.140** | -.050 | -.110** | -.003 | -.276** | -.398** |
| Migrants | .179** | .197** | .123** | .236** | .169** | .280** | .367** |
| Dummy Urban | -.083* | -.060 | .170** | .090** | -.059 | .102** | .029 |
| Port or airport | .172** | .124** | .182** | .129** | .189** | .198** | .193** |

** Correlation is significant at the 0.01 level.

*Correlation is significant at the 0.05 level.

Table 4: Correlations between LED interactions

| | D1+D3 | D1+D4 | D3+D4 | D4+D5 | D1+SC6 |
|--------|--------|--------|--------|--------|--------|
| D1+D3 | 1.000 | .846** | .837** | .767** | .742** |
| D1+D4 | .846** | 1.000 | .814** | .889** | .801** |
| D3+D4 | .837** | .814** | 1.000 | .861** | .625** |
| D4+D5 | .767** | .889** | .861** | 1.000 | .695** |
| D1+SC6 | .742** | .801** | .625** | .695** | 1.000 |

** Correlation is significant at the 0.01 level.

Table 5: Number of LED criteria correlations

| | LED 0 | LED 1 | LED 2 | LED 3 | LED 4 | LED 5 | LED 6 |
|-------|---------|---------|---------|---------|---------|---------|---------|
| LED 0 | 1.000 | -.197** | -.207** | -.155** | -.194** | -.330** | -.155** |
| LED 1 | -.197** | 1.000 | -.137** | -.103** | -.129** | -.219** | -.103** |
| LED 2 | -.207** | -.137** | 1.000 | -.108** | -.135** | -.229** | -.108** |
| LED 3 | -.155** | -.103** | -.108** | 1.000 | -.101** | -.171** | -.081* |
| LED 4 | -.194** | -.129** | -.135** | -.101** | 1.000 | -.215** | -.101** |
| LED 5 | -.330** | -.219** | -.229** | -.171** | -.215** | 1.000 | -.171** |
| LED 6 | -.155** | -.103** | -.108** | -.081* | -.101** | -.171** | 1.000 |

** Correlation is significant at the 0.01 level.

*Correlation is significant at the 0.05 level.

Figure 1: Plot of studentised residuals MMDI difference

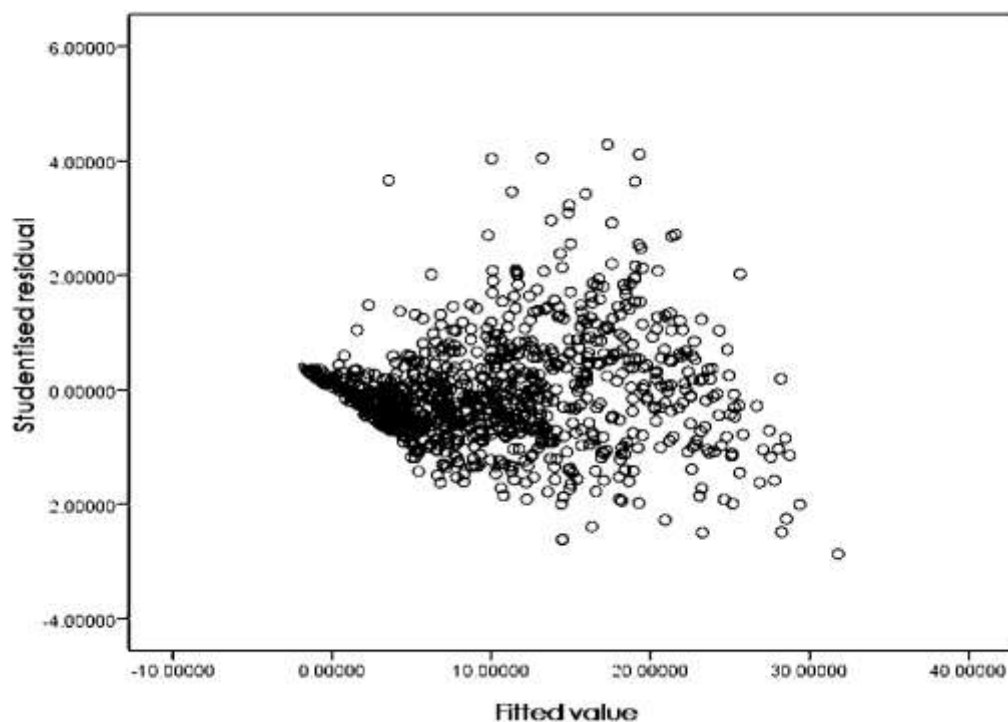


Table 6: Multicollinearity test (Tolerance and VIF values)

| Dependent variable: MMDI difference 2005-1990 | β | P-value (t-test) | Tolerance | VIF |
|---|---------|------------------|-----------|-------|
| Income per capita | .293 | .577 | .281 | 3.554 |
| Literacy rate | .064 | .025 | .248 | 4.029 |
| % Services | .181 | .000 | .346 | 2.894 |
| % Floor material | .085 | .000 | .268 | 3.733 |
| % Indigenous households | -.011 | .085 | .559 | 1.789 |
| % Primary sector | -.038 | .002 | .312 | 3.208 |
| Migration | .071 | .001 | .600 | 1.666 |
| Urban | -2.118 | .003 | .772 | 1.295 |
| Development plan | .793 | .100 | .487 | 2.053 |
| Sustainability | -.420 | .321 | .798 | 1.254 |
| Entrepreneurship | -.763 | .097 | .550 | 1.817 |
| Capacity building | 1.113 | .026 | .462 | 2.166 |
| Participation mechanisms | -.719 | .170 | .418 | 2.395 |
| Development links | .639 | .066 | .509 | 1.965 |
| Autonomy | -.735 | .036 | .541 | 1.849 |

CHAPTER 6

Qualitative analysis of the bottom-up approach in Mexico: selection and background of case studies

1. Introduction

Platt (1988), and Winchester and Rofe (2010) agree that qualitative research helps to clearly explain and comprehend social structures and processes. More specifically, these and other experts maintain that qualitative methods contribute to identify how and why social actors and the contexts where they interact change (Bouma and Atkinson, 1995; Bradshaw and Stratford, 2010; Platt, 1988). Therefore, as Green (2011, p. 94) suggests, the main advantage of qualitative research is the depth that can be reached not only by 'answering descriptive research questions (i.e. what, when, which, where)' but also 'analytical questions (i.e. how and why)'.

Case studies are investigated to offer insight into a social process easing our understanding of either the relationships found in quantitative research or the theories around particular phenomena (Fontana and Frey, 1994; Winchester and Rofe 2010). According to Baxter (2010, p. 82) the study of cases also 'provides a detailed analysis of why theoretical concepts or explanations do or do not belong in the context of a case'. Last but not least, case studies can support the generation of explanations that are becoming part of the literature on a particular topic (Baxter 2010; Dunn 2008; Winchester and Rofe, 2010).

Hence, geographical or territorial case studies put a special emphasis on the places themselves as the same phenomenon might show relevant differences from one region or locality to others (Baxter, 2010). In addition, the study of cases has significance in itself because it elucidates human behaviour or social processes paying attention to a multiplicity of factors including not only the particularities of what is object of analysis but also its interactions with external subjects (Dunn, 2008; Winchester and Rofe, 2010). This refers to the relations with and influences of other scales (Baxter, 2010).

Bradshaw and Stratford (2010) and Fontana and Frey (1994) recommend selecting cases according to a criterion fundamentally relevant to the research topic and considering the opportunity of choosing case studies from which we could learn the most. As highlighted in previous chapters, one essential element of the bottom-up economic development approach is effective participation of the general public, private and social sectors in the development process. Likewise, a strategic local development plan

constitutes an indispensable guide towards achieving comprehensive development goals through coordinated actions.

The review of literature about LED in Latin America, the decentralisation process in Mexico, and the LED database built during the first part of this research led to identify a number of states in the country which have had both, an institutional context that, in theory, would allow a higher level of citizens' involvement in development issues, and the common practice of elaborating development plans. The main criteria for the selection of the case studies are the elaboration of municipal development plans in concurrence with the presence of a formal institutional setting which allows a greater population proximity to public affairs. The qualitative research on two Mexican municipalities will provide explanations on the LED actions and interactions that could have uphold, resist or modify this particular institutional framework between 1990 and 2010.

Once the preceding considerations are taken into account, the selection of the case studies responds to the following two aspects pinpointed while performing the quantitative research that led to the elaboration of the first part of this thesis:

- ❖ A similar development achievement as measured by the proposed municipal development index (MMDI).
- ❖ The different approaches to public intervention identified in the LED database.

Therefore, the research design allows the examination of a typical municipality in the sense that, from the bottom-up literature perspective, and given the results of the quantitative analysis, we can infer that an above average development performance is expected for any locality where all the key elements of LED were present at some point during the period of analysis. At the same time, it also allows examining a not so typical case considering a municipality which observed an above average improvement in its MMDI, although smaller than the former, but where only three or two of the key bottom-up elements were found. Therefore, the research design also contemplates the possibility of challenging, complementing or adding something new (Bradshaw and Stratford, 2010; Fontana and Frey, 1994) to the mainstream LED literature in relation to the benefits of different approaches to the development of places, and their possible complementarities.

In order to assess in greater depth whether pursuing bottom-up strategies in Mexico has delivered greater human development, two municipalities in the state of Tlaxcala were selected for further analysis: Apizaco and Chiautempan. These two jurisdictions engaged

more than the average Mexican municipalities in LED activities. However, Chiautempan, despite also having above average improvement in its MDI, it was significantly lower than Apizaco's, and it observed half of the LED key elements.

The research hypothesis is that the bottom-up approach did have a more favourable impact in Apizaco than in Chiautempan due to a more developed bottom-up approach. Hence, the research questions to be addressed are:

- ❖ What is the perceived contribution of bottom-up related policies and characteristics to the development of Apizaco and Chiautempan?
- ❖ How did their specific institutional setting contribute to their development performance?
- ❖ Why the improvements in their development indexes are above the average, both with respect to the state of Tlaxcala and at the national level, if they seem to have followed different development avenues?
- ❖ What are the factors behind the better performance in Apizaco than in Chiautempan?

In the rest of this chapter the particularities of the selection criteria of the case studies are explained as well as their development circumstances. First, we advance Tlaxcala's formal institutional context in relation to its political organisation and citizens' proximity to municipal development processes. This constitutes a fundamental consideration for the selection of two municipalities within this state and no others. Second, we unveil the attributes relative to the presence of the bottom-up approach in the state of Tlaxcala, followed by its geographic, socioeconomic and economic characteristics. After exposing the development context of the state of Tlaxcala, all the factors considered in the choice of Apizaco and Chiautempan as case studies are explained in detail, followed by a presentation of their development background and underpinnings.

2. Institutional context⁷⁴

Lumbreras and Morales (2007) highlight the importance of distinguishing among different forms of participation as they determine the degree of protagonism that citizens can have in the formulation of local development policies. Based on Ziccardi (2000), they stress that citizens' participation refers to their interaction with local authorities to secure their intervention in public affairs and the closest representation of local interests. This, for

⁷⁴ This section is primarily based on the review of the following Tlaxcala's legal framework: Constitution of the State of Tlaxcala (*Constitución del Estado Libre y Soberano de Tlaxcala*), Tlaxcala's Territorial Organisation Law (*Ley de Ordenamiento Territorial del Estado de Tlaxcala*), Public Works Law for the State of Tlaxcala and its Municipalities (*Ley de Obras Públicas para el Estado de Tlaxcala y sus Municipios*), and the Municipal Development Planning Committee Rules (*Reglamento del Comité de Planeación para el Desarrollo Municipal*).

them, is far beyond political participation, consisting basically in the execution of the right of voting in political elections; social participation, consisting in social sector organisations set up to defend their particular social related interests; and community participation, consisting in helping the State to perform activities to satisfy immediate and specific needs of communities' residents. Tlaxcala's institutional context, which is close to the idea of citizens' participation, is a fundamental reason for choosing two of its municipalities for the second part of this research. Through this section details are given about Tlaxcala's context that led its formal institutional framework to stand out in relation to its citizens' proximity to public sector decision-making.

According to Acedo (2003) and Olmedo (2005), although other states in Mexico, at some point during the second half of the XX century, experienced changes aiming either to strengthen the engagement of citizens in public affairs or the autonomy of municipalities and their localities, the state of Tlaxcala has been at the vanguard in Mexico. In this respect, Olmedo (1999) argues that this might stem from before the Spanish Conquest when the indigenous groups in the region fought with determination against the Aztec empire to preserve their autonomy. By the same token, in 1868 Tlaxcala's governor Lira González, for the first time in the country, gave municipalities certain freedom to determine their main attributions and organise themselves.

Depending on the local organisation of municipal administration, across states in Mexico municipalities may have or may not have designated municipal government representatives in rural and urban localities within their territory during the period of analysis (CIDE, 2002-2009). In Tlaxcala, there was a tradition of appointing municipal government representatives in localities during the majority of the XX century. They were delegates or agents of the municipal government who mainly helped coordinate the provision of public services in the different communities of each municipality (Olmedo, 1999).⁷⁵

A reform of state of Tlaxcala legislation in 1983 established that municipal representatives in communities within each of the 44 municipalities would become community presidents and would not be appointed anymore by the municipal authorities, but nominated and elected directly by communities' residents (Flamand, 2007; Olmedo, 1999).⁷⁶ Furthermore,

⁷⁵ This kind of municipal authorities' supportive figure has been common in Mexico. For example, in Yucatán the so called commissaries help in the delivery of public services and administrative issues in the localities of its municipalities, while in Nayarit mainly the same functions are responsibility of the delegates. (Sources: State's regulations). The legal framework of Mexican States and Municipalities can be consulted online in the following electronic address: <http://www.ordenjuridico.gob.mx/index.php> (Yucatán and Nayarit regulations accessed on April 25, 2011).

⁷⁶ In few Mexican states this auxiliary figure is also elected (although not necessarily by means of traditional communities' practices) such as the cases of Yucatán and Puebla (Source: Ibid).

they were allowed to be full members (i.e. with voice and the right of voting) of the *cabildo* (i.e. municipal council) as *regidores* (i.e. communities' aldermen), participating in the decision making together with the municipal president and the other members of the *cabildo* that are elected by the political parties' system (i.e. municipal aldermen) and who represent wider areas within a municipality (i.e. an electoral district). As explained in chapters 2 and 3, the bottom-up approach relevance of considering smaller spaces such as municipalities or even communities stems from the advantage of achieving a better understanding and putting together local needs and preferences. Therefore, in Tlaxcala's context, the proximity of the municipal government to its citizens is likely to be high due to the closeness experienced by elected community representations.

Later, in 1995, by means of another institutional reform, the community presidents were given the status of *auxiliary municipal presidents* in Tlaxcala's Constitution.⁷⁷ Since then, these *auxiliary presidencies* have not only the same representation in the *cabildo* than the community presidents had, but also prerogatives and resources established by law (Sánchez-Fernández, 2009). Among the prerogatives given to these presidencies are elaborating a public works programme according to social interest, collecting municipal taxes, the provision of public services, policing, sanctioning transgressions of law, and promoting the participation and cooperation of residents in programmes that benefit their neighbourhood.⁷⁸ As a consequence, Tlaxcala's legislation allows for a formal governmental structure with specific responsibilities that is closer to the people than in most of the other Mexican states.

Before offering further details on the peculiarities of the formal institutional setting in Tlaxcala, let us have a brief immersion in the only three other experiences following similar objectives in Mexico (Olmedo, 2005). In the state of Tabasco in 1984, the internal functioning of its 17 municipalities was modified to include the operation of the so called *integrative centres* ('*centros integradores*'). The reason for doing this was that almost 60% of Tabasco's population lived in irregular rural settlements without access to public services. Then, the municipal authorities identified areas within their territories that could be considered together to provide public services to their inhabitants (González-Pedrero, 1987). 185 *integrative centres* were created. Each centre was integrated by scattered settlements within an area determined by each municipality, and representatives of each settlement formed a committee where proposals about public services and

⁷⁷ Since 1995, there are 400 municipal auxiliary presidencies in a total of 60 municipalities. Recently, two more auxiliary presidencies were created.

⁷⁸ Source: Municipal Law for the State of Tlaxcala, December 2001. In 1995 this law was called Organic Municipal Law.

development projects were discussed and decisions made. In most cases, the residents organised themselves to provide voluntary work for the construction of public services infrastructure (González-Pedrero, 1987). Unfortunately, after the demise of the state government that promoted this approach, the *integrative centres* initiative was discontinued.

In contrast to the case of Tabasco, the other experiences, including Tlaxcala, formalised their reforms towards a more participatory democracy or autonomy. For example, in the state of Puebla, by 1997, the so called *auxiliary boards* ('*juntas auxiliares*') were not only elected in the communities of this state to be their agents before municipal authorities but also a law was approved that year by the state Congress to distribute a particular fund of federal resources directly to these boards to be used at their own discretion, but within the National Law of Fiscal Coordination mandate which says that these resources must be used giving priority to education, health infrastructure, and clean water and sewage systems (Flamand, 2007).^{79,80} All this means that municipalities in Puebla could have also made good cases for our qualitative analysis; however, as information about the LED approach in Puebla could not be gathered during the elaboration of the quantitative study, they were ruled out from the outset of our research design.

Finally, in 1995 in Oaxaca, before the federal reforms on indigenous people rights, municipal elections following traditional indigenous practices were officially approved by the state legislature allowing the right of each community to govern themselves according to their idiosyncrasy. A high proportion of Oaxaca's population is indigenous with a tradition of communal government (Olmedo, 2005). Within other states in Mexico with high concentrations of indigenous population, similar forms of organisation have been present, such as in Chiapas and Yucatán (Lynn, 1997; INDEMAYA⁸¹). Interestingly, in Tlaxcala there are no municipalities with a majority of indigenous residents.⁸² The elections by traditional practices have taken place in localities with or without the presence of indigenous citizens.

Municipalities in the other states of Mexico exhibiting citizen's participation in decision making processes and development actions as well as their presence in the LED

⁷⁹ As mentioned, in Tlaxcala the Municipal Law reform of 1995 granted monetary resources to auxiliary presidencies for being able to perform the responsibilities conferred by the 1983 and 1995 reforms.

⁸⁰ This refers to the Municipal Social Infrastructure Fund (*Fondo de Infraestructura Social Municipal*, FAISM (Flamand, 2007).

⁸¹ Institute for the Development of the Mayan Culture of the State of Yucatán (*Instituto para el Desarrollo de la Cultura Maya del Estado de Yucatán*). Online resource accessed on April 25 2011: <http://www.indemaya.gob.mx/descargas/legislacion-pueblo-maya.php>.

⁸² A detailed account of the main population features in the state of Tlaxcala and the municipalities of Apizaco and Chiautempan is offered in a further section.

database were not selected because, as explained, in the case of Tabasco the integrative centres saw their powers fade after 1988; while in the case of Oaxaca, municipalities displayed both low improvements in the MDI and low presence of LED elements in the LED dataset. Tlaxcala represents the most extensive and established public participation scheme in the country. Furthermore, for comparative purposes and keeping in mind that the focus of the qualitative analysis is on development processes from a bottom-up perspective, two municipalities within the same state were chosen, trying to keep other factors affecting them as similar as possible.

Tlaxcala's institutional framework for the election of what are currently known as auxiliary presidents allows two kinds of systems: one based on political parties and another on communitarian traditional channels (Sánchez-Fernández, 2009). It is expected that the citizens' proximity to public policy has been closer in the latter. This is because, in principle, the traditional communitarian mechanisms generate a sense of belonging and duty only towards the locality. In contrast, in the political party channel, these aspects are shared, for good or bad, with the politicians' agendas at the municipal, state and/or national level.

In Mexico, by law, a new municipal administration must present a development plan to their citizens and the respective state congress. This document delineates the objectives and strategies for municipal development and sets the main areas of public policy that the new municipal government will consider for the design of its annual operative programmes (i.e. the concrete governmental actions that are planned to be implemented during each year of the administration). The plans should seek to create synergies with the state and national development plans.

The mechanism to elaborate the municipal development plans in Tlaxcala is basically the same as in other states of Mexico. It is through the so called Planning Committee for Municipal Development (*Comité de Planeación para el Desarrollo Municipal, COPLADEM*) where the individuals in charge of municipal offices mainly related with public works and services participate together with state's administration authorities and municipal social and private sector representatives, such as associations of peasants or chambers of commerce. Here, we were expecting to find the channel by which the community presidents participate in the elaboration of this fundamental document. However, there are no clear participation mechanisms through which communities' residents can expose their demands and wishes in order to be considered in the planning process.

Other instruments intended to give direction and coordinate governmental actions at the state and municipal levels in Tlaxcala are the Territorial Organisation Law (*Ley de Ordenamiento Territorial del Estado de Tlaxcala*)⁸³ and the Law for Public Works for the State and its Municipalities (*Ley de Obras Públicas para el Estado de Tlaxcala y sus Municipios*). In none of them the role of auxiliary presidencies in planning territorial aspects, public services or development policies is mentioned. In addition, although the auxiliary presidencies can collect municipal taxes in their jurisdictions they must sign an agreement with the municipal authority in which the way they will hand over the resources to the municipality is established.

According to Montalvo (2010), the planning regulatory framework has not been useful in Tlaxcala because of a lack of political will to follow it,⁸⁴ and/or a notorious absence of politicians' and civil servants' determination and/or capacity to present proposals deeply based on a serious diagnostic of the territories' characteristics and considering the financial situation of municipalities. Montalvo (2010) discloses that, in general, municipal authorities in Tlaxcala have used the public service provision as a means to increase their political notoriety when impoverished people in irregular settlements demand them, or when administrations concentrate resources in the main urban area of their municipality (i.e. the so called '*cabecera municipal*'). The case of illegal settlements can cause severe inefficiencies in the allocation of public resources as they are commonly located in areas of the territory where the costs of provision are high, imposing not only a burden for the time left of the running of the administration, but also for the future of the municipal finances.

The previous paragraphs suggest that the benefits of the proximity of Tlaxcala's population to the public sector as a consequence of the existence of the auxiliary presidencies might be limited as they seem to take part of decision making processes only after the priorities of the municipal administration have been determined and set up in the municipal development plans. However, these plans are not followed to the letter. All these issues make digging deeper into the functioning and effectiveness of this institution in the selected municipalities even more interesting.

As far as the particular political organisation in Tlaxcala's municipalities is concerned, let us look at the local electoral districts that have representation in the state chamber of

⁸³ According to this law, the organisation of the territory involves the planning of human settlements and management of public policies and strategies that promote urban sustainable development and the even distribution of economic and social activities within the territory of the state.

⁸⁴ For example, Montalvo in his study about planning processes in some municipalities of Tlaxcala found that, on average, less than 25% of the actions mentioned in municipal development plans that would be carried out during the first year of administration were actually executed.

deputies based on our selected municipalities. The territory of Apizaco is included together with other municipalities in two of Tlaxcala's 32 electoral districts, whereas Chiautempan in one of them. In other words, there are 32 deputies who represent in the state legislature the different electoral sections in which the state has been divided. A part of Apizaco has one district (deputy) for itself while the rest share another with electoral sections which include other jurisdictions. Chiautempan is represented by one deputy only (INAFED, 2009).⁸⁵

As a consequence, the only formal mechanism that seems to be really close to the people and represent them in decision making processes in Tlaxcala's municipalities are the auxiliary presidencies. One reason for the differences in the number of auxiliary presidencies within Tlaxcala's municipalities is the extension of their territory. The correlation coefficient between the size of their geographic surface, measured in squared kilometres, and the number of auxiliary presidencies is positive and high (0.8386). To give some examples, the municipality of Tlaxcala has 52.46 km² and 11 presidencies; Ixtlacuixtla has 163.22 km² and 23 presidencies, while Huamantla has 340.33 km² and 39 presidencies. Municipalities with larger territories exhibit a greater number of these presidencies in comparison to municipalities with similar population size than the former, but smaller territories.

3. The bottom-up approach in Tlaxcala

In this section, the features of the bottom-up approach in Tlaxcala are unveiled. At this point, it is worth reminding that the Mexican LED database built for this research is a dataset which refers to the bottom-up approach towards economic development as it takes into account the presence of its fundamental elements within municipalities and their promotion by municipal actors. This is because proximity to local needs, wishes and aspirations is the main rationality behind the LED perspective, and the municipal sphere is the closest to the people in the Mexican context.

The presence of the bottom-up approach towards local economic development in the 44 municipalities of Tlaxcala included in the LED database for the period 1990-2005 is low as on average only two LED criteria per municipality were identified. Nationally, the average of the 898 municipalities included in the LED database is three, with the presence of development links being the most recurrent criterion followed by the

⁸⁵ In Spanish it is called *Enciclopedia de los Municipios de México*. This is an online resource published and elaborated in conjunction by the National Institute of Municipal Development and Federalism (*Instituto Nacional para el Federalismo y Desarrollo Municipal, INAFED*) and the governments of the different Mexican Federal entities (i.e. the States and the Federal District). Resource accessed on January 14, 2011: http://www.e-local.gob.mx/wb/ELOCALNew/enciclo_tlax.

promotion of capacity building and empowerment. In Tlaxcala, the elaboration of municipal development plans based on a diagnosis was first, followed by capacity building and empowerment promotion considerations (Table 1). The municipalities where the highest number of bottom-up key elements were found at some point during the period of analysis are Apizaco, Tlaxcala (i.e. the jurisdiction that host the capital city) and Tlaxco with all six identified in each of the first two, and five in the latter.

Despite the low state average of bottom-up LED elements, Tlaxcala's municipalities commonly designed development plans after carrying out a diagnosis of the local circumstances. As noted before, the importance of local development plans stems from the fact that these documents are seen by LED experts as an indispensable guide where policies to stimulate entrepreneurship, build or consolidate the different types of infrastructure, and empowerment or capacity building actions, among other tools, are considered and organised strategically to achieve the development goals established by local agents.

Table 1: Number of municipalities incorporating the LED criteria, 1990-2005

| LED criterion | Mexico | Tlaxcala |
|---|--------------------|-------------------|
| LED plan based on a diagnosis of the local economy. | 421 (46.8%) | 34 (77.3%) |
| Environmental considerations. | 245 (27.3%) | 4 (9.1%) |
| Policies or development actions to foster entrepreneurship. | 380 (42.3%) | 5 (11.4%) |
| Capacity building or empowerment policy actions. | 439 (48.9%) | 22 (50.0%) |
| Existence or creation of participation mechanisms for private, public, social sectors and the general public. | 421 (46.8%) | 8 (18.2%) |
| Links or networks of cooperation and coordination within and outside the municipality. | 574 (63.9%) | 17 (38.6%) |

Despite the existence of auxiliary presidencies all over the state, only 18.2% of its municipalities were identified to have active and well-functioning participation procedures. An interesting issue related with this is the already mentioned difference in the closeness to citizens of the different community presidencies, which could arise depending on the way their heads have been nominated and elected. The study of Apizaco and Chiautempan will shed more light on the functioning of this mechanism in Tlaxcala, and on the ways the organisations within the private and social sectors participated in their development processes.

Finally, let us recall that 'development links' is a categorical variable indicating the degree of presence of links among local agents and also between them and agents located outside their locality. It has a scale from one, denoting the non-existence of links, to three, indicating a strong presence of external and/or internal links or networks. At the national level the average in the LED dataset is 1.8 while for the state of Tlaxcala is 1.6, suggesting a slightly lower level of connectedness in Tlaxcala alone.

Once the attributes relative to the presence of the bottom-up approach in Tlaxcala have been unveiled here, the following section presents Tlaxcala's geographic, socioeconomic and economic background.

4. Tlaxcala's main physical, population and economic features

4.1 Physical and population characteristics

According to the National Institute for Statistics, Geography and Information (INEGI), there are 2,441 municipalities in Mexico distributed in 31 states, with states such as Baja California and Baja California Sur with only 5 municipalities each and others with more than 200 such as Oaxaca (570) and Puebla (217)⁸⁶. The state of Tlaxcala is the smallest of the 31 states in Mexico (0.2% of its total surface area)⁸⁷. It is located in central Mexico bordering the states of Puebla (South, East and Northeast), Hidalgo (Northwest) and the state of Mexico (West). Tlaxcala's location is considered strategic as it is close to most of the main centres of consumption in Mexico (i.e. Mexico City⁸⁸, and the states of Puebla and Mexico), and is in route to the historically most important port in the country for exports' and imports' transit (Veracruz). As a consequence, its municipalities have been well connected both within Tlaxcala's territory and with the rest of the country (González-Gutiérrez, 2007; Montalvo, 2010; Olmedo, 1999). In 2005, Tlaxcala had 1,068,207 inhabitants distributed in 60 municipalities⁸⁹. This represented 1.03 per cent of Mexico's population. Figure 1 shows the 60 municipalities that exist since 1995.

⁸⁶ Mexico City or Mexico's Federal District is not considered a state.

⁸⁷ Mexico: 1,972,550 km²; Tlaxcala: 3,991.14 km².

⁸⁸ The distance between Tlaxcala's capital city and Mexico City is 114km.

⁸⁹ As it was exposed in section 2, before 1995 there were 44 municipalities.

Figure 1, [Tlaxcala's municipal division], has been removed as the copyright is owned by another organisation. A version of it can be accessed directly from the Encyclopedia of Mexican Municipalities (http://www.e-local.gob.mx/wb2/ELOCAL/EMM_tlaxcala).

Tlaxcala is located in the so called Neo-volcanic Axis, which crosses Central Mexico from East (State of Veracruz) to West (the Pacific coast). The Eastern portion of Tlaxcala's territory is dominated by the so called *Sierra Madre Oriental* while the Western part mainly rests on the central Mexican altiplano. Not surprisingly, Tlaxcala's landscape is characterised not only by volcanoes and volcanic sierras but also extensive plains.

Despite being the smallest state in Mexico, large differences can be observed within its territory. There are municipalities with almost the same number of inhabitants per square kilometre but with a huge variation in the size of their territory. For example, in 2005, Chiautempan had a surface area of 75.83 square kilometres and a population density of 872.33 inhabitants per square kilometre, while Amaxac de Guerrero had roughly the same density (858.69 inhabitants per square kilometre) but only 11.50 square kilometres of

surface area, among other differences along Tlaxcala's municipalities such as the terrain and weather conditions.⁹⁰

Table 2. Tlaxcala's population density⁹¹

| Year | Inhabitants per square kilometre |
|------|----------------------------------|
| 1980 | 142.21 |
| 1990 | 194.50 |
| 2000 | 245.95 |
| 2005 | 272.92 |
| 2010 | 293.13 |

Data sources: INEGI's online resources based on censuses.⁹²

The population density in the state of Tlaxcala in 1990 was of 194.50 inhabitants per square kilometre whereas in 2005 this figure increased to 272.92. The most densely populated municipalities since the last decade of the XX century have been Tlaxcala, Apizaco, Mazatecochco, San Pablo del Monte, Contla, Tzompantepec, Tlaltelulco, San Juan Huactzinco, San Lorenzo Axocomanitla, Zacatelco and Chiautempan with more than 700 inhabitants per square kilometre.

Table 3. Tlaxcala's population by gender

| Year | Total population | Men | Women |
|------|------------------|---------|---------|
| 1980 | 556 597 | 277 476 | 279 121 |
| 1990 | 761 277 | 375 130 | 386 147 |
| 1995 | 883 924 | 435 390 | 448 534 |
| 2000 | 962 646 | 469 948 | 492 698 |
| 2005 | 1 068 207 | 523 053 | 545 154 |
| 2010 | 1 169 825 | 565 889 | 603 936 |

Data sources: INEGI's online resources based on censuses, and SNIM.⁹³

Tlaxcala's population composition by gender is similar to that of Mexico as a whole, as female inhabitants exceed the number of males. In addition, its population growth rate follows the same decreasing tendency as at the national level. Tlaxcala's annual population growth rate during the last five years of the first decade of the XXI century was 1.90%.

⁹⁰ Source of data: INEGI, Mexico in Figures online resource (*México en Cifras*): <http://www.inegi.org.mx/sistemas/mexicocifras/> (Accessed on April 16, 2011).

⁹¹ The figures for 2010 in this document are preliminary data from the last census carried out in 2010.

⁹² <http://www.inegi.org.mx/est/contenidos/Proyectos/ccpv/default.aspx>. Resource accessed on January 14, 2011.

⁹³ National System of Municipal Information (SNIM), INAFED's electronic resource accessed on January 14, 2011: <http://www.inafed.gob.mx/wb/inafed09/descargas>

Table 4. Tlaxcala's population growth (%)

| Period | National | State |
|-----------|----------|-------|
| 1980-1990 | 2.06 | 3.68 |
| 1990-2000 | 2.00 | 2.65 |
| 1995-2005 | 1.33 | 2.08 |
| 2000-2010 | 0.88 | 2.15 |

Data sources: INEGI's online resources based on censuses, and SNIM.

Let us now look at other three characteristics of Tlaxcala's population. First, in 1990 Tlaxcala had a population of 761,277 inhabitants from which approximately 24 per cent lived in rural localities, while fifteen years later the population had reached a million people with 21.7 per cent living in rural areas. At the national level 23.5 per cent of the Mexican population lived in rural localities in 2005. According to Pérez-Sánchez (2009) and Sánchez-Gómez (2004) the number of people living in urban areas in Tlaxcala has been growing steadily since the last century. For example, in 1970, 49.7 per cent of the total population lived in these areas, while in 2005 the figure reached 78.3 per cent.

Table 5. Main urban municipalities in Tlaxcala
(Population)

| Municipality | 1990 | 1995 | 2000 | 2005 |
|-------------------------|--------|--------|--------|--------|
| Tlaxcala | 50,492 | 63,423 | 73,230 | 83,748 |
| Huamantla | 51,989 | 59,122 | 66,561 | 77,076 |
| Apizaco | 51,744 | 62,617 | 67,675 | 73,097 |
| Chiautempan | 46,126 | 53,241 | 57,512 | 63,300 |
| San Pablo del Monte | 40,917 | 48,988 | 54,387 | 64,107 |
| Calpulalpan | 29,150 | 34,779 | 37,169 | 40,790 |
| Zacatelco | 36,650 | 30,574 | 31,915 | 35,316 |
| Contla de Juan Cuamatzi | 22,380 | 26,740 | 28,842 | 32,341 |

Data source: State and Municipal System of Databases (SIMBAD).⁹⁴

Second, in 2005, Tlaxcala's indigenous population was 5.82 per cent of its total population. This represents a small proportion of indigenous population relative to 9.80 per cent at the national level. Within Tlaxcala, the indigenous population concentrates mainly in seven municipalities. In the municipalities of Tenancingo and Chiautempan the indigenous people represent between 5 and 10 per cent of their population, while in Mazatecochco, San Pablo del Monte, Teolocholco, Ixtenco and Contla between 10 and 30 per cent (INAFED, 2009).

⁹⁴ The official name in Spanish is *Sistema Estatal y Municipal de Bases de Datos (SIMBAD)*. It is an INEGI's online resource which was accessed on February 10, 2011:
<http://sc.inegi.org.mx/sistemas/cobdem/primeracentrada.do?w=6&Backidhecho=218&Backconstem=217>

Table 6. Tlaxcala's indigenous population

| Period | National % | Tlaxcala % |
|--------|------------|------------|
| 1990 | 10.67 | 8.10 |
| 2000 | 10.50 | 7.48 |
| 2005 | 9.80 | 5.82 |

Data source: National Commission for the Development of Indigenous Peoples (CDI).⁹⁵

Finally, according with National Council of Population data⁹⁶, approximately 2.5% of the population of Tlaxcala had migrated to the United States in 2005 and Tlaxcala's contribution to the migratory phenomenon in Mexico was approximately 0.6% for the period 1997-2002. González-Romo (2008) considers that, due to the illegal nature of most migration, these figures could be higher. Then, considering the official statistics presented by him, the average remittances in the year 2003 from the United States to Tlaxcala were 5,321 dollars per migrant. He argues that these remittances have contributed to decreasing levels of poverty in the state. Pérez-Sánchez and Altamirano-Cárdenas (2009) agree and clarify that the poverty reduction is also due to a better provision of public services, and to the diversification of economic activities of individuals in rural areas as they keep growing grains, crops, vegetables or fruits and also work in cities or set up rural micro-businesses. Despite this, poverty levels have remained slightly above the national average, although the proportion of people living in poverty⁹⁷ has decreased since 1992 when Tlaxcala's poverty rate was 61.6% of the total population. By 2004 this figure was 36.2%. The concentration of poverty in Tlaxcala has been in urban areas, as rural localities present lower levels than the national average (Pérez-Sánchez and Altamirano-Cárdenas, 2009).

4.2 Economy

⁹⁵ The official name in Spanish is *Comisión Nacional para el Desarrollo de los Pueblos Indígenas (CDI)*. The calculations were done based on its online statistical resources visited on February 9, 2011: http://www.cdi.gob.mx/index.php?option=com_content&view=category&id=38&Itemid=54

⁹⁶ The official name in Spanish is *Consejo Nacional de Población (CONAPO)*. Online databases accessed on February 11 2011: http://www.conapo.gob.mx/index.php?option=com_content&view=article&id=31&Itemid=251

⁹⁷ This refers to what is called relative poverty which, according to Pérez-Sánchez and Altamirano-Cárdenas (2009), is defined as the people living between the alimentary poverty line and the patrimonial poverty one. Patrimonial poverty is defined as the population that can satisfy their basic needs of food, education and health but their income is not enough for improving housing conditions, acquiring enough clothes for all members of their families, and transportation (Székely, 2005). According to the National Council for the Evaluation of Social Development Policy (CONEVAL), the concept of patrimonial poverty refers to the insufficiency of income to acquire the basic food basket, and to make the necessary expenses in health, clothes, housing, transport and education, even if the entire household's income were used exclusively for the acquisition of these goods and services: <http://medusa.coneval.gob.mx/cmsconeval/rw/pages/medicion/glosario.es.do> (Accessed on March 12, 2011).

This section presents the main features of the economy of the state of Tlaxcala to put in perspective the background on which the economies of Apizaco and Chiautempan are inserted. Tlaxcala's economy is based on the production of non-metallic minerals, food and beverages industries, textiles, commerce and tourism. The tourist industry is rooted in both the state's pre-Hispanic and colonial history, and the nationally well-known commercialisation of clothes and traditional religious festivities such as the Huamantla's festival which is accompanied by a local produce expo and cattle exhibitions. The gross domestic product (GDP) of Tlaxcala represents less than one per cent of the national GDP as shown in table 7.

Table 7. Tlaxcala's contribution to the national GDP by sector (1995-2005)

| Year | Total % | Primary % | Secondary % | Tertiary % |
|------|---------|-----------|-------------|------------|
| 1995 | 0.52 | 0.67 | 0.65 | 0.46 |
| 2000 | 0.54 | 0.65 | 0.67 | 0.48 |
| 2005 | 0.55 | 0.58 | 0.57 | 0.53 |

Data source: SIMBAD.

According to González-Romo (2008) and Pérez-Sánchez (2010) the secondary and tertiary sectors became increasingly important in Tlaxcala to the detriment of the primary sector which had been dominant until the end of the first half of the XX century. Rosales (2003) identifies the consolidation of Tlaxcala's industrialisation process in 1979 when it was given the category of state with consolidated industrial parks, seven years after it was included in Zone 3 of the federal government industrial programme. At the regional level, the manufacture activity has been concentrated mainly in central and Southern parts of Tlaxcala, including Apizaco and Chiautempan.

During the first decade of the XXI century, services were consolidated in terms of both people employed and the proportion of Tlaxcala's GDP. In 2000, 38.53% of the people employed were working in the secondary sector, 42.58% in the tertiary sector and 18.89% per cent in primary activities. Among the people employed in the tertiary sector, the leading services in 2000 were commerce (13.01%), education (6.45%), government (3.95%), communications and transport (3.84%), and hospitality sector activities (2.49%).⁹⁸

⁹⁸ Source: National System of Municipal Information, INAFED, Website: <http://www.inafed.gob.mx> (Accessed on January 12th, 2011).

Table 8. Sectors' contribution to Tlaxcala's GDP

| Year | Primary % | Secondary % | Tertiary % |
|------|-----------|-------------|------------|
| 1995 | 8.35 | 33.00 | 58.65 |
| 2000 | 6.57 | 35.62 | 57.81 |
| 2005 | 4.04 | 33.93 | 62.03 |
| 2008 | 4.82 | 31.13 | 64.05 |

Data source: State and Municipal System of Databases, INEGI's online resource (SIMBAD).

As far as the GDP composition within the production of manufactures is concerned, the principal economic activities following the National Accounts System classification have been food, beverages and tobacco industries; chemicals, plastics and products of non-metallic minerals; and textiles, clothes and the leather industries. Relative to the service sector the predominant activities have been financial and real estate services; commerce, restaurants and hotels; and transport, storage and communication services as illustrated in table 9.

Table 9. Tlaxcala's GDP composition by main economic activities

| Economic activities | 1995 | 2000 | 2005 |
|---|-------|-------|-------|
| Manufactures | | | |
| Food, beverages and tobacco | 6.30 | 7.05 | 5.02 |
| Textiles, clothes and leather industries | 4.66 | 4.34 | 3.68 |
| Chemicals, plastics and products of non-metallic minerals | 10.43 | 11.44 | 11.71 |
| Machinery, equipment and metallic products | 2.70 | 4.30 | 2.81 |
| Wood industry | 0.19 | 0.22 | 0.17 |
| Paper and editorial industry | 0.71 | 0.66 | 0.74 |
| Basic metallurgic industries | 0.60 | 0.75 | 1.31 |
| Other manufactures | 0.71 | 0.98 | 1.05 |
| Services | | | |
| Financial and real estate | 17.65 | 15.02 | 17.38 |
| Commerce, restaurants and hotels | 12.77 | 13.56 | 14.99 |
| Transport, storage and communications | 8.23 | 9.53 | 12.00 |
| Other services ⁹⁹ | 20.0 | 19.7 | 17.66 |

Data source: SIMBAD.

⁹⁹ This refers to government, education, health, consultancies, entertainment (e.g. culture, sports), etc.

As services and manufactures concentrate a significant part of Tlaxcala's economy, let us look at the main features of firms in these sectors of economic activity. Table 10 unveils that 99.46% of Tlaxcala's formal firms in 2003 were micro and small companies while this figure is 98.84% at the national level. Taking into account the number of employees in these categories of firms, their importance for the state's economy is confirmed as they employed 65.12% of Tlaxcala's workers whereas the national figure is 55.16% (Pérez-Sánchez and Altamirano Cárdenas, 2009).

Table 10. Number of firms and people employed by firm size in services and manufactures, 2003

| Firm size by No. of employees ¹⁰⁰ | No. of firms | State level composition % | People employed | State level contribution % |
|--|---------------|---------------------------|-----------------|----------------------------|
| Micro 0-10 | 36,834 | 97.96 | 66,495 | 55.62 |
| Small 11-50 | 564 | 1.50 | 11,355 | 9.50 |
| Medium 51-250 | 147 | 0.39 | 13,938 | 11.66 |
| Large >250 | 55 | 0.15 | 27,765 | 23.22 |
| Total | 37,600 | 100 | 119,553 | 100 |

Data source: Pérez-Sánchez and Altamirano-Cárdenas (2009)

Concerning agricultural activities, there was a reduction of total cultivated land during the first decade of the XXI century as 243,388 hectares were dedicated to this economic activity in 1995 and 243,649 hectares in 2000, whereas in 2005 this figure decreased to 239,557.5 hectares. Based on the National Accounts System classification data, the cultivation of alfalfa, maize and wheat stand out as the main plantations.

Table 11. Main agricultural products in Tlaxcala

| Year | Value of agricultural produce (thousands of pesos) | Alfalfa % | Maize % | Wheat % |
|------|--|-----------|---------|---------|
| 1995 | 740,293 | 5.08 | 40.90 | 22.19 |
| 2000 | 1,145,777 | 11.29 | 30.40 | 9.53 |
| 2005 | 1,203,549 | 7.52 | 22.56 | 14.69 |

Data source: SIMBAD.

The main cattle farming activities are bovine and porcine stockbreeding representing in 1995, respectively, 64.73% and 27.90% of the total livestock related production; while in

¹⁰⁰ According to the Mexican official classification of firms published in 2002.

2000 these figures were 59.97% and 30.66%; and in 2005, 61.22% and 29.84%, respectively. The presence of other primary sector activities has been marginal as, for example, forestry represented in 1995 only 1.27% of the value of stockbreeding activities and 0.46% of agriculture; in 2000, 5.32% and 2.35%; and in 2005, 3.09% and 1.74%, respectively.

5. Selection criteria based on the number of LED constituents, MMDI differences and employment indicators

As noted, within the state of Tlaxcala, Apizaco and Chiautempan were the two municipalities selected. The criteria for selection considered the number of LED constituents in each municipality, the MMDI features, as well as the similar size and composition of their economies as indicated by their population employed and the proportion of people working in each of the different economic sectors (i.e. primary, secondary and tertiary) at the start of the period of analysis. Let us remember that the development index (MMDI) was calculated and proposed as the dependent variable in the quantitative analysis discussed in chapters 4 and 5. It is worth reminding that the index varies between 0 and 1, with 1 indicating the highest possible level of development.

Once it was defined that two municipalities in the state of Tlaxcala would be studied, four different situations were of particular interest:

- ❖ The comparison between two municipalities where all the LED key elements were identified and their MMDI improvement had been above the state average.
- ❖ The comparison between two municipalities where all LED key elements were identified and the MMDI improvement of one of them had been above the state average, while the MMDI improvement of the other below it.
- ❖ The comparison between two municipalities where all the LED key elements were identified and their MMDI improvement had been below the state average.
- ❖ The comparison of one municipality where all the LED key elements were identified as well as its MMDI improvement had been above the state average, against another municipality where half or at least two of the LED constituents were identified and its MMDI improvement had been also above the state average.

The first option was the least appealing taking into account the possibility of finding other comparisons that may challenge the mainstream literature. This is because the main purpose of this research is to contribute to build accurate knowledge on the impact of the bottom-up approach on economic development and the quality of people's life, at least in the Mexican context. In addition, the first option would have limited the analysis to the comparison between Apizaco and the city of Tlaxcala. Despite a very similar presence of working population and employment structure (see table 12 below), the state of Tlaxcala's capital city jurisdiction should be ruled out as the impact of governmental offices of the three levels of government on the economy of capital cities in Mexican states seems to have been high according to the MMDI figures described in chapter 4.

As far as the second situation is concerned, there were no municipalities with all six LED constituents other than Apizaco and Tlaxcala. The municipality of Tlaxco with five of them was not suitable because its MMDI, size of working population and employment composition in 1990 were far away Apizaco's figures. Even though Huamantla exhibited almost all constituents (i.e. 4) and a similar size of working population, it was also disregarded as a result of a MMDI in 1990 far below Apizaco's figure and again a different employment structure with primary sector predominance. By the same token, the characteristics of the third option were non-existent in any pair of municipalities. Furthermore, as the first option, the third one is not really appropriate to investigate if a municipality that pursued development goals through bottom-up policies and mechanisms experienced a higher favourable impact than municipalities with a low interest in LED.

Table 12. Municipal indicators for the selection of the case studies within Tlaxcala

| Municipality | LED | MMDI Diff05-90 | MMDI 1990 | Working population (WP) | Primary % of WP | Secondary % of WP | Tertiary % of WP |
|----------------------|-----|-------------------|--------------|----------------------------|--------------------|----------------------|---------------------|
| Apizaco | 6 | 0.2792 | 0.3463 | 14,407 | 8.08 | 28.99 | 60.91 |
| Chiautempan | 3 | 0.2267 | 0.2414 | 13,280 | 16.24 | 40.45 | 41.50 |
| Huamantla | 4 | 0.1463 | 0.1366 | 13,090 | 35.94 | 26.71 | 35.93 |
| Ixtacuixtla | 2 | 0.2033 | 0.0702 | 7,930 | 39.48 | 26.95 | 30.86 |
| Panotla | 3 | 0.1973 | 0.1140 | 4,481 | 26.20 | 21.18 | 49.36 |
| Tlaxcala | 6 | 0.2899 | 0.3692 | 15,643 | 6.37 | 26.77 | 64.24 |
| Tlaxco | 5 | 0.1224 | 0.0434 | 6,822 | 56.23 | 23.35 | 19.57 |
| State of Tlaxcala | 2 | 0.1918 | 0.1207 | 196,609 | 28.56 | 33.91 | 35.66 |
| National | 3 | 0.1690 | 0.1499 | 23,403,413 | 22.65 | 27.79 | 46.13 |

Source: Own elaboration with data from INEGI's 1990 Census online databases.

As a consequence, the fourth possibility was the last chance to find another relevant and interesting case. The only municipality similar to Apizaco which performed well with only three or at least two LED constituents was Chiautempan. It exhibited the most similar characteristics to Apizaco in terms of all the remaining indicators: MMDI, working population and employment composition in 1990 as shown in table 12. There were few other municipalities with three or two LED constituents which performed above the state average such as Ixtacuixtla and Panotla; however, they presented significant differences in all the other indicators in comparison to Apizaco.

6. The development context in Apizaco and Chiautempan

6.1 Location and population

As far as the specific location and population characteristics of the selected municipalities are concerned, both of them are located in central Tlaxcala. Apizaco has a surface area of 43.90 km² representing 1.1% of Tlaxcala's surface area, while Chiautempan accounts for 1.9 per cent (75.83 km²). In 2005 Apizaco's population represented 6.84% of Tlaxcala's total population, while Chiautempan's contribution was 5.93%. Chiautempan shares its west border with Tlaxcala's capital city jurisdiction. The distance between Tlaxcala's and Chiautempan's main squares is only 7 km. The same figure between Apizaco and the state capital city is 21 km.

The territories of what today are Apizaco and Chiautempan have had a historical central role in the development of Tlaxcala. This originated a slow process of urbanisation that was accelerated, first, by the advent of the railway in the last decades of the XIX century and, second, with the industrialisation policy followed by national and state governments in the import-substitution era. As a consequence, net migration in Apizaco and Chiautempan has been positive as these municipalities have welcomed people from both, other states of Mexico and other municipalities within Tlaxcala. Nonetheless, there is a notorious difference between them as the following information shows. The census 1990 reveals that 24.59% of Apizaco's population older than 5 had not been born in the municipality, while this figure was only 9.50% for Chiautempan. For 2000, these figures were 27.81% and 13.83%, respectively.

Table 13. Population annual growth rates

| Year | State (%) | Apizaco (%) | Chiautempan (%) |
|-----------|-----------|-------------|-----------------|
| 1990-1995 | 3.22 | 4.20 | 3.09 |
| 1995-2000 | 1.78 | 1.62 | 1.60 |
| 2000-2005 | 2.19 | 1.60 | 2.01 |
| 2005-2010 | 1.90 | 0.93 | 0.90 |

Data sources: INEGI's online resources based on censuses, and SNIM.

High population growth rates before 1995 increased dramatically the population living in urban areas in Chiautempan. In 1970, 66.4% of its population was living in urban areas; in 1990, 91.2%; while in 1995 this figure reached 93.1%. In 1970, 11.7% of Apizaco's population lived in rural areas; in 1990, 6.4%, while in 1995 only 1.7%. Table 14 shows that their population density has increased steadily and has been far above the state average.

Table 14. Population density in Apizaco and Chiautempan
(Inhabitants per square kilometre)

| Year | State | Apizaco | Chiautempan |
|------|--------|----------|-------------|
| 1990 | 194.50 | 1,178.68 | 608.28 |
| 1995 | 225.84 | 1,426.35 | 702.11 |
| 2000 | 245.95 | 1,541.57 | 758.43 |
| 2005 | 272.92 | 1,665.08 | 834.76 |
| 2010 | 293.13 | 1,742.41 | 872.33 |

Data source: INEGI's online resources based on censuses.

We have seen that the proportion of indigenous people in Tlaxcala's population is below the national average, being Chiautempan one of the municipalities with more indigenous presence in the state. In the case of Apizaco, the percentage of indigenous population is much lower than the state average. In both cases – although more notoriously in Chiautempan – the proportion of indigenous population has declined rapidly during the period of analysis (Table 15).

Table 15. Indigenous population in Apizaco and Chiautempan (%)

| Year | State | Apizaco | Chiautempan |
|------|-------|---------|-------------|
| 1990 | 6.96 | 1.17 | 13.81 |
| 2000 | 5.33 | 1.66 | 6.84 |
| 2005 | 4.77 | 1.42 | 5.33 |
| 2010 | 2.62 | 0.80 | 2.82 |

Data source: SIMBAD.¹⁰¹

¹⁰¹ The information at the state level varies slightly in relation to the information presented in table 6 because the CDI considers as indigenous population to all the people living in a household in which at least one of the

6.2 Economy

Let us now look to the economy of the case studies. According to the Encyclopedia of Mexican Municipalities (INAFED, 2009), the territories of Apizaco and Chiautempan have been located strategically since pre-Hispanic times as they were in the tribute route of the Aztec empire extended by Moctezuma I (1440-1469) from the Valley of Mexico to the South reaching the nowadays known states of Puebla, Veracruz and some parts of Guerrero. Later, Veracruz was the entrance point of the Spanish conquerors towards Tenochtitlan, the main urban establishment and nucleus of the Aztec empire. The tribute route became the fundamental trade artery for the Spanish crown as the European merchandises entered by Veracruz towards the capital of the new colony and other central hubs, from where, in the opposite direction, the endogenous produce, silver and gold left the new continent towards Spain.

However, it is not until the second half of the XIX century that the territory of what today is known as Apizaco started having a key role in the Mexico City-Veracruz route as the railway between Mexico City and Apizaco, Apizaco and Puebla, and Puebla and the port of Veracruz started operations. Economic activities related with the railway and others grew steadily for more than half a century benefiting the economy of the Apizaco region which previously had been dominated by primary sector activities.

Chiautempan also benefited from the construction of the railway. In June 1869 the route Apizaco-Chiautempan was inaugurated as part of the Mexico City-Puebla route which started operations later that year. The main economic activities of Chiautempan at that time were primary activities with growing presence of the textile and clothing industries which flourished during great part of the XX century. By 1890 one of the most famous textile firms established in Tlaxcala called 'La Estrella' had been relocated from the municipality of Santa Cruz Tlaxcala next to Chiautempan's railway station in order to reduce costs and have better access to expanding markets. In addition, in 1894 another well-known firm in the textile history of Tlaxcala ('La Xicohténcatl') started operations in Chiautempan (INAFED, 2009). More recently, Apizaco's contribution to Tlaxcala's productivity in relation to all three economic sectors has been greater in comparison to Chiautempan's contribution as it is illustrated along the rest of this section.

heads or one of their ascendants speaks an indigenous tongue plus any other citizen who is able to speak any of the indigenous tongues in the country. INEGI's data are based only on the proportion of households in which one of the heads of the family speaks an indigenous tongue.

In terms of economically active population, Apizaco and Chiautempan share of Tlaxcala's total in 2000 was 7.44% and 6.31%, respectively. The other municipalities with a high contribution in that year were Tlaxcala, Huamantla and San Pablo del Monte with 8.55%, 7.04% and 5.82%, respectively. From these municipalities, the percentage of working population in each of the three economic sectors in 2000 was similar in Apizaco and Chiautempan (see table 16) as Huamantla still had a high proportion of people working in the primary sector (28.16%), San Pablo del Monte in secondary activities (60.33%), and Tlaxcala's bias towards services (67.26%) was higher than in Apizaco and Chiautempan, probably because it hosts the state powers (i.e. legislative, judiciary and executive).

Table 16. Economic composition 1990 and 2000: Apizaco and Chiautempan
(% of working population)

| Sector | State 1990 | Apizaco 1990 | Chiautempan 1990 |
|-----------|---------------|-----------------|---------------------|
| Primary | 28.56 | 8.08 | 16.24 |
| Secondary | 33.91 | 28.99 | 40.45 |
| Tertiary | 35.66 | 60.91 | 41.50 |
| | 2000 | 2000 | 2000 |
| Primary | 18.89 | 5.32 | 7.47 |
| Secondary | 38.53 | 32.05 | 41.43 |
| Tertiary | 42.58 | 62.63 | 51.10 |

Data sources: INEGI's online resources based on censuses, and SNIM.

Since 1990, a growing proportion of people have been working in the tertiary sector in both municipalities followed by secondary economic activities. According to the Economic Census 2009 by INEGI, in 2008, Apizaco accounted for 12.2% of the total number of firms in Tlaxcala dedicated to manufactures and services, while this figure was 9.4% for Chiautempan and 10.4% for the municipality of Tlaxcala.¹⁰² In terms of total employees in these economic activities, Apizaco was also ahead with 12.2% of the state's total, while Chiautempan had 8.8% and Tlaxcala municipality 11.9%. In the state of Tlaxcala, these three municipalities have always been the leaders considering together these two economic sectors.¹⁰³

Considering manufacturing alone, the economy of Apizaco has been more diversified than the economy of Chiautempan as there has been presence of firms in the following

¹⁰² These figures did not vary much from the 2003 ones as this information was 13.68% for Apizaco, 9.16% for Chiautempan, and 10.05% for Tlaxcala municipality.

¹⁰³ However, considering manufactures alone other municipalities lead the industrial production in Tlaxcala. For example, Tetla de la Solidaridad accounted in 2008 for 23.57% of the state total gross industrial production (i.e. Tlaxcala's gross domestic product in manufactures), mainly producing cardboard and other paper made products; chemicals; and glass products; and Tzompantepec accounted for 12.44%, mainly due to its metallurgic industry: steel and iron.

sectors: food and beverages; textiles and clothes; machinery and equipment; wood and paper; and mineral and chemical products. This might be due to the fact that Apizaco represents one of the keystones of industrial growth in Tlaxcala, as its foundation was based on the establishment of the railway and, later, it has benefited from national, state and municipal policy decisions such as the creation of the industrial corridor Apizaco-Xalostoc-Huamantla and incentives for the attraction of firms. Apizaco's contribution to the industrial gross domestic product of the state of Tlaxcala in 2008 was 2.42%, while Chiautempan's share was 1.53%.

About 48.46% of Apizaco's industrial gross output derives from the production of paper, cardboard and related products, representing 9.72% of this industry in Tlaxcala; 37.98% to the beverages and food sector, as one plant of Coca-Cola (FEMSA) is established in the locality of San Luis Apizaquito, representing 6.53% of this industry at the state level; and about 6.51% corresponds to the production of chemicals and non-metallic mineral products (i.e. resins, synthetic rubber, chemical fibres, and cement and concrete products), representing 0.46% of this industry in Tlaxcala.

The predominant industry in Chiautempan is the textile and clothing, to the extent that in 1985 more than half of the working population in the municipality was employed in the production and/or commercialisation of its products. However, some of them performed other activities to complement their income (Rendón-Garcini, 1996). It is thought that the introduction of flocks of sheep for meat production by the Spanish conquerors could be the origin of the textile industry in Chiautempan as the first wool mills were established during the colonial period. Since then Chiautempan has been home of Spanish entrepreneurs who have been managing businesses mainly in this sector of economic activity.

The textile and apparel industries accounted for 83.85% of the municipal gross industrial product in 2008, representing 15.58% of the textile industry at the state level. Chiautempan produces 66.40% of the carpets, curtains and linen manufactured in Tlaxcala. Although in the most prosperous time of this industry there was large scale production by large firms and artisanal production by individuals in small workshops located most of the time in their own homes, nowadays many large firms have closed and the production concentrates in medium size semi-industrial workshops. Most artisanal production in Tlaxcala is now produced in Contla, one of the neighbouring municipalities.

The textile industry in Tlaxcala and, particularly, in Chiautempan has suffered from the introduction of new materials since the mid XX century as this industry was based on cotton and wool fibres produced locally; the situation was aggravated by the opening of the country to trade in 1986. Greater foreign competition, a more diversified demand, and the arrival of synthetic fibres from the United States and China caused some parts of the clothes' production process to become redundant, requiring the adaptation of producers to the new materials and characteristics of the international market. Producers in the neighbouring states of Hidalgo, Puebla and Mexico were better equipped for the changes that the globalisation of the world economy demanded (Rendón-Garcini, 1996; Rosales, 2003).

It is worth mentioning that not all the clothes and garments sold in Chiautempan's shops and informal stalls are produced locally; some are from other municipalities within Tlaxcala, others from other parts of Mexico; and, it is not difficult to find foreign products mainly from Asian countries. The second activity in the manufacture sector of Chiautempan is food and beverages production (i.e. mainly bread, tortillas and dairy products) with 7.51% of its industrial gross domestic product in 2008, representing 0.84% of this particular industry at the state level.

As far as the tertiary sector is concerned, Apizaco and Chiautempan contribute considerably to state's gross production (i.e. Tlaxcala gross domestic product in the tertiary sector excluding governmental services) as in 2008 the former accounted for 31.15%, and the latter for 11.20%. In Apizaco the dominant services are passenger transportation, storage, and postal and carrier services representing 38.92% of its own gross production in services, and 84.24% of Tlaxcala's gross production in this group of services. Then, wholesale commerce accounts for 17.16% of its service sector, and 42.85% of Tlaxcala's service account in this particular activity. Retail follows with 16.59% and 18.32%, respectively.

In the case of Chiautempan, retail stands out with 34.80% of its own tertiary gross domestic product, representing 13.82% of Tlaxcala's one considering this specific tertiary activity. Next in order comes the mass media sector accounting for 22.62% and 17.29%, respectively. The third service in importance is wholesale commerce with a share of 15.89% in Chiautempan's service gross figure and 14.28% in Tlaxcala's wholesale account.

Finally, although historically more people has been working in primary sector activities in Chiautempan than in Apizaco,¹⁰⁴ its contribution to Tlaxcala's GDP has been lower than Apizaco's as the latter stockbreeding activities still have some relevance at the state level.¹⁰⁵

Table 17. Value of the main agricultural produce and meat production in Apizaco and Chiautempan as a percentage of state's values

| 1995 | Apizaco | Chiautempan |
|---------------|---------|-------------|
| Stockbreeding | 5.24 | 0.94 |
| Agriculture | 2.19 | 1.77 |
| 2000 | | |
| Stockbreeding | 7.38 | 2.21 |
| Agriculture | 1.60 | 1.37 |
| 2005 | | |
| Stockbreeding | 5.01 | 1.25 |
| Agriculture | 1.96 | 0.89 |
| 2008 | | |
| Stockbreeding | 4.23 | 1.18 |
| Agriculture | 1.16 | 1.16 |

Data source: SIMBAD.

6.3 LED constituents and the MMDI

As noted, all six LED constituents were identified in Apizaco. In Chiautempan, by contrast, the LED effort has been less extended. Only the elaboration of a development plan, participation mechanisms and development links were observed. Apizaco and Chiautempan are among the municipalities in the state of Tlaxcala with the highest level of connectivity (i.e. development linkages), both reporting a three in the scale of the corresponding variable in the LED database, while the state average was 1.6. As far as the degree of municipal autonomy in designing and implementing public policies with impact on their territory is concerned, Apizaco is classified in the category which indicates a balance between state and federal strategies, and locally originated ones; while Chiautempan is placed in the category indicating a predominance of external interventions. Both of them were above the state average and Apizaco was also above the national one.

¹⁰⁴ For example, in 2000, 1,405 people was occupied in primary activities in Chiautempan while 1,130 in Apizaco.

¹⁰⁵ Among the 60 municipalities that exist since 1995, Apizaco has occupied at least the fifth place considering the value of its meat production.

As far as the features of Apizaco's and Chiautempan's MMDI figures are concerned, table 18 compares the figures of the case studies with the state and national level data. The improvement in the development index calculated for the state of Tlaxcala between 1990 and 2005 was 0.1918 units. The main aspects to highlight are that both municipalities were in a better condition in 1990 than the state as a whole, and that the improvement in the MMDI was also higher for them than for the state. The figures for the state of Tlaxcala are poorer than the national ones except for a higher improvement during the period of analysis.

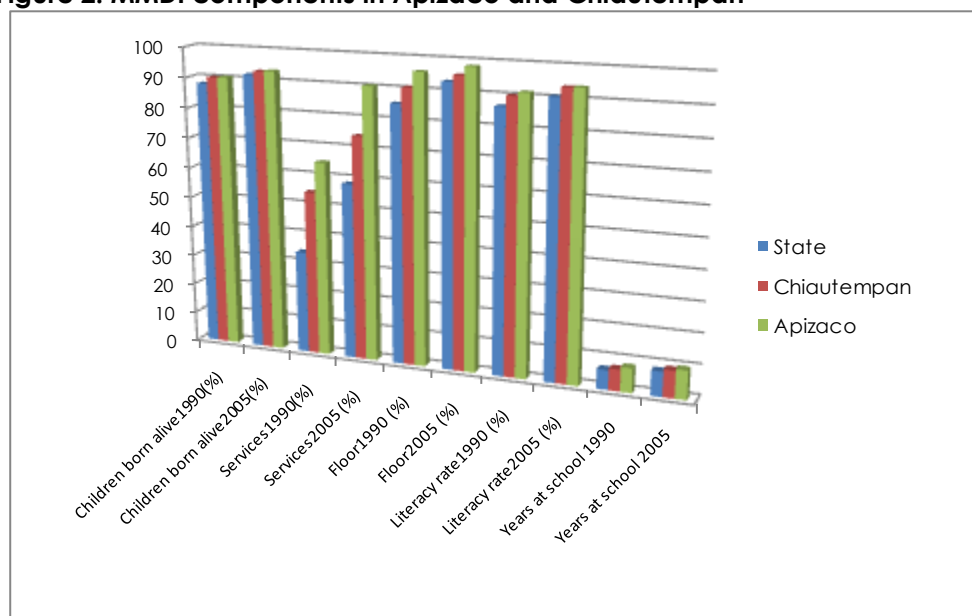
Table 18. Municipal Development Index figures: Apizaco and Chiautempan

| | National | State | Apizaco | Chiautempan |
|--|----------|--------|---------|-------------|
| MMDI₁₉₉₀ | 0.1499 | 0.1207 | 0.3463 | 0.2410 |
| MMDI₂₀₀₅ | 0.3189 | 0.3125 | 0.6255 | 0.4678 |
| MMDI₂₀₀₅-MMDI₁₉₉₀ | 0.1690 | 0.1918 | 0.2792 | 0.2267 |

Data source: Own calculations with data from INEGI's online resources

In addition, Apizaco's development level as measured by the MMDI was higher than Chiautempan's in both years. As expected for a locality where all LED constituents were identified, the improvement of Apizaco's index was higher than Chiautempan's. Comparing their respective development processes would allow having a better insight on the causes of such improvements and the role of the bottom-up approach to achieve them.

Let us look now to the MMDI components in both municipalities and at the state level in figure 2. First, the percentage of children who survived out of every 100 born alive reveals that both municipalities were in a better situation than the state considered as a whole in 1990 and 2005. Although the difference between our case studies is small, Apizaco experienced lower levels of child mortality.

Figure 2. MMDI components in Apizaco and Chiautempan

Data source: Own calculations with data from INEGI's online resources

Second, housing characteristics in terms of three fundamental services (i.e. electricity, clean water supply and sewers) taken together were poor in all cases in 1990, but again Apizaco was in a more advantageous position. Tlaxcala's figure for 2005 kept being very low although it improved considerably. In relation to the floor material, a better panorama than the access to fundamental services was observed in all cases, with Apizaco again in a better position. Finally, as far as education is concerned, Apizaco was again above Chiautempan, and both municipalities experienced higher literacy rates and average years of education than the state figures in both years.

6.4 Auxiliary presidencies

In Apizaco, there are seven auxiliary presidencies while in Chiautempan fifteen. Apart from the extension of the territories, Olmedo (1999, 2005) suggests that the differences in the number of auxiliary presidencies within each municipality obey to socio-political aspects. The same reason can explain why some communities adopted the political party procedure for the election of their presidents replacing the traditional communitarian system at some point during the period of analysis. In Apizaco all of them were already elected in 2000 by the political party mechanism while in Chiautempan seven were still elected by traditional communitarian mechanisms as illustrated in table 19.

Table 19. Community presidencies in Apizaco and Chiautempan

| Apizaco's communities | Type of election |
|----------------------------------|-------------------------|
| Cerrito de Guadalupe | Parties system |
| Col. José María Morelos | Parties system |
| Col. San Isidro | Parties system |
| Guadalupe Texcalac | Parties system |
| San Luis Apizaquito | Parties system |
| Santa Anita Huiloac | Parties system |
| Santa María Texcalac | Parties system |
| Chiautempan's communities | Type of election |
| Texcacoac | Parties system |
| Xaxala | Parties system |
| Col. El Alto | Parties system |
| Col. Chalma | Parties system |
| Col. La Reforma | Parties system |
| Col. Industrial | Parties system |
| Col. Tepetlapa | Traditional |
| Tepatlaxco | Traditional |
| Xochiteotla | Traditional |
| San Pedro Tlalcuapan | Traditional |
| Santa Cruz Tetela | Traditional |
| Barrio De San Pedro Muñoztla | Traditional |
| Santa Cruz Guadalupe | Parties system |
| Guadalupe Ixcotla | Parties system |
| San Bartolo Cuahuixmatla | Traditional |

Source: INAFED, 2009.¹⁰⁶

7. Final remarks

The main selection criteria of the proposed case studies are rooted in the key elements of the bottom-up approach to LED pinpointed in the first part of this research and discussed extensively in previous chapters. It was highlighted that the peculiarity of Tlaxcala's formal institutional setting constitutes a special attribute in the Mexican context and, therefore, a straightforward motivation for choosing two municipalities within this state. Specifically, what makes interesting to study qualitatively two municipalities in the state of Tlaxcala than others in other states of Mexico is the institutionalised existence,

¹⁰⁶ In 2000, seven communities in Chiautempan still elected the auxiliary presidents by traditional mechanisms. In January 2012, the number of municipalities elected by this means was only 5: Tepetlapa, Tepatlaxco, Xochiteotla, Tlalcuapan and Cuahuixmatla.

since 1983, of the *auxiliary or community presidencies* which, as we have seen, represent different communities within a municipality in the decision-making organ of their respective municipal government.

Tlaxcala's authorities have put in place a legal structure which encourages citizens' participation in public affairs, but it has been a state with relatively small incidence of LED projects. However, it was possible to identify two municipalities within this state where the presence of the elements of the bottom-up approach varied considerably according to the LED database. The two municipalities in Tlaxcala which will be further analysed are Apizaco and Chiautempan. In Apizaco all six bottom-up fundamental elements were identified at some point during the period 1990-2005, while in Chiautempan only half of them. However, both municipalities experienced an above average improvement in terms of the MMDI, although higher in Apizaco. It is of great relevance and pertinence for this research to study their development processes to distinguish the possible causes of such performance, and the role of the elements related to the LED perspective.

Apizaco and Chiautempan are among the most densely populated municipalities in Tlaxcala with most of its population living in urban areas. Apizaco has been better off than Chiautempan in terms of socio-demographic and socio-economic features as measured by the different MMDI components and MMDI total improvement between 1990 and 2005, as well as in terms of economic performance as indicated by their contributions in all sectors of economic activity. Both municipalities have been leading the services sector in this state together with the municipality of Tlaxcala.

To sum up, municipal development indexes show that in 1990 and 2005 Apizaco and Chiautempan were in a better situation than the state of Tlaxcala as a whole, as illustrated by higher MMDI figures. Moreover, the increment in their respective MDIs represented a higher improvement than the one observed at the state level. All these features together with the institutional setting of Tlaxcala, and the different importance given to the bottom-up approach elements in each of these municipalities are the elements that make relevant and pertinent their selection as case studies. As a consequence, some interesting and puzzling aspects to discuss arise.

More specific queries related with the research questions presented in the introductory section of this chapter come up from Apizaco's and Chiautempan's socio-political and economic contexts. For example, what are the main channels or mechanisms that community presidents have used to promote citizens' participation in public affairs? Is there any marked difference between political party nominated presidents, and the

ones elected by traditional communitarian methods? Has the role of auxiliary presidencies been any different in Chiautempan's localities with a higher proportion of indigenous inhabitants? What has been the role of the bottom-up approach in Apizaco's advantageous position in terms of the different MMDI's components and its contribution to Tlaxcala's economy? What are the key elements that allowed Chiautempan to improve more than the state average in terms of the MMDI, and keep its high economic profile in Tlaxcala's textile and services sectors after the openness to trade of the Mexican economy, which reached consolidation during the period of analysis of this research?

The various issues around these questions will be analysed in the following chapter of this document while studying and comparing the development processes of Apizaco and Chiautempan in light of the fundamental elements of the bottom-up approach towards economic development, the information presented here as well as the fieldwork performed in each of them.

CHAPTER 7

A closer examination of the impact of the bottom-up approach in Mexican municipalities: Apizaco and Chiautempan 1990-2010

1. Introduction

While identifying whether LED constituents were relevant in determining the development outcomes of Mexican municipalities was the central objective of the quantitative study, the rationale of the qualitative analysis is to dig deeper into the development processes of two of them in order to comprehend how differences in approaches to LED have affected the well-being of the population. In other words, the case studies are intended to inform on the peculiarities of their respective development process and to provide explanations on how the bottom-up approach could have had a positive impact on their development fortunes.

The main limitation in proposing a model specification to study quantitatively the effects of the bottom-up strategies in Mexico was the scarcity of information on these strategies and of relevant databases at the municipal level. As a result a LED database was designed and built in order to be able to carry out the quantitative analysis. A similar situation does not allow performing a qualitative study without engaging first in substantive data collection. Although there is a vast literature covering diverse issues related to rural, urban and territorial development in Tlaxcala, there is no specific material on the impact of the key elements of the bottom-up approach identified here, nor on the selected municipalities for the whole period of analysis.

Qualitative research experts such as Fontana and Frey (1994) and Winchester and Rofe (2010) point out that a researcher needs to embark on interviewing to acquire information directly from knowledgeable people when it is not obtainable from other sources. As a variety of meanings and understandings about a particular phenomenon exist in any given human context (Dunn, 2010; McGuirk and O'Neill, 2010; Winchester and Rofe, 2010), the inclusion of both experts (i.e. academics) and stakeholders involved in development processes (i.e. members of public, social and private sectors) was necessary to be able to construct the most accurate picture of local actions and interactions which have facilitated or not positive development outcomes. LED strategies are expected to have an impact mainly in the medium and long runs although they could also have a short run impact. Therefore, the data collection design considered LED features in place or implemented at any moment along the period of analysis.

The targeted individuals to participate as interviewees in this study were considered taking into account the actors involved in the specific matters and concerns of the development of places from a local perspective. This is known formally as 'purposive sampling' and includes not only criterion sampling, but also the possibility of benefiting of new contacts and taking advantage of the opportunities that arise during fieldwork (Bradshaw and Stratford, 2010; Mason, 1994; McGuirk and O'Neill, 2010). Therefore, the interviewees were selected bearing in mind the analytical setting explained in detail in the first chapters where examples of actors from the private and social sectors participating in the development processes, alongside governmental authorities, can be found in the cases reviewed to illustrate the key elements of the bottom-up approach. The private sector includes legally constituted for-profit entities and their representations commonly known as business associations. These representations are organised by sectors of economic activity or more specifically in relation to particular economic activities. The social sector consists of non-governmental or civil society organisations involved in different social, welfare or social development activities (Edwards, 2004; Lewis and Kanji, 2009; Putman, 2000). Examples of them are labour unions; neighbourhood, community, peasants, indigenous people or migrants' organisations; cooperatives; and sports clubs, among others.

As a result of the intensification of police and military operations against drug gangs in Mexico since 2006 and the distrust of even ourselves of any stranger asking questions, we expected low participation levels of potential interviewees within the social and private sectors. Bradshaw and Stratford (2010), Fontana and Frey (1994), Kvale (2008), Mason (2004), and Stake (2005) maintain that although access issues can play an important role when embarking on in-depth interviewing, the primary concern of the researcher is not the quantity, but the pertinence and relevance of each of the individuals who are interviewed.

As far as the interviewees from the public sector are concerned, two state governmental offices have been working directly with municipalities since the 1990s (i.e. the Development Planning Committee and Tlaxcala's Institute for Municipal Development). Civil servants from these offices were invited to take part as interviewees and accepted (Interviews 3 and 15; see table 1 in the chapter Annex for details). The state authority who introduced the community presidencies' reforms in 1995 also participated (Interview 17). In addition, municipal authorities which were in office during the period of analysis were targeted as possible interviewees. Although it was difficult to track them and once some contact details were obtained, most of them refused to take part, in the end, three in each municipality were interviewed (Interviews 4, 5, 6, 9, 10, 11). Regarding federal

government representations in the state of Tlaxcala, the officials in charge of the representations of the Social Development, and Economy ministries were invited to have a say obtaining a positive answer only from the representative of the latter (Interview 2). The second in charge of the Social Development ministry representation was also targeted but no answer was received.

Relying on official registers of private and social sectors' organisations, individuals from these sectors were invited to participate¹⁰⁷. A total of 54 private sector organisations and 15 social sector ones were targeted. However, apart from some incorrect contact details, most of them were reluctant to contribute to this research. The interviewees by sector and municipality are presented in table 1 in the Annex of this chapter. As illustrated in chapter 3, the involvement of the academic sector (i.e. higher education organisations or members of them) was also identified in the local development processes of some LED experiences and is frequently considered as a separated sector (Mazza and Parga, 1999; Pike, et al. 2006). However, the participation of academics as interviewees in this research is justified by their knowledge of and not by their participation in the local development processes of Apizaco or Chiautempan. A total of 9 academics were invited to participate but, in the end, only 4 were interviewed (Interviews 8, 12, 13, 14). All of them are well-known Tlaxcala's researchers with a marked interest in economic and social development from a local perspective. They were identified considering the information about their research interests and work in the websites of their respective higher education institutions, as well as the literature on economic and social development in the state of Tlaxcala.

In the end, a total of 17 in-depth semi-structured interviews were completed with an average duration of 45 minutes. Nine participants had knowledge of the development processes of both municipalities (Interviews 1, 2, 3, 8, 12, 13, 14, 15 and 16). Some of the interviewees had also been part of another sector during the period of analysis (Interviews 4, 7, 10, 11). The members of non-governmental organisations had participated in projects involving different development issues such as giving access to local producers to state of the art equipment, organising a cluster, or delivering capacity building or resources from different governmental programmes (Interviews 1, 7, 10). As most participants asked for discretion in the use of their answers, all interviewees were assured that all the information provided would be treated confidentially. All in-depth interviews were recorded, except for two.

¹⁰⁷ <http://www.sedecotlaxcala.gob.mx> (Accessed on July 25th 2010 and September 17th 2010), http://sociedadcivil.inmujeres.gob.mx/dir_osc/main.php?id=27 (Accessed on July 25th 2010 and September 17th 2010), and <http://148.245.48.10/buscadorosc1/index.aspx> (Accessed from August 17th to August 21st 2010).

Given the reluctance, by members of the private and social sectors, to participate in in-depth interviews, it was determined to complement the 17 in-depth semi-structured interviews with a number of short closed-questions interviews targeting, fundamentally, economic actors in both municipalities. A total of 40 short interviews were completed in each municipality during the first two weeks of November 2010¹⁰⁸. Working places were visited without prior contact or notice, asking for the participation of the person in charge. The average number of years that the interviewees had been working and/or living in Apizaco was 34 years, whereas this figure was 36 years for the case of Chiautempan.¹⁰⁹ Bradshaw and Stratford (2010), Stake (2005) and Winchester and Rofe (2010) suggest that although these are not in-depth exercises, the information collected helps the researcher to better comprehend the context of the phenomenon that is being studied allowing her/him to grasp different perspectives, confirm some pieces of information and, sometimes, to discover new aspects to incorporate into the analysis.

Therefore, the qualitative analysis presented here is based fundamentally on the semi-structured in-depth interviews carried out between October 21, 2010 and January 14, 2011. To maximise the reliability and validity of analysis interpretations, tentative findings were scrutinised and authenticated during the process of interviewing by doing what Bradshaw and Stratford (2010, p. 78) call 'sources' and 'credibility checks' or 'documentary material' and 'participant checking' in terms of Dunn (2010). When possible, secondary sources such as academic publications, journalistic articles as well as official documents, laws and regulations were also examined as recommended by Stake (2005).

A first exploration of the content of interviews needed to be done after each interview according to the analytical categories defined during the research design and the substantive issues identified in previous ones; followed by in-progress remarks of preliminary findings during subsequent interviews (Dey, 1993; Dunn, 2010; Kvale, 2008). This also allows knowing when 'saturation' might have been achieved as to be aware of the point where nothing new could be added to the analysis; researchers require to start studying the information collected as they obtain it (Ezzy, 2002: p 74). In words of Kvale (2008, p.101): 'Interview as many subjects as necessary to find out what you need to know'. The interview arrangement of the in-depth interviews was flexible allowing finding out the information in a manner suitable to each circumstance and incorporating the

¹⁰⁸ Self-employed individuals also participated.

¹⁰⁹ Although the memory span of participants reached even years before 1990, interviewees could remember more details of the most recent years including the identification of policy actions with particular municipal or community administrations.

mentioned preliminary results remarks when relevant (Bradshaw and Stratford, 2010; Dunn, 2010; Stake, 2005).

Considering the key elements of the bottom-up approach towards economic development explained and illustrated in the first chapters, interviewees were asked about their knowledge or experience during the period of analysis in relation to the following topics:

1. *Strategic planning and sustainability*. The purpose of including this subject matter was to obtain information about the main features of the municipal planning process and the long term commitment of local authorities.
2. *Mechanisms of participation and collaboration, as well as local attitudes towards cooperation and coordination in the municipal development process*. The intention concerning this topic was to learn about the private and social sectors' willingness to participate in common or public affairs, as well as about the interactions among them and between them and the public sector. The role of networks and links with external agents was also addressed. Finally, comprehending the role and functioning of auxiliary presidencies was of special interest.
3. *Local aptitudes to promote economic development*. The aim of the interview in this concern was to inquire into the local agents' ability to contribute effectively to local economic development.
4. *Public policies*. The main objective of the interview in this matter was to know about the municipal authorities' main actions concerning public services and pursuing economic and social development goals including both municipal and auxiliary presidencies.
5. *Main economic, social and political aspects either favouring or hindering the well-being of Apizaco's and Chiautempan's population*. Different situations and issues might have contributed to the development outcomes of these municipalities from local peculiarities to state or national policy interventions.

Taking into account these five topics as the basis of analysis, the following section starts by investigating Apizaco and Chiautempan in terms of the main features of their planning processes, followed by an exploration of local authorities' aptitudes in conjunction with their capacity building policies in section 3. The entrepreneurial attitudes and aptitudes of local agents are examined in section 4. Section 5 looks at participation attitudes and mechanisms, while section 6 analyses the role of collaborative links and networks within and outside each municipality. Section 7 compares the impact of the bottom-up approach on the development of Apizaco and

Chiautempan while section 8 highlights other aspects that might also have had an impact. The closing section offers a summary and some final remarks.

2. Existence of development plans and sustainability

As noted, both Apizaco and Chiautempan exhibited bottom-up development features or policy actions during the period of analysis. Along this section we explore if LED strategies were integrated in development plans. The main common denominators of the planning processes and final documents, as well as their key differences are examined.

Academics and social sector members concurred in that the municipal development plans in Tlaxcala could be considered as a collection of municipal authorities' ideals at the beginning of their administrations based mainly on shortages of public services, but not a document that could be seen as a medium and long term guide towards economic and social development (Interviews 1, 7, 8, 12, 13 and 14). Furthermore, some of them stressed that although the legal mechanism to elaborate this document demands the participation of social and private sectors alongside with governmental authorities, and despite municipal and state governmental claims (3, 4, 11, 15); the representation that has normally been achieved has been incomplete or null, as well as the coordination with other levels of government or neighbouring municipal administrations (1, 8, 13 and 14). Apizaco and Chiautempan did not escape these trends, but exhibited central differences that, in the view of interviewees, might have had a great influence on government performance and, hence, in development outcomes during the period of analysis (Interviews 1, 12).

In both municipalities, development plans commonly presented the results of a diagnosis of local circumstances, but had a short term focus as the planning scope hardly went beyond the duration of particular municipal administrations. Interviewed academics agreed that municipal governments have had only a short run vision (Interviews 7, 12, 13 and 14). They have been mainly interested in leaving evidence of the pass of their administrations, as remarked by interviewee 14. Other interviewees noted that municipal administrations have focused on literally visible works such as installing commemorative or new fair structures or facilities, changing the colours of main public buildings and squares, painting road signs, adding some public lighting poles, or paving streets (Interviews 1, 2, 3).

The rationale that can be given for the short run focus of local authorities might be a lack of incentives to look further as most of the benefits of comprehensive development strategies are achieved in the medium and long runs, and; therefore, could be attributed to other administrations (Cabrero, 2003b). As noted in previous chapters, municipal and community presidencies last three years without the possibility of immediate re-election. Municipal presidents might be looking to run for state governor or for a place in the state or national congresses or to be re-elected in the future. Another factor might be the literal interpretation of the Municipal Law for the State of Tlaxcala (*Ley Municipal del Estado Libre y Soberano de Tlaxcala*) which states in its article 92 that the validity of the municipal development plan of a particular administration must not exceed the duration of its mandate. This, in conjunction with the notoriety argument presented in chapter 6, suggests that there was not much point for decision-makers in looking further than three years.¹¹⁰

Municipal administrations in both cases did solve public services needs as a result of growing population and urbanisation (Interviews 1, 3, 7 and 15). Addressing public services shortages when they have become a problem might also increase political visibility in favour of the municipal authorities in charge. As observed in chapter 6, the inconvenience of doing things in this way is that it might result in inefficiencies because this is done under the immediacy of social pressure and political opportunism without an urban or territorial organisation plan guiding public actions.

Despite the short-run scope of local authorities in both municipalities, there are relevant differences in their planning exercises and sustainability approach that had an impact on public services delivery and quality of life (Interviews 1, 12). Development plans of municipal administrations during the 1990s in Apizaco and Chiautempan reflected a public services delivery bias neglecting the promotion of economic development. However, during the first decade of this century this changed for Apizaco as its development plans incorporated public services delivery, social policy and economic promotion in a more integrated framework (Municipal Development Plans, various years; Interviews 1 and 13). Contrary to most planning exercises in the municipality of Apizaco, in Chiautempan the projects proposed in development plans were usually not clearly linked to the diagnosis in terms of the considered governmental interventions. In other words, there was a poor connection between the results of the diagnosis and the

¹¹⁰ A solution for this might be the inclusion in the law that all new administrations must engage in a deep diagnosis of the local economy and the municipal financial situation before designing its corresponding plan in order to set short, medium and long run feasible goals; adding that although the validity of the development plans is related to the duration of the administration in turn, the new administration must build upon those goals as well as the achievements of the previous administrations and its own diagnosis of the municipal circumstances.

proposed policy actions. Furthermore, all Chiautempan's development plans lacked an assessment or indication of the financial resources as well as the period of time or stages required for the realisation of the suggested policies (Municipal Development Plans, various years).

As far as the contribution of the institutional framework around auxiliary presidencies in the planning process is concerned, they played a minimal role in Chiautempan as the political animosity among municipal and some communities' administrations has been growing since the last years of the 1990s (Interviews 9, 10, 11). However, parallel to them, to avoid political interferences and reach all the population, consultation fora were organised to capture citizens' demands (Interviews 3 and 15). In Apizaco, consultation fora were also organised to capture the needs and wishes of the population not represented by auxiliary presidencies (Interviews 3, 12 and 15).¹¹¹

As seen, the development plans did not set long term goals to be achieved during the development process. In this sense, the environmental aspect of sustainability was not embraced in those documents. However, there is a clear difference between Apizaco and Chiautempan as in the former some concrete examples of actions motivated by population's environmental awareness were identified (Espinoza, 2010; Interviews 4, 6). In-depth interviewees highlighted higher awareness of the environmental implications of economic development in Apizaco than in Chiautempan (Interviews 1, 4, 6, 7 and 13). Likewise, when the participants in the short interviews were asked about their perception of the authorities' and population concern in relation to the conservation of natural resources and the quality of the environment, a marked discrepancy between Chiautempan and Apizaco was evident. For instance 17% deemed that medium or high importance had been given to these aspects in Chiautempan, whereas 40% considered the same for the case of Apizaco.

To give some examples, in 1997 Procter and Gamble bought a paper plant in the proximities of the Zahuapan River, and by and large due to general public pressure, residual water treatment equipment was installed up to international standards (Interview 4; Smith, 2000). Furthermore, members of the academic, public and social sectors have been concerned about the pollution and reduction in volume of Apizaco's water bodies (Interviews 4, 5 and 6; Tilly and Kennedy, 2007). Finally, research has shown sustainable

¹¹¹ Although the law foresees exceptions, only the localities with more than 1,000 inhabitants other than the so called '*cabeceras municipales*' (i.e. the central area where the municipal government offices are located as well as the main worship building and commercial streets) are automatically entitled to establish auxiliary presidencies. Communities with less than that number of inhabitants are entitled to have municipal delegates who are elected directly by the community in public assembly but they do not have the right of voice and voting in the *cabildo*.

tourism potential if the 'Ojito' lagoon, in Apizaquito, one of Apizaco's communities, is rescued from its current environmental deterioration (Interviews 4 and 6). However, the private and state public sectors have been reluctant to invest. According to a former Apizaquito's community president, the main reason is the high costs that the recovery involves (Interview 6). An academic agreed and added that as the lagoon project has not been envisaged as part of a long run development strategy for the municipality or even the state, the heavy financial resources needed in the short run tend to deter possible stakeholders who see the expected benefits only in the long run (Interview 13).

3. Empowerment, capacity building and governmental competence

The in-depth interviews were designed not only to obtain information about policy actions related to empower individuals and build their capacity, but also about the public sector's ability to perform its functions. A recurrent reference as a limitation for the performance of municipal administrations was their lack of financial resources. Nevertheless, throughout the period of analysis some administrations in Apizaco and Chiautempan did not implement many actions to improve the revenue of their own sources of income because of the political cost that this might have implied to themselves and their respective political parties (Interviews 3, 8, 14 and 15). However, in the first decade of the XXI century this changed mainly in the case of Apizaco. Apizaco's revenue from own sources of income increased from 19.28% of its total revenue in 2000 to 23.16% in 2008; while Chiautempan's from 7.50% to only 8.69%, respectively.¹¹²

As a consequence of insufficient resources and municipal presidents' reticence to considerably improve municipal revenues from their own sources of income, they have been also seen as negotiators of additional resources from the state government and from local businesses. Therefore, capable municipal presidents have been the ones who are able to channel external resources in benefit of their municipalities (Interview 10). Municipal administrations' ability to negotiate resources from large firms and state government offices was deemed an asset in Apizaco; but not in Chiautempan (Interviews 1, 9, 12, 15, 17). Political affinity of state governors and municipal presidents during some municipal administrations facilitated this task both in Apizaco and Chiautempan, while the fact that some state governors have been from Apizaco eased public administration affairs in this municipality (Interviews 14, 15).

¹¹² Source: INEGI, Finanzas Públicas Estatales y Municipales, various years (<http://www.inegi.org.mx/inegi/default.aspx?s=est&c=10961>; accessed on January 7th 2012).

The capacity of municipal administrations to perform their functions was considered not a problem in the case of Apizaco in comparison to Chiautempan. In the case of the latter, it was mentioned that municipal administrations have shown a lack of organisation and coordination within and between municipal offices (Interviews 13, 14). To give an example, there was not an internal set of rules to guide the municipal administration operation until 2010¹¹³. By the same token, when the participants in the short interviews were asked about the aptitude of municipal authorities to execute their tasks, 75% deemed that Chiautempan's authorities lacked capacity, while only 33% thought the same in Apizaco. A reflection of bad administrations during the period of analysis in the former is the significant fall in public services and social policy expenditure as a percentage of the total municipal government expenditure which declined from 44.54% in 1994 to 18.09% in 2008. In sharp contrast, Apizaco's figure increased from 33.36% in 1994 to 37.74% in 2008.¹¹⁴

A major oversight of municipal and even state authorities' in relation to Chiautempan's textile and clothing manufactures' downturn during the first decade of this century was the absence of a strategy to cope with higher competition as it was possible to anticipate adverse circumstances since the outset of the 1990s (Interviews 8, 15, 16). The lack of other public policies to make the best of its traditions related to both this industry and its religious festivity also contributed to a disapproval of Chiautempan's municipal administrations (Interviews 11, 13, 14). This was also indicated by the majority of participants in the short interviews carried out in this municipality when asked about the main problems and drawbacks that affected the economic development and people's quality of life in the municipality during the period of analysis. Contrary to the case of Chiautempan, Apizaco's authorities managed to promote different economic activities in their municipality by highlighting its productive, social and basic infrastructure as well as exploiting its railway history (Interviews 2, 4, 7).

¹¹³ The so called Internal Regulation for the Municipal Council of Chiautempan (Reglamento Interno del Ayuntamiento de Chiautempan) was approved by its *cabildo* together with the Municipal Cemeteries' Regulation at the end of the last administration on November 2010 (Online news accessed on January 14, 2011: http://www.abctlaxcala.com/index.php?option=com_content&view=article&id=2610:aprueba-cabildo-de-chiautempan-reglamento-interno-del-ayuntamiento&catid=55:sobresalientes&Itemid=62).

¹¹⁴Source: INEGI, Finanzas Públicas Estatales y Municipales, various years (<http://www.inegi.org.mx/inegi/default.aspx?s=est&c=10961>; accessed on January 7th 2012).



Picture 1. Steam locomotive in Apizaco's main roundabout

In both municipalities, some community presidents exhibited a lack of knowledge about different aspects, ranging from administrative procedures to the social benefits that could have been applied in their jurisdictions. This has often affected their performance both in *cabildo* sessions (e.g. causing delays in decision-making processes) (Interviews 3, 4, 14), and within their administration (e.g. generating inefficiencies in the use of the assigned resources) (Interviews 2, 4, 14).

As far as empowerment and capacity building promotion are concerned, in contrast to Chiautempan, courses or workshops for civil servants and policy actions for individuals and firms were organised in Apizaco at some point during the period of analysis (Interviews 1, 3, 5 and 15). Apart from the entrepreneurship promotion policies mentioned in the following section, Apizaco's authorities participated in the '*From the Local Agenda*' by INAFED¹¹⁵ (*Agenda desde lo local*) implying that its administrative practices were evaluated and actions to improve their capacity undertaken (Interviews 1 and 4). An example of auxiliary presidents' initiatives is the effort to keep alive some traditions while integrating young people to community activities by the organisation of workshops for the elaboration of *matachines*¹¹⁶ in the community of Santa Anita Huiloac in Apizaco. The participants were taught the history of this ancient tradition while learning to elaborate them for their use in the community festivities (Interview 5).

¹¹⁵ Details on this initiative can be found in www.inafed.gob.mx.

¹¹⁶ The *matachines* are big human and animal figures made of cartoon and colourful paper that are used in street performances and parades to announce religious festivities.

During the first decade of this century municipal authorities and even some community presidents in Apizaco have also been active in promoting federal government programmes in the area of social development as benefits for citizens or neighbourhoods, different from the poverty alleviation programmes, can be obtained from the Social Development, as well as the Environment and Natural Resources ministries, among others (Interviews 5, 6). In addition, municipal authorities tried to implement the sustainable development *Agenda 21* mentioned in chapter 3 (Interview 4). In contrast to Apizaco, Chiautempan's municipal or community presidents' knowledge of federal programmes that can benefit their citizens was limited to poverty alleviation programmes, and their knowledge or interest in the *Agenda 21* or the '*From the Local Agenda*' non-existent (Interviews 9, 10 and 13).

However, in the case of Apizaco, awareness of programmes did not always imply a sound implementation. For example, despite the knowledge of Apizaco's authorities of the internationally well-known and pursued *Agenda 21*, they authorised the construction of a commercial centre in a natural reserve, arguing that jobs would be created and resources would be generated from the commercial activity helping to maintain what was going to be left of natural reserves (Interviews 4 and 12). Academics expressed concern about authorities closely relating development to modernisation, and pursuing them by means of attracting multinational production or commercial chains (Interviews 8, 13 and 15). As a result, not only the environment has been affected, but cultural and sports facilities were demolished and retail businesses put at risk (Interview 12). Great part of the explanation is still in the realm of seeking notoriety as people for some generations will remember in which period such a commercial complex was built. Others, with suspicious minds would find some explanation on the possibility of gains from corruption practices in the whole process from the approval of the project to its materialisation (Interview 13).

4. Entrepreneurial attitudes and aptitudes

The in-depth interviews were designed to obtain more information than only the policy actions related to the promotion of entrepreneurship. Other aspects such as people's attitude and aptitudes to open and run innovative businesses were also of significant interest.

In both municipalities people willingness to run their own business has been high (Interviews 3, 4, 5 and 16). Interviewees mentioned that citizens, in general, are not risk

averse. One of them said that if they have a business idea they carry on, and if it does not work, they try something different (Interview 1). The most preferred businesses are found in retail (e.g. a diverse variety of shops, stores or stalls can be found) and food related activities (e.g. production of dairy products, bakeries, maize flour products, restaurants, and street food stalls), with a similar degree of dynamism and flexibility in informal as well as formal markets. The main distinction between Apizaco and Chiautempan is the range of business activities chosen by their population, being more diversified and balanced in the former than the latter. Chiautempan's entrepreneurial population have profited from its nationally well-known textiles and clothing tradition trying new ventures either in manufacturing or both wholesale and retail commerce (Interviews 2, 8, 10).¹¹⁷



Picture 2. One of the main commercial streets in Chiautempan which are dominated by clothes' shops.

Although the risk taking element of entrepreneurship has been present in both places, the innovative character has practically been null in Chiautempan except for a couple of firms manufacturing textiles (Interviews 2, 15, 16). During the crucial period of the starting

¹¹⁷ Sources: Observation in site and INEGI online databases [Economic Census 1994, 1999, 2004, 2009; <http://www.inegi.org.mx/est/contenidos/Proyectos/ce/Default.aspx> (Accessed between August 16 and September 17 2010)].

years of NAFTA the textile and clothes manufacturing industries of this municipality were highly adaptive to markets' needs, but not innovative at all (Interviews 1 and 9). Resources from a federal government programme were attracted to help small producers to innovate in design, among other aspects; however, deficiency in organisational skills and rivalry among producers caused conflicts about the use of shared resources contributing to the lack of success of this project (Interviews 1 and 2). In addition, municipal level actions stimulating the creation of innovative businesses were much less evident in Chiautempan than in Apizaco.

Apart from a lack of governmental intervention in Chiautempan, when interviewees were questioned about other possible causes of the lack of innovativeness, many of them pointed that for small and some medium size firms the capacity of businesswomen or businessmen to run formal or informal businesses was, overall, excellent, but this fact did not mean that they were able to come up with new ideas of products or ways of doing things (Interviews 3, 10, 14). Furthermore, their knowledge about market trends or even breakthroughs is most of the time limited or lagged. In the case of some medium and large firms, their strength is in volume, satisfying very specific demands of intermediaries (Interviews 2, 4, 13 and 14). An academic interviewee said that they were not meant to innovate and, if an innovation was implemented, it was because it had been designed and already tested somewhere else (Interview 13).

Apizaco's policies in coordination with state strategies to attract businesses have facilitated the opening of new firms (Interviews 2, 4, 7, 14). The presence of qualified individuals - as a result of tertiary education establishments within and around Apizaco - who seek local opportunities in their field, has made it possible to have a more diversified economy and attract some federal resources from the Ministry of the Economy (Interviews 2 and 7). This favourable business climate prompted, for example, the start of software development activities in this municipality¹¹⁸. In addition, the Technologic Institute of Apizaco has been operating a business incubator. The municipal government has also secured a long term agreement with one of the main banking organisations in Mexico (i.e. BANAMEX) and the Technologic Institute of Monterrey (ITESM) to run a social business incubator (Interviews 2 and 4). Nevertheless, the large multinational firms present in and around the municipality have not engaged in research and development.

5. Participation attitudes and mechanisms

¹¹⁸ Information provided by interviewee number 7 and data from the Federal Programme 'Prosoff' indicate that there has been a concentration of Tlaxcala's beneficiaries in this municipality [<http://www.prosoff.economia.gob.mx/apoyosprosoff/>] (Accessed on Dec 01 2010).

Two informal institutions in the state of Tlaxcala are the so called *mayordomías* (i.e. guardianships or stewardships) and the *faenas* (i.e. community work). Both of them are customs or traditional practices. In the former, the guardian's main duty is the organisation of religious festivities related to the respective local patron Virgin or Saint within the Catholic Church. This involves the coordination of the different communities' residents' participation to secure financing and the bringing off of the whole celebration. The *faenas* refer to community participation in the execution of works in benefit of their neighbourhood such as paving streets, building sidewalks, keeping clean or taking care of public spaces (i.e. gardens, squares), as well as helping in the installation of water or drainage infrastructure, among other activities (Interviews 1 and 8).

Apizaco's informal forms of organisation lacked the strength found in Chiautempan up to the end of the last decade of the XX century (Interviews 2, 3, 4, 13 and 14). This has been since its origins as its foundation was directly related to the advent of railways which generated a significant inflow of migrants from other Mexican states or regions.¹¹⁹ Besides, after the 1985 Mexico City's earthquake, one of Tlaxcala's municipalities with a major influx of former nation's capital city residents was Apizaco (Interviews 2 and 4). However, the formal forms of participation were deemed as useful to improve living conditions in Apizaco's communities during the period of analysis as explained later in this section.

During the 1990s, the *faenas* (intertwined with the auxiliary presidencies) played an important role in enhancing the quality of life in Chiautempan's neighbourhoods (Interviews 1, 2, 9, 10, 11 and 13). In other words, population participation was strong and constant to improve their communities. The impact of citizens' participation on improving the living conditions in their communities during the first decade of this analysis in Chiautempan was stressed by interviewees (Interviews 9, 10, 11 and 13). Pondering that the intensification of foreign competition in the textile and clothes industry started precisely at the outset of the 1990s, it was indispensable to look closely to its development figures to confirm this.

The MMDI was calculated considering different periods of time as possible. Interestingly, the third column in table 1 reveals that Chiautempan's MMDI difference between the years 1990 and 2000 is slightly higher than Apizaco's; while the second column exposes that Apizaco did much better than Chiautempan during the period between 2000 and 2005. Likewise, Chiautempan's MMDI substantial improvement during the period 1990-

¹¹⁹ Holman (2008) stresses the fact that a lack of a sense of belonging and solidarity is common in growing urban areas as a result of high immigration and the consolidation of an impersonal living environment.

2005 in comparison with state and national figures is due predominantly to its performance between 1990 and 2000 as throughout the time between 2000 and 2005 state and national MMDI differences are even higher than Chiautempan's.

Table 1. MMDI Improvements¹²⁰

| | Diff ₂₀₀₅₋₁₉₉₀ | Diff ₂₀₀₅₋₂₀₀₀ | Diff ₂₀₀₀₋₁₉₉₀ |
|-----------------------|---------------------------|---------------------------|---------------------------|
| <i>Apizaco</i> | 0.3292 | 0.1837 | 0.1455 |
| <i>Chiautempan</i> | 0.2707 | 0.1232 | 0.1474 |
| <i>Tlaxcala State</i> | 0.2185 | 0.1331 | 0.0854 |
| <i>Mexico</i> | 0.1989 | 0.1242 | 0.0747 |

Source: Own calculations with data from INEGI online resources.

This is reinforced if we also take into account that Mexico's economy experienced a severe economic downturn in 1995. Some might argue that this could have benefited Chiautempan's textile and clothing industry as the Mexican peso depreciation made Mexican products competitive in foreign markets. However, the main market of Chiautempan's firms since the origins of this activity in the municipality has been mainly national, and some large firms have closed or downsized operations.

Since the end of the 1990s population involvement in public works had a steep decreasing tendency in Chiautempan (Interviews 9, 10 and 11). Several reasons explain this phenomenon. First, the fact that some neighbourhoods had reached good standards of public services from previous community work. Second, the persistent loss of competitiveness in the textile industry was accompanied by population disenchantment with governmental authorities. Third, federal government schemes such as Liconsa (i.e. subsidised milk programme), Diconsa (i.e. cheap basic alimentary basket shops) and the Oportunidades programme (originally Progresa) were intensified since the beginning of this century reaching many lagging behind communities¹²¹. The latter, according to academics and municipal politicians, has generated a phenomenon of dependency and a passive attitude in the population (Interviews 8, 9, 10 and 11). The last two reasons demand further explanation.

The openness to trade of Mexico in 1986, intensified by the North American Free Trade Agreement (NAFTA) in 1994, and the WTO (World Trade Organisation) China's membership since 2001 have posed serious competitive challenges to the textile and

¹²⁰ Due to differences in INEGI's databases between the 1990 and 2000 censuses, the municipal development index in this case was calculated using the percentage of women older than 11 years old who had given birth to any number of children and at least one had survived, instead of the percentage of surviving children of every 100 that were born alive.

¹²¹ Chiautempan has had a higher contribution to the population living in poverty in the state of Tlaxcala than Apizaco.

clothes industry of Chiautempan (Interviews 9, 10, 11 and 16). Despite a high capacity of adaptation during the 1990s many firms did not survive and, therefore, sub-employment and employment in less remunerative activities have grown (Interviews 11 and 14).¹²² Production activities have been substituted by an increased importance of retail commercialisation of textile and clothing goods produced within and outside the municipality. In addition, the working age population has sought alternative and combined sources of income reducing the time available for community participation (Interviews 8, 9, 10).

Added to the minimal municipal government intervention to support the textile industry, growing rivalry among local politicians and an extensively alleged lack of transparency and accountability within municipal and community administrations have repelled citizens' interest in helping to provide services which, in principle, are responsibility of government authorities (Interviews 13 and 14). In this respect most participants in the short interviews noted that people simply are not attracted to collaborate in public works that corrupt public administrations will show off later as their own achievements.

As far as federal government actions affecting negatively public participation are concerned, most interviewees from the academic and municipal public sectors coincided in that the resources and benefits of federal poverty alleviation programmes might be effective in tackling poor alimentary conditions and access to basic health information and services, but also create perverse incentives leading to moral hazard (Interviews 8, 9, 10, 11, 13 and 14).¹²³ For example, the *Oportunidades* programme offers growing monetary incentives considering the number of children in a household who attend to school. The incentives given to keep children in school are higher, the higher the level of education children are attending up to upper secondary education. Moreover, households can get extra money for each child between 0 and 9 years old as an alimentary compensation. If the children graduate from upper secondary education, they are awarded an extra sum of money.

In addition, the maximum number of years a household can keep receiving most of the benefits of the programme depends on the year it was incorporated to the scheme ranging from a total of 12 to 15 years (SEDESOL, 2010). As a consequence, a substantial improvement in households' monetary resources due to the programme can be

¹²² For more details about the response of the textile producers in Tlaxcala to higher international competition see Rosales, R. (2003).

¹²³ For a complete explanation of this concept see Holmström (1979).

achieved without solving the causes of their low self-earned income.¹²⁴ On the contrary, there are incentives to keep the programme's eligibility socio-economic characteristics, and reach the size and composition that secures or is close to the maximum benefits that a particular household can receive per month. For some interviewees, this could explain why the population is less active in activities meant to ameliorate their conditions than before the year 2000 (Interviews 8 and 11).

Olmedo (2005) explains this phenomenon by making an analogy with a household. Within a family usually all members need to contribute somehow to the family well-being. For example, even children are assigned few small chores. Their participation is motivated by a sense of both, well-being of the whole household and shared responsibility of its members. Though, when a mother or father offers one of their children a reward as an incentive, the other children will stop doing their chores if not given a similar retribution. In a locality, when resources are offered for the formation of a citizens' committee to perform the activities necessary to achieve a goal, in the future they might not organise themselves again if they are not receiving such an incentive. Similarly, other communities might not organise for their own benefit unless they receive the kind of incentives received in other places. In Chiautempan this contributed to weaken the population's interest in participating in affairs to improve their well-being.

As far as the private and social sectors are concerned, in both cases, business associations are regarded as mainly having pursued the benefit of a few individuals or firms rather than that of the business community as a whole, while social organisations have commonly been linked to a politician or political group (Interviews 2, 8, 13). The pursuit of individual or small group interests was also pointed out as a municipal weakness or disadvantage in both cases by participants in the short interviews. All this was mentioned in conjunction with corruption practices as deterrents to participate or become involved in those organisations.

Private sector organisations seem to have focused on superficial issues in Chiautempan as for example the representation of retail commerce businesses as well as the hotels and restaurants association once requested the municipality to allow parking in the city centre streets only to cars with plates of other states of Mexico in order to attract more tourists (Interviews 8 and 9). In addition, there have been many different organisations of artisans within the apparel and textile industries with antagonisms among them, and the

¹²⁴ The monetary resources of a family living in alimentary poverty can improve at least in 145% and maximum in 652% considering an original income of 90 dollars per month of a household with three members including one child (calculations made based on the data published in Oportunidades' Operational Rules for 2010 and considering an exchange rate of 12.03 pesos per dollar).

medium and large size enterprises have mainly followed an individualistic approach (Interviews 8, 10, 13, and 14).

As explained earlier, the existence of community presidencies in the formal institutional framework of Tlaxcala constituted the focal reason for selecting two municipalities within this state. As a result, the interviews put also an emphasis on their organisation and functioning. In relation to the functioning of auxiliary or community presidencies in both municipalities, the form of organisation is basically the same. In Apizaco and Chiautempan, communities are divided by residential area or by sections comprising several neighbourhoods. In each of them a citizens' council is constituted with the election of a president, secretary and a treasurer. The presidents of the citizens' councils are the representatives and negotiators of their neighbourhoods or sections before the community presidencies. Finally, a public works council is formed which main function is to monitor the development of the approved public works to which resources have been assigned for their realisation.

In part due to the reasons already explained, population attendance to public meetings organised either to elect the citizens' council members or to discuss demands or proposals in relation to public services or neighbourhood's general well-being has experienced a decreasing tendency in Chiautempan since the last years of the 20th century (Interviews 9, 10). Therefore, lower participation has undermined the degree of proximity to citizens that community presidencies are meant to provide.

Low participation or a falling tendency is also attributed by academics, civil servants and politicians to the politicization of the mechanisms around the community presidencies which in their origins were essentially grass-root communitarian forms of organisation (Interviews 1, 5, 8, 9, 10 and 13). Since the end of the last century, political parties in Tlaxcala have sought to permeate their influence deep into society.¹²⁵ As a result, politicians are at the root of serious antagonisms even within small neighbourhoods. Interviewed community presidents (former or in office at the moment of the interview) complained about this problem (Interviews 5, 6, 9). One of them said that it did not matter how well intentioned you were and how much hard work you engaged with, there would always be rumours saying that you did not do enough, that you had interest to benefit only some groups or individuals, or even that you were using public resources for your own benefit (Interview 6).

¹²⁵ There are not only the national political parties well recognised by the average Mexican citizen, but also state ones.

Another situation highlighted by some interviewees that is affecting negatively the general perception of community presidencies is that in the municipalities with more community aldermen (auxiliary presidents) in their *cabildos* than municipal ones (representing electoral sections as explained in chapter 6), and the former have a different political party affiliation or preference than the latter and the municipal president; the community presidents tend to collude to hamper municipal president initiatives (Interviews 1, 3, 8, 9, 11). Unlike in Chiautempan, this has not been the case in Apizaco, as it has had a balanced presence of both types of aldermen.

In Chiautempan, as a consequence of a non-balanced representation of community aldermen relative to municipal ones in its *cabildo*, the representation of citizens is dominated by strong political interests and, therefore, the negative effects of the politicization phenomenon on participation are deemed worse than in Apizaco (Interviews 8, 13, 14). This is because the problems in Chiautempan's *cabildo* have affected the whole municipality instead of only few individual communities in the case of Apizaco¹²⁶. Proposals concerning waste collection and disposal or public transport issues which have sought to make the best of economies of scale in the provision of these services have been hampered by opposition aldermen in Chiautempan (Interview 13). An interesting example is an initiative to regulate informal commerce activities along Chiautempan's central streets and main square which most community aldermen refused to approve (Interview 10). Although, this might seem as a political collusion they could still be protecting their community residents as many of them tend to sell their products in Chiautempan's centre.

Another relevant aspect is that there have not been channels or mechanisms of participation such as the auxiliary presidencies for the people living in the centre or administrative jurisdiction of the municipalities.¹²⁷ Both, in Apizaco and Chiautempan at least a quarter of their population has been living in those areas. However, residential and business associations could have had an important role in this matter, but again the willingness of the general public and business people to act together was perceived low in addition to a sense of distrust in the local chambers of commerce due to their politicization or because, as an interviewee literally stated, 'these organisations have been used to the advantage of only few individuals' (Interview 14).

¹²⁶ Community presidents from political parties different than the municipal president have complained of a lack of support from municipal offices and not receiving the resources for implementing the policy actions agreed in the *cabildo*.

¹²⁷ These areas are known as '*cabeceras municipales*' and they also concentrate the main worship places and commercial streets of municipalities.

Considering the short interviews, the perception of the contribution of the communal forms of organisation to ameliorate the situation of municipal neighbourhoods reflected the views of the in-depth interviewees and the information presented above. In Apizaco 30% of participants considered that they had not been beneficial; while 44% had a positive position. In Chiautempan, the figures were 30% and 67%; respectively, but the favourable stance was related to the last decade of the 20th century as participants referred to this period as the most constructive in terms of improvements in public services and overall quality of life. In Apizaco, there was a balanced perception of progress among different periods of time. The 1990s were identified as beneficial in relation to public services improvements in some areas and new infrastructure, while the first decade of the XXI century in terms of better public services in some communities and promoting the municipality in order to attract more direct investment and tourism.

6. Collaborative links and networks within and outside the locality

In both cases, clientelistic and corruption practices were seen as causes of a lack of cooperation and coordination among local actors. This was perceived worst in Chiautempan than in Apizaco (Interviews 2, 5, 7, 8, 13 and 14). For example, at least three up to six of Chiautempan's municipal administrations during the period of analysis faced constant allegations of corruption (Interviews 13, 14).

The interactions among members of local sectors were perceived minimal in Chiautempan. As its secondary sector has been dominated basically by one industry, we expected to find dynamic business organisations proposing projects to the public sector and productive links among firms. However, even in times of serious challenges due to the openness to trade of the Mexican economy, their individualistic approach persisted. The self-centred attitudes of many individuals who usually pursue their own interests by means different to cooperation and coordination have predominated (Interviews 2, 9, 14). This was aggravated by the fierce competition that its textile and clothing industries faced from producers located elsewhere within Tlaxcala, Mexico or even abroad (Interviews 9, 11, 13). The strong direct competition among them and with firms in neighbouring municipalities generated the isolation of most producers either if they were artisans or large firms (Interviews 2, 13 and 14).

Leadership rivalry is one of the reasons for the individualistic approach of businesses. An academic expressed the following in the case of Chiautempan: 'The self-centred and conflictive characteristic of its leadership relationships has even caused the gradual disappearance of sports leagues for children and teenagers since 1990' (Interview 13).

Nonetheless, this individualism might also stem from clientelistic and nepotistic practices recurrent in Latin American countries. This is because a common route to try to solve a problem or get a benefit is directly contacting a friend or relative of a businesses' representative, a municipal alderman, the municipal president, a state or national congressman, a high rank civil servant, a judge, or even the state governor, if not directly with one of them. This was emphasised by academics (Interviews 12 and 14) and brought about by more than half the participants in the short interviews.

In Apizaco, business associations are weak as distrust and rivalry among businesswomen or businessmen for the associations' leadership have also been common (Interviews 2, 6, 14). Apart from its industrial and communications infrastructure, among the other motivations of firms establishing in its industrial areas are the accessibility to a skilled workforce as a result of its education infrastructure (Interviews 4 and 5). Despite Apizaco's industrial areas and the presence of a robust education infrastructure, there are few links with the well represented academic sector. In other words, applied research or technology development projects between firms and higher education establishments have been non-existent (Interviews 1, 4 and 7).¹²⁸

Contrary to Chiautempan, interactions between the private sector and local authorities were found in Apizaco as, for example, Femsa (Coca-Cola) has contributed with resources for improving public services in the community of Apizaquito where a Coca-Cola's plant is located (Interviews 4, 6). In both municipalities some firms also assist with annual local festivities expenses (Interviews 5, 6, 9, 10). Some other issues have been treated by community or municipal presidents with businesses in Apizaco as for example the need to employ more local people instead of residents of neighbouring municipalities or even people from other regions of Mexico (Interviews 4, 5 and 6). As noted, federal government programmes such as PROSOFT were identified and captured by local agents in Apizaco. However, one of its first beneficiaries complained that it had been difficult to integrate potential stakeholders. In order to achieve that, a strong degree of interaction among the academic sector, government and the business sector was necessary. He said that a leading role of municipal authorities and coordination with state ones was needed to facilitate cooperation among sectors to make the best of available resources (Interview 7).

Externally, economic links have played an important role in Apizaco's and Chiautempan's economic performance as the markets of many of their products extend

¹²⁸ These findings go in line with the research results presented by Carrillo (2007) and González-Gutiérrez (2007).

beyond the state of Tlaxcala. External linkages have been fundamental for economic development because their respective productive activities are closely related to the economic activities in the vicinity and to the satisfaction of demand of the huge market that represents Central Mexico (Interviews 2, 4, 11, 13 and 14). In both municipalities local agents have sought to build and keep some strong and beneficial external links, either in the governmental or business sphere with a marked difference favouring the development of Apizaco (2, 4, 7, 15 and 16).

Distribution and productive networks (i.e. input-output links) have been built by the most competitive firms in Apizaco, including *maquila* relationships with intermediaries and clients located mainly in Central Mexico (Interviews 2, 4 and 16). Although production chains among firms are not extensive within and around Apizaco's industrial areas¹²⁹; at a larger scale, there are important linkages such as in the chemicals and non-metallic mineral products industries, as well as car parts and equipment production, satisfying the demand of other firms located mainly in Puebla, Hidalgo and the state of Mexico (Interviews 2 and 4)¹³⁰. Chiautempan's private sector external interactions have been mainly subordinated *maquila* relationships within the textile and clothing industries with clients located again in Central Mexico including other municipalities in Tlaxcala (Interviews 2, 10 and 16).

Large firms such as Procter and Gamble and Coca-Cola in Apizaco and La Providencia in Chiautempan serve the vast Central Mexico market. The latter even exports its products (e.g. blankets, duvets, quilts, overcoats, cushions, floor mats etc.) to the United States and Central and South America (Interviews 2, 4 and 11). This is a firm owned by Spanish immigrants which is famous by its innovativeness from the design of their products to its distribution logistics (i.e. intrapreneurship) (Interviews 2 and 16).¹³¹ Interestingly, Spanish nationals that own firms in Chiautempan, in particular, and Tlaxcala and Puebla, in general, have developed commercial and productive links, but mainly among themselves (Interviews 2, 16). Despite the historically presence of Spanish immigrants in Chiautempan (mentioned in chapter 6), none of its municipal authorities in recent years sought to strengthen the economic ties with Spain by means of productive proposals to the Spanish Chamber of Commerce in Tlaxcala and Puebla or at least by

¹²⁹ Some productive links were found between Apizaco's firms. For example, there are firms producing chemical fibres for textiles manufacturing, as well as for wet tissues and diapers production. There are some firms manufacturing textiles and clothes in Apizaco, and a multinational manufactures products for personal hygiene including diapers for babies.

¹³⁰ Firms supply the demand for resins and synthetic rubber from plants producing varnishes and paints, food containers, gloves, inflatable articles, as well as tyres and other vehicles' components, among others.

¹³¹ The presence of the key elements behind the concept of entrepreneurship can also be present in a single firm, not matter its size. For a more detailed explanation see Palavicini-Corona (2007).

requesting a meeting with its officials to ask what could have been done to improve the municipality attractiveness (Interview 16).

Within the public sector, the main interaction with the state authorities is in relation with federal and state transfers that, as seen before, represent an important source of income for municipalities as the property tax and other local sources of revenue are low in all Mexico. Political party affinity during the period 1990-1999 benefited both Chiautempan's and Apizaco's flow of resources. Furthermore, as noted, it is common in Mexico that the municipality of birth of a state governor is particularly supported by channelling more resources through different policy actions. In contrast to Chiautempan, this has been the case of Apizaco for the period 1993-2005, and mainly took the form of coordination in the provision of basic, social and productive infrastructure investment as well as fiscal incentives for attracting firms to industrial areas (Interviews 2, 3, 13 and 14).

Concerning inter-municipal relationships, there have been agreements with neighbouring municipalities to coordinate public transport and security in Apizaco, and public security in the case of Chiautempan. Whereas inter-municipal coordination has been possible and successful for the former, for the latter has been a problem as disputes for the leadership and resources have impeded their police forces to work together (Interviews 4, 11 and 13). All the academics concurred in that coordination in other matters such as economic development could prove to be beneficial but municipal administrations, in both cases, have not shown interest in starting negotiations with neighbouring counterparts (Interviews 8, 12, 13 and 14).

Local development connections between the social and public sectors are mainly related to civil organisations that are constituted for facilitating the delivery of resources of diverse federal or state programmes. Either related to those programmes or not, in view of the interviewees, most non-governmental organisations (NGOs) are also politicised and their work is usually identified with a political figure or affiliation (Interviews 2, 9, 13, 14). To give an example, considering the material of other interviews, an interviewee from one of those organisations provided biased information in favour of the running administration -at the moment of the interview- of one of the case studies and against the other. Political affinity of NGOs can damage their legitimacy for present and future interventions causing distrust among the population and the rest of stakeholders involved in the development process (Ostrom, 2000; Woolcock, 1998).

Considering the short interviews, the perception of the contribution of linkages among members of local sectors to ameliorate the development situation of these municipalities

reflected the views of the in-depth interviewees and the information presented above. Specifically, 45% of the participants deemed a satisfactory collaboration among sectors in Apizaco; while this figure was only 17.5% in Chiautempan. In the case of cooperation between municipal and state authorities, 42.5% of participants had a positive perception in Chiautempan; while this figure was 60% in Apizaco.

7. The impact of the bottom-up approach on the development of Apizaco and Chiautempan

As seen in chapter 5 the LED database construction for the quantitative analysis revealed that the bottom-up approach has not been a widespread strategy in Mexico at the municipal level; and, in the municipalities where some or all its elements were identified between 1990 and 2005, they might have not been implemented comprehensively and strategically. All bottom-up elements identified in Apizaco and Chiautempan have not been part of a municipal development long term strategy. However, the case studies offer evidence in line with the LED literature and some findings of the quantitative study, as well as provide light on the particular shape of the bottom-up elements in these municipalities. From this, it is possible to explain how and why some of the elements had or not the expected positive effect on the development outcomes of Apizaco and Chiautempan. In the following paragraphs we compare the concrete LED circumstances exposed along the previous sections, and examine the effects of the bottom-up key constituents in the development of these municipalities.

The average number of the bottom-up criteria (variables) -considered in chapter 5- identified in Tlaxcala's municipalities was two, whereas all six were found in Apizaco and three in Chiautempan (i.e. the existence of development plans, participation mechanisms and development links). The seventh variable of the LED database was proposed to know the degree of municipal autonomy in designing and implementing public policies with impact on their territory. Apizaco exhibited a balance between state and/or federal strategies and locally originated ones while Chiautempan a predominance of external interventions. Despite of this, even in Chiautempan, which experienced less LED constituents and a lower MMDI's improvement than Apizaco but higher than the average in Tlaxcala, some of the elements directly related to the LED perspective seem to have had a relevant contribution. Table 2 summarises different aspects that according to our analysis have been identified as relevant in the development fortunes of Apizaco and Chiautempan during the period between 1990 and 2010.

Table 2. Factors perceived as influencing Apizaco's and Chiautempan's development outcomes

| A P I Z A C O |
|--|
| Positive aspects |
| Development plans better linked to the diagnosis of municipal circumstances; and, most of the time, integrating different aspects and showing awareness of the required resources, although with a public services bias. |
| Enterprise culture of its residents (i.e. willingness to open new businesses). |
| Organised public administration and well informed civil servants and politicians. |
| Policy actions to improve the capacity of local agents and promote entrepreneurship. |
| Inter-municipal cooperation and good level of coordination with state authorities. The latter refers to state and municipal incentives for attracting direct investment and a mix of basic, productive and social infrastructure within and around the municipality. |
| External linkages at the level of firms and some beneficial interactions among local agents. |
| Ability to profit from the location and connectedness of its territory (i.e. located in central Tlaxcala with access to main national transport nodes). |
| Promotion of the municipality. |
| Closeness to Tlaxcala's capital city. |
| Negative aspects |
| Mix evidence in relation to natural resources conservation and environmental issues. |
| Low citizens' participation in the mechanisms around auxiliary presidencies and low participation of firms in business organisations. This mainly due to a low identification of the population with the territory and distrust in business leaderships. |
| C H I A U T E M P A N |
| Positive aspects |
| Strong citizens' participation through informal and formal mechanisms during the 1990s (i.e. <i>faenas</i> , <i>mayordomías</i> and community presidencies). |
| Enterprise culture of its residents (i.e. willingness to open new businesses). |
| External linkages at the level of firms. |
| Nationally well-known tradition in textiles manufacturing and clothes confection. |
| Reception of external resources through remittances and federal government programmes targeted to impoverished population. |
| Conurbation with Tlaxcala's capital city. |
| Negative aspects |
| Development plans poorly linked to the diagnosis of municipal circumstances and without awareness of the required resources. Strong bias towards public services provision. |
| No interest in natural resources conservation and environmental issues. |
| Lack of municipal intervention in economic development. |
| Large local public sector demanding more resources for administrative apparatuses since 1995. |
| Disorganised public administration and not well informed civil servants and politicians. |
| Steep decreasing tendency of citizens' participation in the mechanisms around auxiliary presidencies and <i>faenas</i> due to diverse factors. |
| Distrust in local authorities and business leaders. |

Table 2 shows that better planning exercises in conjunction with a more dynamic municipal government stance towards promoting economic development, created a favourable environment for economic and social development, and constituted factors

that interviewees considered as contributing to improve the population's quality of life in Apizaco in contrast to Chiautempan. The following paragraphs provide details by comparing both municipalities in relation to each of the bottom-up approach constituents.

As far as planning is concerned, there are similarities between Apizaco's and Chiautempan's planning processes such as the short term perspective of the proposed policy actions. However, there are relevant differences that point in the direction of a positive effect of development plans in Apizaco in contrast to Chiautempan. In general, Apizaco's development plans exhibited not only a greater integration between diagnoses and the proposed policy actions, but also better awareness of either the required resources or the time needed to complete them. In addition, although it was found a focus on public services provision in both cases, Apizaco's municipal development plans during the second decade of analysis displayed a more integrated framework considering together social policy, economic promotion, and public services delivery (Development plans, various years). All this contributes to understand why there was a better and more balanced perception of public services delivery and improvements in quality of life in Apizaco than in Chiautempan during the whole period of analysis as noted in section 5.

In relation to the environmental aspect of sustainability, the LED database revealed that no actions had been implemented in Chiautempan to take care of natural resources and address environmental problems. During the first decade of the XXI century this did not change although environmental aspects are mentioned in planning documents. In the case of Apizaco, environmental issues have been more consistently present in its plans and concrete actions were identified which might have had an impact on population's quality of life. The paper plant bought by Procter and Gamble and the municipal government adherence to the *Agenda 21* are examples in this route but the authorisation of the construction of a commercial complex in a natural reserve points in the opposite direction. This case might be a reflexion of the complexities of pursuing environmental goals at the same time of job creation and increasing the value of land in order to raise revenue to finance other governmental actions such as extending or improving public services and social policy actions, among others. This could also give us an idea of the reasons behind the quantitative analysis results regarding the sustainability variable which did not exhibit the expected positive result on human development.

As far as municipal authorities' actions pursuing economic and social development goals by promoting capacity building and entrepreneurship are concerned, the LED database

uncovered a lack of them in Chiautempan whereas their presence was identified in Apizaco. Their effect on the development outcomes of the latter has been significant as this includes actions to improve the capacity of municipal civil servants, as well as empowerment and entrepreneurship promotion activities. In addition, the municipal business climate has also been improved by means of maintaining a good standard and balanced mix of infrastructure and public services in coordination with state authorities. The interviewees' perception of a much higher capacity of municipal authorities in Apizaco, along with the stability and diversity of its economy -where even software development firms can be found - confirm the effectiveness of those efforts (Interviews 1, 13 and 15). All this could also be linked to the more favourable perception of public services provision and improvements in quality of life in Apizaco in comparison to Chiautempan.

The analysis in greater detail of the aptitudes and attitudes of municipal authorities in both municipalities contributes to better understand their different involvement and effectiveness promoting social and economic development. As seen, the ability to negotiate and coordinate resources and efforts with the state government was considered an asset of municipal authorities in Apizaco; while some of its auxiliary presidencies also discussed employment issues with local firms as well as obtained resources for public services. Furthermore, neither the lack of organisation and coordination within the municipal government, nor the scarce response during adverse times observed in Chiautempan, were a matter of concern by interviewees in relation to Apizaco's authorities. Finally, municipal authorities and even some auxiliary presidents in Apizaco have also been active promoting federal government programmes in the area of social and economic development as benefits for citizens, neighbourhoods or local firms can be obtained from the Social Development, the Environment and Natural Resources, as well as the Economy ministries, among others.

At the beginning of the administrations of auxiliary presidents, in both cases, some of them commonly had a limited knowledge of their functions and the municipal administrative procedures. This often led to delays in decision-making processes and the use of resources to provide public services or even pay their payrolls (Interviews 6, 13, 14). Considering the perceived lower capacity of municipal and auxiliary presidencies in Chiautempan and the existence of the double of auxiliary presidencies in this municipality in comparison to Apizaco, the inefficiencies in the use of resources are deemed to be significant in the former. This is because not only the direct use of the resources in public services and policies might have been less efficient, but also more resources have been devoted to pay administrative governmental apparatuses. A similar

conclusion can be inferred by recalling the figures of municipal expenditure in social policy and public services as a percentage of the total municipal expenditure. Apizaco exhibited an increasing tendency while Chiautempan a decreasing trend.

Another recurrent aspect that was highlighted as a factor that could have been favouring the development of both Apizaco and Chiautempan is their location. Their central location within Tlaxcala is complemented by an excellent transport infrastructure connecting them to national distribution nodes. Apizaco's municipal governments have made the best of this advantage in contrast to Chiautempan's authorities (Interviews 2, 13, 14 and 15). Unlike Chiautempan, Apizaco benefited from the industrial impulse given to Tlaxcala since the last decades of the 20th century. Recurring points of view given by interviewees about the reasons for the creation of industrial areas and corridors in the state of Tlaxcala, in general, and in Apizaco and surrounding areas, in particular were its central location, connectedness, state and municipal government incentives, public services, and infrastructure (Interviews 1, 2, 3, 4, and 15). The productive infrastructure built within and around Apizaco, and its social and basic infrastructures have contributed to the economic development of the municipality¹³². Nonetheless, when making a comparison between European and Tlaxcala's industrial parks, an interviewee mentioned that the latter should put a stronger effort in their image, as they give an impression of abandonment when prospect investors visit them (Interview 16).

As far as mechanisms of participation are concerned, the LED dataset revealed their presence in both municipalities. As shown, a better and more stable perception of the role of auxiliary presidencies was observed in Apizaco along the period of analysis. In Chiautempan only during the 1990s and intertwined with the *faenas*, auxiliary presidencies are perceived as contributing to enhancing the quality of life of its communities.

The effect of these forms of participation in the development outcomes of Chiautempan was confirmed by a closer examination of the MMDI considering different periods of time. This showed that great part of Chiautempan's MMDI improvement between 1990 and 2005 was achieved before the year 2000 in contrast to the state of Tlaxcala and Mexico as a whole, which experienced a better performance between 2000 and 2005. Apizaco experienced balanced improvements in relation to both periods of time.

¹³² A special feature mentioned is Apizaco's education infrastructure which attracts households and high education students from different parts of the state. From basic education schools to tertiary education is on offer including the engineering faculty of the Autonomous University of the State of Tlaxcala. This also constitutes an element that has been considered by firms to locate within the Apizaco-Xalostoc and Tetla de la Solidaridad industrial areas (Interviews 2, 4, 7). For more details on the location criteria of firms in Tlaxcala see Carrillo (2007).

Arocena (2002) sees the presence of a strong local identity as a fundamental aspect of successful local development outcomes due to its direct relation to the existence of inclusive social institutions, resulting mechanisms and organisations. As explained, the extraordinary participatory attitude of Chiautempan's population changed dramatically during the first decade of this century as a result of a combination of factors. Increasing population dependency on federal government transfers due to the intensification of poverty alleviation programmes, constant accusations of corruption practices, and political rivalry among municipal and community aldermen within the *cabildo* were the recurrent reasons given for the decreasing tendency of citizens' participation in both the mechanisms around the auxiliary presidencies and the *faenas*. The constant obstruction of municipal presidents' initiatives in the *cabildo* by auxiliary presidents (i.e. community aldermen) was deemed by interviewees as seriously affecting the performance of municipal administrations from delaying the decision making process to not reaching agreement on significant public matters as the examples in section 5 illustrated. This has not happened in Apizaco as it has a balanced representation of both types of aldermen.

This suggests that the politics around community presidencies has had a degenerative effect on their functions and interactions with community members. Consequently, two of their main strengths in the context of the bottom-up approach to economic development, their proximity to citizens and the representation of their community interests in the *cabildo* have been put at risk, and therefore, the community presidencies' positive effect in development outcomes has been limited in Chiautempan since the end of the last century due to the intensification of the politicization phenomenon. The politicization of this participatory mechanism has also affected the planning process at the beginning of each municipal administration (Interviews 1 and 12).

Although to a lesser extent, Apizaco has also been affected by the politicization phenomenon because a former community alderman complained of being neglected by the municipal offices as a result of having a different political party affiliation (Interview 5). Academics confirmed that this is also a common practice (Interviews 13 and 14). Not surprisingly, in the literature about different Tlaxcala's social and economic development issues covering diverse areas such as migration (González-Romo, A., 2008),

urban planning (Montalvo, 2010) and rural microenterprises (Pérez-Sánchez and Altamirano Cárdenas, 2009), this level of government is rarely mentioned.¹³³

As far as development linkages among local agents are concerned, the willingness of social and private sector members to participate in common or public affairs was perceived low in both cases, but much worse in Chiautempan. As shown, the development links identified in Chiautempan did not refer to interactions within the municipality but only to external relations with private sector agents located mainly in other jurisdictions in Central Mexico. In the case of Apizaco, some constructive interactions were found among local firms and between local authorities and firms. In addition, productive links between local firms and others located elsewhere were identified as important contributors to its economic performance and stability, without forgetting the already mentioned coordination of municipal authorities with state counterparts. In addition, inter-municipal cooperation at the public sector level was found in Apizaco but not in Chiautempan.

In Chiautempan, the lack of transparency within business and artisans associations, which leaders tended to benefit themselves and only a few other individuals, contributed to leadership conflicts and a lack of participation. In addition, insufficient organisational skills and leadership, as well as the strong competition that local small, medium and large firms have faced among them and from elsewhere have made them to be distrustful and repel any possibility of collaboration.

Cooperative stable relations among local agents contribute to agree development paths and work together towards achieving economic and social goals (Rodríguez-Pose and Crescenzi, 2008). The politicization of public administration, in general, and auxiliary presidencies, in particular, in combination with the presence of clientelistic and corruption practices, and the challenges of greater competition in the textile and clothing industries seem to have been deteriorating the local development context; and, therefore, the development performance in Chiautempan. Consequently, during the last decade of the period of analysis, its development process stepped back from the characteristics of local representativeness and ownership, which were present during the 1990s, and which are common features of the bottom-up approach (Stöhr and Taylor, 1981; Swinburn, 2006). An important contrast between Apizaco and Chiautempan is that precisely the constant and widespread divisions among local agents within the latter have limited its development prospects (Interview 13). What has happened in this

¹³³ Other documents are: Carrillo, 2007; González-Gutiérrez, 2007; Lumbreras and Morales, 2007; Lumbreras and Solís, 2002; Pérez-Sánchez, 2010; Rosales, 2003; and Sánchez-Gómez, 2004.

municipality since the end of the 1990s can be explained in words of Rodríguez-Pose (2010: 9-10): 'institutionally thin environments often end up controlled by elites, resulting in 'institutional sclerosis' (Amin, 1999) and thwarting opportunities for sustainable development. Institutional sclerosis spreads dissatisfaction and distrust in the local public policy-making process, driving local actors away from the development process (Picciotto, 2000)'.

To sum up, distrust due to corruption, clientelistic and individualistic practices, and widespread divisions, in combination with a severe politicization phenomenon, modified the particular institutional setting that had favoured positive municipal development outcomes before the year 2000 in Chiautempan. In terms of Lumbreras and Morales (2007), population involvement in public affairs has evolved from exhibiting the presence of all the forms of participation described in chapter 6 with strong citizens' and community participation, to poor or incomplete forms of intervention and representation.

In Apizaco, the problems of leadership rivalry at the level of business associations have also deterred some businesspeople to participate in those organisations, but this did not mean that individual firms would not negotiate beneficial interactions among them (Interviews 2 and 4). Let us remind that the impact of Apizaco's development linkages on its population's quality of life is deemed significant as backward and forward linkages were found not only between Apizaco's firms and others located elsewhere, but also among some firms within Apizaco's industrial areas (Interviews 2 and 4). Therefore, not only the coordination at the public sector sphere had a constructive effect in terms of public services delivery and a favourable business climate, but also the private sector interactions contributed to generate and maintain economic activities.

8. Other aspects influencing the development of Apizaco and Chiautempan

Although Chiautempan did not improve as much as Apizaco in terms of the MMDI calculations, it still experienced an above average improvement. In addition, Chiautempan maintained a high level of economic dynamism during the first decade of the XXI century despite all the problems examined above. Specific circumstances of places other than the closely related to the bottom-up approach could have played an important role in the economic and social development outcomes of Apizaco and Chiautempan. On that ground, the following paragraphs focus on other elements that according to interviewees had a relevant role in the development performance of these municipalities.

As noted, Chiautempan's economic life is rooted in a historical productive activity. Chiautempan's nationally well-known textile and apparel sector tradition attracts people from all over the country buying in small or large quantities, to the extent that some producers and artisans from other Tlaxcala's or Puebla's municipalities sell their goods in Chiautempan's formal or informal markets. Great part of Chiautempan's textile and clothing industry has been linked to Puebla's one in a subordinate way (i.e. producing for other firms that subcontract production).

Additionally, Chiautempan is a residential area for many people who work in the public sector of Tlaxcala's capital city and a commercial hub, not only for clothes and textiles, for people who live in neighbouring municipalities. Apizaco is also a residential area for people working in Tlaxcala and for many people who work in the industrial zones within and bordering the municipality. It is as well a commercial centre for the population of close localities including Tlaxcala. Surprisingly, despite the distance between Apizaco and Chiautempan is only 15 kilometres, they form part of different conurbation areas. Apizaco leads its own whereas Chiautempan is part of the conurbation of Tlaxcala's municipality.

The beneficial effect of being part of the conurbation area of Tlaxcala's municipality (i.e. becoming a residential and commercial hub) has to do with the above average development situation identified in most Mexican states' capital cities municipal jurisdictions, including Tlaxcala, in the calculations of the MMDI, which main results were disclosed in chapter 4. Economic geographers such as Krugman (1998), Morgan (1997), Puga (2002) and Storper (1995) attribute this phenomenon to economies of agglomeration, meaning in this case that the presence of the state powers (i.e. judicial, executive and legislative) and most of the representations of federal government ministries attract people and businesses to the area. As the city of Tlaxcala has a limited territory to expand, the conurbation has been growing naturally towards Chiautempan and other neighbouring municipalities. The central distinction with Apizaco is that the agglomeration forces that explain its conurbation lie on the industrial activities performed within and around its territory (Interviews 1, 2, 3, 4, 11 and 15).

Interviewees coincided in that the municipal body for the social assistance of families in Chiautempan (DIF) has also contributed to improve the nutrition of children living in the most impoverished households (Interviews 9, 10 and 11). During the first decade of the XXI century and despite some critics, federal anti-poverty actions and municipal social assistance interventions seem to have had a limited but favourable impact on Chiautempan as they address education and health issues. Unlike Apizaco, in

Chiautempan more communities have fallen under poverty criteria¹³⁴ and, hence, it has been awarded more federal resources since 2000¹³⁵ when the main federal government poverty alleviation programme was introduced in Tlaxcala.

Finally, another aspect impacting positively on the development indicators of Chiautempan is that San Pedro Tlalcoapan, located in this municipality, is one of the communities in the state of Tlaxcala with the highest proportion of migrants living in the United States of America. As a result, the reception of remittances contributed to the material well-being of its residents during the period of analysis (Interviews 11 and 13).

9. Final remarks

The qualitative analysis rationale was to dig deeper into the development processes of two municipalities in order to comprehend the contribution of the bottom-up approach to the well-being of their population. The case studies provided explanations on how the bottom-up approach had a positive impact on their development fortunes and why, sometimes, its key constituents had a limited or not clear influence. As expected, the higher presence and better conditions for the application of bottom-up constituents has led to greater municipal development in Apizaco than in Chiautempan. The development processes of these municipalities experienced different complexities during the period of analysis. Despite diverse challenges, Apizaco's authorities have been more active stimulating economic activities and satisfying growing demands for public services than Chiautempan's authorities. Chiautempan's challenges have been greater for diverse reasons. However, formal and informal participation mechanisms contributed greatly to the well-being of its population as well as its external linkages.

Although two key elements of the bottom-up approach played a relevant role in the development fortune of Chiautempan (i.e. participation mechanisms between 1990 and 2000 and external links during the whole period of analysis), it benefited greatly from external interventions and the inertia of its historically well-known textile tradition. The conurbation with Tlaxcala's capital city also contributed positively although this also had an effect in Apizaco as it is very close to both jurisdictions and all of them are very well connected.

The auxiliary presidencies intertwined with the so called *faenas* were perceived positively in the case of Chiautempan because of a strong citizens' participation culture, and the

¹³⁴ For example, the community known as El Alto has been considered one of the poorest in the country.

¹³⁵ This refers mainly to the so called 'Municipal Social Infrastructure Fund' as noted in chapter 5, and federal programmes from the Social Development ministry.

auxiliary presidents' representation and allegiance to community neighbourhoods was beyond doubt while their operation was not subject to neither monetary nor political retribution. Population involvement in improving their communities by means of the *faenas* and its participation in citizens' councils contributed to better amenities and public services in Chiautempan neighbourhoods. External interactions of local businesses have been the keystone of its industrial production and commerce activities¹³⁶. Finally, the risk taking and dynamic character of its people has facilitated adaptability and flexibility although there is poor cooperation among local agents as well as a lack of innovativeness and economic diversity.

As far as Apizaco and the bottom-up approach are concerned, Apizaco's development plans, in general, were better designed than in Chiautempan in terms of both the connection between their diagnosis and the public policy actions proposed, and the indication of the resources needed to achieve the set goals. Municipal authorities' actions to attract direct investment and create new firms in conjunction with state government policies, and the presence of qualified citizens looking for opportunities in their fields within their locality, have contributed to stimulate businesses and jobs generation.

Apizaco's population has also presented the risk taking and dynamic character needed for entrepreneurship to flourish and has been more innovative in terms of economic activities. Apart from the importance attributed to its external links within the private sector, some interactions between local authorities and the private sector as well as inter-municipal relations were perceived beneficial. Actions to enhance the local capacity and promote the creation of firms, and higher awareness of external resources that could benefit local agents were also identified as factors that contributed to achieve positive development outcomes and improvements in the quality of life of Apizaco's population during the whole period of analysis. Less politicization of the development process and better municipal government organisation and capacity, are also central differences that have permitted pursuing a more consistent and continued economic policy in Apizaco, regardless of changes at the helm of this municipality.

Further studies could incorporate other municipalities to the qualitative analysis of the impact of the bottom-up approach in Mexican municipalities, as it could be of great interest to compare how the LED constituents work in really different local contexts such as a developed municipality in the North of the country contrasted to a lagging behind

¹³⁶ In other words, bridging ties (external buyers) and not precisely bonding ones (as a result of a lack of trust among local stakeholders) have been the kind of ties that have been relevant.

one in the South. This will add to the understanding of how local circumstances of diverse nature influence the effectiveness of bottom-up strategies towards the economic and human development of places in this Latin American country.

ANNEX / Table 1. In-depth interviews by municipality¹³⁷

| | | Municipality | Main activity | Date/ Duration |
|-----|--|---|--|--|
| 1. | NGO member | Apizaco/Chiautempan | Delivery of resources and services from state and federal government programmes. | 21-10-2010 / 99 minutes (<i>not recorded</i>) |
| 2. | Federal government official / private sector | Apizaco/Chiautempan | Promotion of economic activities and entrepreneurship | 22-10-2010 / 40 minutes |
| 3. | State government official | Apizaco/Chiautempan | Municipal development | 22-10-2012 / 30 minutes |
| 4. | Municipal government official / private sector | Apizaco | Economic development | 29-10-2010 / 37 minutes |
| 5. | Municipal authority | Apizaco | Auxiliary presidency | 29-10-2010 / 35 minutes |
| 6. | Municipal authority | Apizaco | Auxiliary presidency | 29-10-2010 / 32 minutes |
| 7. | NGO member / private sector | Apizaco | Formation of a technology cluster | 10-11-2010 / 45 minutes |
| 8. | Academic | Apizaco/Chiautempan | Research on economic and municipal development | 04-11-2010 / 71 minutes |
| 9. | Municipal government official | Chiautempan | Budget control and monitoring | 10-11-2010 / 29 minutes |
| 10. | Municipal authority / social sector | Chiautempan | Auxiliary presidency | 10-11-2010 / 30 minutes |
| 11. | Municipal authority / private sector | Chiautempan | Municipal presidency | 10-11-2010 / 40 minutes |
| 12. | Academic | Apizaco/Chiautempan | Research on economic development and municipal planning. | 29-11-2010 / 39 minutes |
| 13. | Academic | Apizaco/Chiautempan | Research on municipal institutional, social and economic development. | 29-11-2010 / 67 minutes |
| 14. | Academic | Apizaco/Chiautempan | Research on rural-urban and municipal development | 07-12-2010 / 58 minutes |
| 15. | State government official | Apizaco/Chiautempan | Municipal planning support | 09-12-2010 / 38 minutes |
| 16. | Private sector member | Apizaco/Chiautempan | Spanish Chamber of Commerce for Tlaxcala and Puebla | 16-12-2010 / 29 minutes |
| 17. | State authority | State of Tlaxcala (Community presidencies' reforms) | Chief executive | 25-10-2010 and 14-01-2011 / 29 minutes (by phone / <i>not recorded</i>) |

¹³⁷ Nine participants had knowledge of the development processes of both municipalities (Interviews 1, 2, 3, 8, 12, 13, 14, 15 and 16). Some of the interviewees had also been part of another sector during the period of analysis (Interviews 4, 7, 10, 11).

CHAPTER 8

Thesis summary and conclusions

'When we want to know something and there is not authority, or the authorities disagree, or we just are not ready to accept without question what the authority has told us, then we do research'. Bouma and Atkinson, 1995, p. 6.

The popularity of LED strategies has grown during the last two decades pushing governments to pursue local and regional approaches to development as a panacea in order to face development challenges caused by the intensification of economic globalisation and the presence of economic crisis. The shining examples of the LED 'best practices' have provided a mirror into which every town, every city and every locality could look in order to become a new 'Silicon Valley', a new 'Baden-Württemberg', a new 'Third Italy', or a new 'Bangalore'. But the reality has been much more muted. Despite the multitude of LED initiatives across the developed and the emerging world, there is still precious little hard evidence showing whether LED strategies do really make a difference for economic and social development. The number of analyses monitoring the success of LED outside the 'best practice' cases remains rather limited and systematic quantitative analyses of how local authorities implementing LED have fared are virtually inexistent.

The relevance and pertinence of this research endeavour lie in the fact that the key elements of the bottom-up approach have never been put together to test their effect on the development outcomes of places. In this context, the purpose of this research has been to investigate the role of the bottom-up perspective towards the development of places in Mexico using a combination of methodologies including a systematic quantitative analysis. This research demonstrates the strength of a quantitative methodology to study the impact of LED constituents in the development of places, and illustrates the advantage of combining methodologies to dig deeper into the phenomena analysed.

As the basis of the bottom-up approach stems from its proximity to local characteristics and agents, the lowest level of government in the Mexican context was determined as the focus of analysis. Therefore, Mexican municipalities were the object of study. A quantitative analysis which included 898 municipalities was performed. Furthermore, two municipalities located in a Mexican state with a long presence of institutions and resulting mechanisms closer to citizens were selected in order to further assess the impact of the LED approach in this Latin American country. The hypothesis tested was that

bottom-up policy actions and fundamental features played a significant role in the development of the Mexican localities where these elements were identified during the period 1990-2005.

Chapter 2 set the starting point for a better understanding of the idea of the development of places and the bottom-up approach towards it. Economics, as a scientific discipline, tries to answer the questions of what to produce, in which quantities, how to produce it and for whom in a context of scarce resources and unlimited needs and wishes (Fisher, et al. 1990). In this context, it is likely that the allocation of resources to improve a subject (i.e. a person, firm, etc.) may make someone else worse off.¹³⁸ The bottom-up approach towards the development of places considers this but recognises that it could seem that local resources are scarce but maybe not and, therefore, there is the possibility that some resources might be sub-employed or even completely ignored. By discovering and using them, it could be feasible to improve the situation of local agents without making anyone worse off. This is also an invitation for continuing innovating and finding ways to generate more wealth with the available resources (Krugman, 1999). All this suggest a long-run process through which different goals are reached at different stages from identifying not only the potentially productive resources but also the local agents that could and would be willing to put them to work; up to the consolidation of new economic activities and a better quality of life for the local population.

Chapter 3 elaborated on the key elements of the LED approach. One of them is the participation in the development process of as wide range of stakeholders as possible. This implies not only the involvement of public agents, such as municipal or provincial authorities, but also that of other agents such as "employers, community and voluntary organisations, trade unions, co-operatives, development agencies, universities and so on" (Potter et al., 1999: 22), creating a widespread sense of local empowerment, control and ownership by local stakeholders which contributes to the sustainability of the development process (Helmsing, 2001b; Swinburn, 2006). Most of the cases reviewed in chapter 3 revealed that people's positive attitudes towards participation, cooperation, risk taking, change and innovation together with a combination of skills and knowledge are essential for undertaking successfully participatory, networking and economic activities. As this may be difficult to generate out of the blue, the promotion of attitudes and aptitudes that favour participation, as well as the creation or support of institutions

¹³⁸ This definition of efficiency is called a Pareto efficiency allocation, named after Vifredo Pareto, Italian economist considered to be one of the main contributors to welfare economics (Nicholson, 1972).

and organisations that facilitate it – in other words, capacity building – becomes an essential element of LED (Helmsing, 2001b).

LED requires the design and implementation of a strategy based on a sound diagnosis of the local economic potential, the institutional environment and socioeconomic prospects (Grefe, 1989; OECD, 1993). It is in this combination between economic development strategy, on the one hand, and institutional capacity building, on the other, where the potential of reaching the goal of socioeconomic sustainable development lies (Hustedde et al. 2005; Swinburn, 2006; Cities Alliance, 2007; UN-Habitat, 2005; OECD, 2008).

LED is a comprehensive strategy that goes well beyond identifying and taking into account local economic strengths, weaknesses, opportunities and threats to set specific medium- and long-run development goals. It represents a development process in itself which encompasses not only economic and physical features, but also the social, cultural and institutional characteristics of places (Boisier, 1999; Pike, et al. 2006). This involves the consideration of actions aiming to meet both the present and future needs of any given territory. LED is about developing local capabilities: the capacity to properly diagnose the local environment, as well as the productive and socio-economic prospects of a territory; the capabilities to improve the quality of public services; the capacity to organise adequate systems for voice and participation; and the capabilities to identify and support successful businesses and economic actors. Therefore, empowerment, capacity building and entrepreneurship are at the core of LED strategies, alongside with the creation of mechanisms for public, social and private sector participation in the development process (Albuquerque, et al. 2002; Barreiro, 2000; Camejo and Gallicchio, 2004; CLAEH-ALOP, 2002; First Nation Forestry Program, 1998; OECD, 2003; UNIDO, 2001).

A comprehensive development strategy requires a *development plan*. The plan should include a strategic vision of development, combining economic, social and environmental goals. Combining economic, social and environmental aims in the medium and long-run implies a certain degree of *sustainability*, that is, the goal of increasing the quality of people's life, while simultaneously preserving local resources and the environment in good condition for future generations (UNIDO, 2009; United Nations, Agenda 21).¹³⁹ As noted, LED entails the cooperation among different types of local stakeholders – from the public and private sector, as well as from the social and cultural realms of the local society – who become the protagonists and owners of the

¹³⁹ http://www.un.org/esa/dsd/agenda21/res_agenda21_28.shtml

development process. As a consequence, a successful LED strategy has to take a series of *participation mechanisms* into consideration. Such a setting requires the establishment of adequate institutions and capabilities, which include elements of *capacity building*. In addition, the presence of entrepreneurial attitudes and skills, including leadership, at the local level would greatly facilitate not only starting up the process, but also the achievement of the development goals. Hence, *entrepreneurship* is another key element of LED.

As LED implies setting up broad coalitions, including governments, local stakeholders, and, in certain cases, external firms, NGOs and international organisations linking the local environment to the outside world, the setting up of *development links* is another constituent feature of LED. Finally, LED, in contrast to traditional top-down approaches, is a fundamentally territorial approach to development. Development strategies are conceived for a specific area and are more likely to succeed provided there is a certain level of local autonomy. Hence, a certain degree of political *autonomy* at the local level will contribute to make LED strategies more viable.

Consequently, we considered the presence of a development plan, an emphasis on sustainability, the existence of participation mechanisms, development links, empowerment and capacity building, as well as local autonomy and entrepreneurship as factors that would facilitate the success of LED strategies at the local level. The quantitative analysis proposed in chapter 4 and carried out in chapter 5 estimated the potential effect of these LED fundamental elements at the municipal level in Mexico.

The main limitation in proposing a model specification to quantitatively study the effects of LED constituents in Mexico was the non-existence of databases on the fundamental elements of LED. By the same token, the response variable could not be the change in GDP or income per capita which is more widely used to analyse the economic performance of places. Instead, a municipal development index (MDI) based on the Human Development Index proposed by the UNDP in 1990 was calculated and used as dependent variable. The main message of the literature on the HDI discussed in chapter 4 was that it could be seen as an alternative or complementary measure to evaluate and compare the development of places.

In chapter 4 we also argued that the bottom-up and the human development approaches consider individuals as active agents rather than only passive subjects. Higher levels of health, knowledge and standard of living indicators (i.e. the dimensions of the HDI) are seen in both perspectives as means and ends towards the development

of societies. Therefore, the rationale of using a municipal development index as dependent variable stems from the fact that those dimensions could be enhanced by a combination of empowerment, capacity building and entrepreneurial related policies, together with the design of participatory and networking mechanisms and the provision of infrastructure and other traditional incentives and policies within a local strategic framework.

As a result of relevant criticisms to the original methodology to calculate the HDI, the municipal development indexes were calculated using both a sum (UNDP's methodology) and a product of components. The latter reflects more directly the impact of the performance of each component index on the overall one (Sagar and Najam 1998). For example, the multiplicative index (MMDI) is more sensitive in low performing dimensions meaning that if there is a serious deprivation in one of them, the overall index cannot be high.

Chapter 4 also presented the situation of human development in Mexican municipalities as captured by both the additive (MDI) and multiplicative (MMDI) indexes. The main findings were organised geographically dividing the country in three regions: North, Centre and South. As expected, there are few differences between the results provided by the two measures. Municipal indexes' maximum, minimum and average figures in all regions were higher in 2005 than in 1990. The municipal indexes for 1990 and 2005 also confirmed what is already well known due to other studies analysing regional differences in Mexico considering various periods of time and other measures. That is, the municipalities in the North, in general, were better off in each year than the Central municipalities; and the latter better off than those in the South. In 1990, in the North, the highest municipal indexes averages were observed in the states of Baja California and Baja California Sur, while in 2005 only in the former. The lowest figures in both years were for the state of San Luis Potosí. As far as the Centre is concerned and taking both years and indexes into consideration, Colima's municipal average was the highest in the region, whereas Puebla's the lowest. In the South, the state of Tabasco observed the highest figures of these indexes in 1990, while it was accompanied by Quintana Roo in 2005. The lowest figures in both years were for the state of Oaxaca.

As far as increases in the MDI between 1990 and 2005 are concerned, Central municipalities experienced the highest average improvement in their municipal indexes followed by Southern and then by Northern ones. In contrast, Northern municipalities showed the highest MMDI's average increases followed by Central and Southern ones, subsequently. This variation between the two measures is due to the fact that the

multiplicative version of the index (MMDI) weights less an improvement in one of its components than the additive version (MDI) when the other components slightly increase or do not improve at all, thereby the MMDI differences between 1990 and 2005 favour less the performance of Southern municipalities than the MDI. The states with the highest municipal average increases in the MDI calculation were Zacatecas (North) followed by Hidalgo (Centre) and Quintana Roo (South); while the states with the lowest improvements were Baja California (North) followed by Morelos (Centre) and Baja California Sur (North). The states with the highest municipal average increases in the MMDI calculation were Aguascalientes (North) followed by Coahuila (North) and Colima (Centre), while the states with the lowest municipal improvements were Oaxaca (South) followed by Guerrero (South) and Chiapas (South). In all regions and both indexes, the municipalities where the states' capital is located observed higher figures than the municipal average in their respective state.

The quantitative study carried out in chapter 5 consists of an econometric analysis of the impact of the fundamental elements of the bottom-up approach on the development of Mexican municipalities between 1990 and 2005. In other words, the use of this methodology intended to identify the concrete effect of each of the key elements of LED controlling for other aspects that might have also partially influenced the development of localities during the period of analysis. As mentioned, the main constraint found in applying this methodology to the case of Mexican municipalities was the lack of information on endogenous municipal strategies towards their development. As a result, the research design involved building a LED database for Mexican municipalities with the invaluable help of academics all around Mexico.

The LED database revealed that within Mexican regions the South presents the highest proportion of municipalities showing a lack of LED characteristics and policy actions between 1990 and 2005 followed by Central municipalities. The highest proportion of localities where five or six LED criteria were identified was found in Central Mexico closely followed by Northern municipalities. Nationally, the highest occurrences in terms of the number of LED criteria considered by municipalities during the period of analysis are five LED criteria, incorporated by 31.1% of them, followed by none of the criteria in 23.4% of municipalities. The lowest occurrences are for six and three criteria (9.8% and 10%, respectively). Interestingly, the criterion most prevalent in Mexican municipalities was the existence of internal and external links or networks among development actors followed by capacity building and empowerment policy actions. The consideration of the environmental aspect of sustainability in local development strategies was the least popular of the LED criteria followed by the promotion of entrepreneurship.

To investigate to the fullest the impact of LED key characteristics and policies in the development of places, different perspectives were taken into account in the econometric computations. First, the impact of the number of LED elements was assessed; second, the specific effect of particular LED policies and characteristics was analysed; and finally, the impact of combinations between them was considered. As the literature on indexes' methodology recommends the use of multiplicative calculations, the MMDI was preferred as response variable in model computations.

In general, the results of the analysis indicate that municipalities engaging in LED have witnessed significant improvements in human development, relative to those which have overlooked LED strategies. The increase in human development has been greatest for those local authorities which have pursued capacity building, the establishment of development links and which have drafted a development plan based on a deep diagnosis of local circumstances. In particular, the initial set of model computations let us to confidently support that the expected improvement in the MMDI between 1990 and 2005 was higher for the municipalities that did implement any number of the LED policies or mechanisms than for the ones that did not. The second set of regressions provided robust evidence to maintain that the municipalities that designed a strategic development plan, implemented empowerment and capacity building policies, and built or already had internal and external links or networks improved more than the ones that did not. Lastly, the third set of computations also offered some conclusive results in relation to the suggested LED variables' combinations. In particular, both, the presence of links and networks within and outside the municipality, and empowerment and capacity building endeavours showed a statistically significant positive impact when accompanied by a development plan.

As far as the qualitative analysis is concerned, the municipalities that were further analysed in chapters 6 and 7 were Apizaco and Chiautempan which are located in the state of Tlaxcala. One of the reasons that made it relevant to study qualitatively these two municipalities in this state than others in other states of Mexico is the institutionalised existence, since 1983, of the auxiliary or community presidencies which, as we saw in chapter 6, represent the different communities within a municipality in the decision-making organ of their respective municipal government.¹⁴⁰

¹⁴⁰ Despite community presidencies are by law institutions for the localities of 1,000 inhabitants or more outside the '*cabecera municipal*', Tlaxcala still stands out in relation to having an institutional setting which allows the existence of a formal level of government closer to the people, and still has the mechanisms that can be found in other states for the rest of its population.

In chapter 6 we saw that in 1990 and 2005 Apizaco and Chiautempan were in a better situation than the state of Tlaxcala as a whole as illustrated by higher MMDI figures. Both municipalities have been leading the services sector in the state of Tlaxcala together with the municipality of the same name. In Apizaco the six bottom-up fundamental elements were identified at some point during the period of analysis, whereas in Chiautempan only half of them. Although Apizaco's performance was much better than Chiautempan's, both municipalities experienced a MMDI improvement above the state average.¹⁴¹ Therefore, it was of great interest to study their development processes to distinguish the possible causes of such good performance, in general, and the role of the elements related to the bottom-up perspective, in particular. All these features together with the institutional setting of Tlaxcala were the factors that made pertinent and appealing their selection as case studies.

Comparing their respective development processes in chapter 7 allows acquiring a better insight on the causes of their MMDI's improvements and the role of the bottom-up approach to achieve them. The main findings of the qualitative analysis in relation to the bottom-up approach suggest a constant positive role of participation mechanisms in Apizaco, while in Chiautempan only up to some point during the period of analysis. There has been a fundamental contribution of external links and networks in both cases, but favourable internal interactions only in Apizaco. The capacity building of local agents in Apizaco was perceived relevant while practically non-existent in Chiautempan¹⁴². In addition, there are important differences in the quality of the development plans which show a more comprehensive consideration of objectives and better amalgamation between diagnoses and policy actions, as well as between the latter and the resources necessary for their implementation in Apizaco than in Chiautempan. All these factors were deemed as contributors of the positive development evolution of Apizaco in comparison to Chiautempan.

Despite being located in the same state and very close to each other, important differences were found even in the common elements favouring their development. For instance, the external linkages in Chiautempan took basically the form of subordinated

¹⁴¹ Apizaco presents an increase in the MMDI between 1990 and 2005 of 0.2792 units, while for Chiautempan this figure is 0.2267. Both municipalities performed above the average in their region and state (the average MMDI difference in Central Mexico during this period is 0.1715 units, while for Tlaxcala is 0.1918).

¹⁴² A part from a lower level of skills, lack of empowerment and capacity building policies, and a limited variety of economic activities identified by analysing the information gathered during the interviews, statistics show that although Chiautempan's economic active population working in both the primary and secondary sector have been higher than in Apizaco, the latter contribution to Tlaxcala's GDP on these economic sectors has been higher. For example, let us remind that the secondary sector in Chiautempan is dominated by textiles and clothing production in which few large firms and many medium-size semi-industrial workshops operate. In the case of the primary sector, Apizaco has been within the first five contributors to Tlaxcala's GDP in stockbreeding activities.

interactions within the same industry, whereas in Apizaco economic links could be identified in a variety of activities, as well as constructive relations with other levels of government and municipal governmental counterparts.

As mentioned, investigating the role of community presidencies was essential for assessing LED actions because of their alleged proximity to citizens. In Apizaco, there have been seven community presidencies while in Chiautempan fifteen. In the former all of them are elected by the political party mechanism while in the latter seven were still elected by traditional communitarian mechanisms in 2010. The qualitative study revealed that in the case of Chiautempan the politicization around community presidencies has had a degenerative effect on their functions and interactions with community members since the beginning of this century.

Consequently, the representation of communities' citizens' interests in the *cabildo* has been put at risk, and therefore, the community presidencies' positive effect on development outcomes seems to have been limited since the intensification of the politicization phenomenon. This has even affected the communities where their presidents have been nominated and elected by traditional communitarian methods as the frequently mentioned collusion of community aldermen in Chiautempan's *cabildo* suggest.

Lumbreras and Morales (2007) distinction among different forms of participation¹⁴³ presented in chapter 6 suggests that what they called *citizens' participation* is the closest concept to the bottom-up approach towards the development of places. It refers to individuals' interaction with local authorities to secure their intervention in public affairs and the closest representation of local interests. The other concepts of participation presented by them are: *political participation*, consisting basically in the execution of the right of voting in political elections; *social participation*, consisting in social sector organisations set up to defend their particular social related interests; and *community participation*, consisting in helping the State to perform activities to satisfy immediate and specific needs of community residents. For example, the *faenas* in Chiautempan could be considered as *community participation* as these informal institutions do not necessarily involve the input of residents during the definition of the services or actions that will be performed.

In theory, community presidencies could be considered as embracing the idea behind *citizens' participation* as they entail the interaction of citizens with the local public sector

¹⁴³ They follow the definitions given by Ziccardi (2000).

in the decision-making process in relation to neighbourhoods' affairs. However, the qualitative analysis discussed in the last two chapters suggests that wherever community presidents are elected by the political party system and there is low participation of neighbourhood residents in public sessions, participation could be deemed only as *political*. *Citizens' participation* could take place in the case of a traditional election and a high involvement of residents in community presidencies' participation mechanisms. If the politicization phenomenon is included in any of these scenarios, even *political participation* could be at risk if the population do not see any benefit in electing a community representative and vote in small numbers. This negative impact was particularly observed in Chiautempan mainly after the year 2000. Nonetheless, in contrast to Montalvo's (2010) findings in other municipalities in the state of Tlaxcala, Chiautempan's and Apizaco's public services' provision and extension seem not to have been concentrated on their main urban areas (i.e. the so called '*cabecera municipal*'). As the decision-making for the allocation of resources for public services takes place in the *cabildo*, not all has been negative in relation to the performance of auxiliary presidencies.

Nevertheless, the politicization phenomenon was not the only reason explaining a lack of participation within and outside the community presidencies context. Other reasons given for the low level of local agents' involvement was that the population had lost hope in local authorities either because some petitions or proposals had not been considered or some actions had not been completed or continued. Further motives mentioned for the loss of people's trust in the local public sector were the presence of corruption and 'favouritism' (i.e. a practice with characteristics similar to the nepotistic and clientelistic phenomena). The nationally general perception that the sub-national levels of government are less transparent than federal authorities confirmed by a Mexican Institute for Competitiveness¹⁴⁴ study (2010) was present in both cases, but was particularly serious and relevant in Chiautempan.

Dynamic collaborative internal links in Chiautempan were deemed null as a result of an individualistic approach of firms originated by clientelistic and paternalistic attitudes. Therefore, Chiautempan did not escape these phenomena which have been seen as significant challenges for the success of the LED approach in Latin America as explained in chapter 3.

The concern of this research was on answering the following question by combining methodologies to analyse the case of Mexico: Does the bottom-up approach to the

¹⁴⁴ Instituto Mexicano para la Competitividad (IMCO).

development of places really have a positive impact as the LED literature on successful experiences in diverse settings all over the world highlights? Therefore, we tested the hypothesis of a positive impact of the bottom-up key features and policy actions, extracted from the mentioned LED literature, using a combination of methods which allowed us to include a large number of municipalities and dig deeper on few of them after a quantitative examination. Despite the LED perspective was not comprehensively embraced in Mexico during the period of analysis and many challenges for its success were identified, this research found not only quantitative but also some qualitative evidence supporting the hypothesis of a positive contribution of the key elements of the bottom-up approach in the development performance of Mexican municipalities, in general; and in the development processes and outcomes of Apizaco and Chiautempan, in particular.

Overall, both the quantitative and qualitative examinations offer evidence that in a country like Mexico, the mere fact of considering implementing local actions, no matter how modest, aimed at promoting development at the municipal level during the period of analysis, paid off. Pursuing the whole raft of LED criteria analysed has, as a general rule, led to even greater improvements in human development, although implementing more LED criteria has not always been a guarantee of greater development success. The main difference remains between considering one basic LED element or a combination of a few of them, on the one hand; or doing nothing, on the other. The quantitative analysis main message is that the municipalities that did nothing where, as a result, worse off in development terms; while both analyses suggest that the LED approach needs to be considered in a more comprehensive way to have a greater impact on development. In addition, the qualitative analysis shows that pursuing economic development from the bottom is not an easy endeavour and local particularities do matter for the LED constituents to have a favourable impact. Many challenges may arise during the development process as demonstrated by our case studies, in general, and the case of Chiautempan, in particular.

As a consequence, this research has fulfilled its main objective and purpose. However, data availability, time and budget restrictions, and the climate of violence in Mexico since 2006, limited the scope of the analysis of the bottom-up approach in its municipalities. The growing presence of this approach around the world makes appropriate the application of similar exercises to test LED related variables in other countries. Future research could include explicitly other aspects affecting the development of places such as spatial interactions, among other geographical factors, as well as the role of innovations. In addition, variables that could capture with more

precision the different LED constituents such as the institutional characteristics of places and entrepreneurship efforts should be proposed in further analyses. Time series analyses could also be proposed, but the creation of the corresponding databases is needed. Moreover, the profound examination and comparison of municipalities reflecting the heterogeneous circumstances prevailing in Mexico could enrich the analysis of the role played by LED strategies in this Latin American country.

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