

# International Labor Migration

Vol. 2

Editor: Prof. Dr. Béatrice Knerr



Volker Hamann

**The Impact of International Labor Migration  
on Regional Development:  
The Example of Zacatecas, Mexico**

kassel  
university



press

This work has been accepted by the faculty of Economics of the University of Kassel as thesis for acquiring the academic degree Doktor der Wirtschafts- und Sozialwissenschaften (Dr. rer. pol.).

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Day of disputation

17<sup>th</sup> of July 2006

Bibliographic information published by Deutsche Nationalbibliothek  
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie;  
detailed bibliographic data is available in the Internet at <http://dnb.d-nb.de>.

Zugl.: Kassel, Univ., Diss. 2006  
ISBN 978-3-89958-251-2  
URN: urn:nbn:de:0002-2516

2007, kassel university press GmbH, Kassel  
[www.upress.uni-kassel.de](http://www.upress.uni-kassel.de)

Cover illustration: Tomasz Henning  
Cover layout: Bettina Brand Grafikdesign, München  
Printed in Germany by Unidruckerei, University of Kassel

## **Preface**

Since the late 1980ies, transnational labor migration has developed into one of the hottest topics in the debate about international economic relations, and, as for many countries, remittances constitute the largest share of their foreign exchange receipts and a dominant factor of their economic development, has become a major theme in the discussion about how poorer countries could achieve higher economic growth and livelihood security for deprived sections of the population. Labor mobility, loss and gain of human capital and remittance flows are the issues at stake. In the International Labor Migration Series volumes are published which provide new insights into these areas for researchers, policy makers and the interested public.

The present volume written by Volker Hamann puts a focus on the impact of international labor migration on sub-national regions of out-migration. It is the outcome of a joint research project of the Department of Development Economics, Migration and Agricultural Policy of the University of Kassel, and the Maestría en Ciencia Política of the University of Zacatecas (UAZ), funded by the German Research Foundation (Deutsche Forschungsgemeinschaft – DFG)

It is a common phenomenon that international out-migration is highly concentrated on certain sub-national regions within a country. Various studies which found positive effects of labor export on national economic growth have given rise to the hope that remittances would stimulate the regions' of out-migration development in a way which in future might render out-migration obsolete. However, as labor movements and remittance-spending restructure the national economy and change regional balances, the sub-national level might bear consequences quite different from those shown on the overall economy. Disappointing results at the regional level have brought the issue into focus, and stress the need for a sound basis of theories, experiences and information required for an appropriate migration and remittances management, as for policy makers on the regional level relying on national level policies might worsen the situation.

Systematic investigation of the meso-level aspect has been largely neglected, although, already within macro-results there are strong hints indicating that certain segments of the economy might suffer negative drawbacks. One of the

reasons for that might be insufficient data availability as it is more difficult to investigate regional effects as compared to studies based on macro-data, and also to more clear survey-based village studies. Starting from the questions in which respects and why sub-national regional consequences diverge from macro-effects, the present study looks for systematic explanations of different developments and on that basis suggests policy options. To provide deeper insights into the topic, it focuses on an in-depth analysis of the Mexican state of Zacatecas.

Mexico is one of the most important labor exporting countries in the world, with almost all of the migrants going to the neighboring U.S., where at the beginning of the 21<sup>st</sup> century, an estimated ten million Mexicans are living, and about 20 million people are of Mexican origin. As a result, Mexico also has become one of the (and in some years the) major receivers of remittances. Both, out-migration as well as the resulting inflow of remittances are significantly concentrated in certain states and within those states in some “migration-pockets”, i.e. specific sub-districts and communities. Among these states, Zacatecas is one of those with the longest tradition and the highest rates of out-migration, quasi the prototype of a labor exporting economy. The migrants’ networks, bridging into the U.S., are strongly developed, extending up to transnational communities with to-and-fro movements between them. Still, in spite of the permanent high inflow of remittances, Zacatecas is among the poorer Mexican states, dominated by agriculture, with almost no industry, and lagging more and more behind the national economic development.

The investigation, based on a thorough review of literature, analysis of secondary data, surveys among households, investors and experts in the field, and a sound methodological approach discovers that the out-flow of labor force has a significantly negative impact on the economic development of Zacatecas, while at the same time the remittances received clearly improve the migrants’ households welfare and the state’s social product, but not on its domestic product.

The study demonstrates that a large inflow of remittances, concentrated on a comparatively small region of a country, cannot be expected to enhance the economic potential of that specific region, or its long-term economic growth: In spite of the large inflow of remittances, Zacatecas has remained focused on

primary products, just as decades before, with its major “export product” being labor. Many families have downsized their economic activities since they have one or more migrant members sending remittances from the U.S., and young people orient themselves towards the North and plan their education and professional future in that direction, where for Mexican immigrant labor, there is no premium on high-level education. The remittances received over decades were hardly used to build up industrial activities which would give the state the potential to keep up its current per capita income independent of remittances. Instead, they are largely re-directed to urban centres or abroad for buying consumer goods. As remittances may decline in the not-too-far-future, and a second pillar has not been built up, the state, lacking economic alternatives and depending on the U.S. immigration policy, is exposed to the danger of slipping into a severe economic crisis. Still, being aware of the situation, and based on the experiences made, it may use the remaining time of plenty, when remittances are still abundant, to build up an independent economic foundation. Promising first steps in that direction have been made, like the Tres-por-Uno Programme in the framework of public-private partnerships. Following up that way, to which this study contributes some food for thought, Zacatecas might become the prototype of a pro-active migration economy.

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## **Acknowledgements**

I would like to express my gratitude to my supervisor Prof. Dr. B. Knerr and for her patience, guidance and advice during the completion of this dissertation. I would also like to thank Prof. Dr. R.D. Postlep, who provided valuable input and support.

I wish to express my warmest thanks to the director of the Maestría en Ciencia Política at the Universidad Autónoma de Zacatecas, Mexico, Prof. Dr. Raúl Delgado Wise, for his support during my stay in Zacatecas. Without him and his colleagues Prof. Dr. Miguel Moctezuma Longoria and Prof. Dr. Hector Rodriguez Ramírez it would not have been possible to write this dissertation in this way.

For funding my field research in Zacatecas, Mexico I would like to thank the Deutsche Forschungsgemeinschaft, DFG.

I am also very grateful to my family, my friends and colleagues in Witzenhausen, Kassel, Zacatecas and Bochum, who gave me moral and intellectual support and who never stopped believing in me, despite all the obstacles.

Last but not least I want to express my gratitude to the people in Zacatecas who received me with open arms and made me feel at home during the two years I had the opportunity to spend with them.

Volker Hamann

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## Abbreviation List:

Ca	= California
CBA	= Cost-Benefit-Analysis
CEPAL	= Comisión Económica para América Latina y el Caribe
CGE	= Computable General Equilibrium Model
CONAPO	= Consejo Nacional de Población = National Population Council
D.F.	= Distrito Federal = Federal District
EAP	= Economically Active Population
EMIF	= Encuesta sobre Migración en la Frontera Norte de México = Survey on migration at Mexico's northern border
ENEFNEU	= Encuesta Nacional de Emigración a la Frontera Norte del País y a los Estados Unidos = National survey on the emigration towards the northern border and the US
EU	= European Union
FdCUZel	= Federación de Clubes Unidos Zacatecanos en Illinois = Federation of Zacatecan Clubs in Illinois
FDI	= Foreign Direct Investment
FEAZA	= Fondo Estatal de Apoyo de los Zacatecanos Ausentes = Governmental Fund of Support for absent Zacatecanos
FONAES	= Fondo Nacional de Empresas en Solidaridad = National Fund for Enterprises in Solidarity
GATT	= General Agreement of Tariffs and Trade
GDP	= Gross Domestic Product
GDR	= German Democratic Republic
GNP	= Gross National Product
ha	= hectare
HTA	= Hometown Association
IMF	= International Monetary Fund
INEGI	= Instituto Nacional de Estadística, Geografía e Informática
INS	= Immigration and Naturalization Service
IRCA	= Immigration Reform and Control Act
km	= kilometers
LF	= Location Factor
MERCOSUR	= Mercado Común del Cono Sur
mm	= millimeters
NAFTA	= North American Free Trade Agreement
NELM	= New Economics of Labor Migration
PRI	= Partido de la Revolución Institucional = Party of the Institutionalized Revolution

RF	= Regional Factor
SAM	= Social Accounting Matrix
SEDESOL	= Secretaria de Desarrollo Social
SF	= Structural Factor
SIMBAD	= Sistema de bases de datos municipales= System of Municipal Databases
TLBs	= Those Left Behind
USCIS	= US Citizen and Immigration Service
WTO	= World Trade Organization



# The Impact of International Labor Migration on Regional Development: The Example of Zacatecas, Mexico

## 1 Introduction

International labor migration has been growing constantly over the last few decades; considered one of the most urgent issues, at the beginning of the 21<sup>st</sup> century it constitutes an important challenge for the future (Nuscheler 1995, Zlotnik 1998, Arango 2000). It is linked closely to questions of social and economic development, as migrants seek to improve their economic situation by moving towards regions with higher expected incomes. The loss of workforce and the inflow of remittances sent back by the migrants have significant impact on regional economic development in the sending countries. (Todaro 1969, Lindstrom 1996, Parnreiter 2001, Steinhauf 2002). According to neoclassical economics globalization, free trade and free capital mobility lead to a reduction of migration movements, as marginal productivities and therefore wages adjust between the countries. Therefore, due to the increasing liberalization of trade and capital flows due to the WTO and other agreements (NAFTA, EU, MERCOSUR etc.), labor movements are supposed to decrease (Parnreiter 1999). Evidence, however, reveals the opposite: migration movements are increasing. Wage differentials do not decrease significantly between sending and receiving countries. In the short run, free trade may even lead to increasing wage differentials in the sending country and thus foster migration (Airola and Chinhui 2005). The phenomenon of international labor migration is obviously more complex and cannot be explained by simple income differences or ended by foreign direct investment. Instead, migration can even be considered a manifestation of globalization. Both are linked closely, the penetration of societies and spaces by global economic, political and cultural forces causes the destabilization of traditional economic and social structures. This uprooting and disintegration leads to mass migration movements from the peripheral to the economically dominant countries, as for many households the expected income decreases (Lindstrom 1996, Pellerin, 1997, Jones 1998a). Therefore, many international organizations have expressed interest in analyzing the links between migration and development in the source country (OECD [O'Connor/

Farsakh: 1996], World Bank [Russel/ Teitelbaum 1992, World Bank 2002], CEPAL [1998], International Labor Organization [Stalker 2000]).

From the different international migration movements in the world Mexican migration to the US is chosen for this research, because Mexico is the world's largest exporter of labor (Zarate-Hoyos 1999). As 97% of all documented and undocumented Mexican migrants move to the US, we can speak of a bilateral relation, which at this extent is unique in the scope of worldwide migration movements. The migration issue has been and will be central to Mexico's development path, as well as to national politics, culture, economics, society and in the relationship with the US (Maihold 2003). Further on the research will be delimited to the state of Zacatecas, which is one of the traditional sending regions and had the highest migration ratio<sup>1</sup> of all Mexican states during the 1990s.

## **1.1 Research Questions**

Workers' remittances are the most important economic factor determining the link between international labor migration and economic development. These monetary transfers sent to the migrants' families are used for consumption and investment and thus have a significant impact on economic development (Durand et al. 1996a, Hamann 2001, Goldring 2003). There are two opposing scientific schools evaluating the impact of remittances on development: (a) the developmentalist school maintains that remittances induce economic growth, while (b) the dependency school argues that monetary transfers lead to a reduction of economic activities in the source country (Taylor 1999). The aim of this research project is to contribute to the understanding of the relation between migration, remittances, and development.

Because of specific historical roots migration often occurs as a regional phenomenon. Regions presenting the same economic bases do not necessarily show the same migration patterns, and regions that show similar migration patterns may differ greatly with respect to economic development (Jones 1995). Thus, remittances are not spread evenly throughout the country, but they are

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<sup>1</sup> Percentage of households that have at least one migrant member.

mainly focused in the areas of out-migration. As a consequence, the impact of migration and remittances also concentrates on certain regions. These interregional differences, however, do not receive much attention. On the contrary, most of the current studies either focus on the country (Durand et al. 1996a, Robinson et al. 1993) or the community level (Mines/ de Janvry 1982, Taylor et al. 1999), while there has been little research on a regional level. The focus of this research work is the impact of remittances on the economic development in the sending region and is thus located in-between existing studies that concentrate on a national or a village level.

The research questions, therefore, for this investigation are as follows:

1. How do migration and remittances influence economic development in the sending regions?
2. How do migration and remittances influence the economic structure in the sending regions?
3. How do changing migration patterns influence the development potential of migration and remittances?
4. Are there sub-regional differences regarding migration patterns, remittances and development potential?

Later on in chapter 4, after discussing the theoretical aspects of this research, the research hypotheses will be presented more precisely.

## ***1.2 Theoretical Concepts and Definitions***

This section introduces some concepts, which are crucial for the following analysis. It starts with the definition of “region”, followed by the term of “development” used here. After that the concept of “remittances” is introduced and finally a definition of “migrant” is given.

### **1.2.1 Region**

A region can be understood as an interconnected geographical space of medium size that is part of a superior unit. The term “region” or “regional” is used to describe phenomena that exceed the local or village level but do not reach national significance. Regions are defined by scientific or political purposes according to the terms of reference. Regions may be structured

following geographical, economic, social and/or cultural characteristics and according to the scientific or political purpose (Sinz 1995).

From the viewpoint of politics, regions represent units of administration, like states or counties. In Mexico there are three administrative levels: the federal level, the 32 states, and more than 2400 counties or municipalities. Zacatecas, the state this research is focused on, consists of 57 municipalities.

According to economic or political aspects it can be useful to combine several states to form one region, like the Mexican southeast (Oaxaca, Guerrero, and Chiapas; Chamboux-Leroux 2001). These states share certain geographic characteristics, which determine economic structure and opportunities or social problems. Also, some states on both sides of the Mexican – US border (Baja California – California, Sonora – Arizona, Coahuila – New Mexico, Chihuahua – Texas, and Tamaulipas – Texas) can be seen as belonging to the same region, as they are linked closely by economic and cultural ties (Weaver 2000). The phenomenon of common characteristics also applies to various municipalities inside a state (Ramírez Miranda et al. 1993), and in the case of Zacatecas, common characteristics are shared by the municipalities of Río Grande, Sombrerete and Sain Alto, for example.

New approaches point out that the ongoing processes of globalization have brought up new forms of spatial organization. Traditionally, social sciences considered social or economic space on the one hand and geographic space – traditionally defined by national borders – on the other, as being congruent. As a consequence of globalization, the new and improved means of transport and communication, these limitations have ceased to exist and social and economic activities are now realized inside a social space, which is no longer restricted to a geographic space. Glick Schiller et al. (1992), Pries (1996, 2004) and Goldring (1997) call these phenomena transnational social spaces.

This study will focus on two regions that form part of the Mexican state of Zacatecas and consist of various municipalities; however it will also consider the links between the migrants and their home communities, thus including a transnational approach.

### 1.2.2 The Concept of Development

The conception and definition of development is crucial in economic sciences (Sen 1988). John Stuart Mill had already differentiated between growth and development (Mill 1848). While growth refers to a physical increase, development also includes a qualitative improvement.

At least since the emerging environmental debate at the beginning of the 1970s, which made a clear cut between pure economic growth and development, has this differentiation been common in economic sciences (Hamann 1997, 2ff). Daly (1983) explains that quantitative physical growth does not necessarily lead to development, which he defines as a qualitative improvement of living conditions. The concept of development depends highly on the social and cultural context, that is, on "the notion of what things are [considered] valuable to promote" (Sen 1988, 20).

The German Ministry for Economic Development defines development as improving the conditions of life for all people in a long-lasting and self-sustaining process (BMZ: 1997, 159). Portes and Mooney (2000) argue that development is a concept that exceeds the concept of growth by including qualitative and normative aspects. The Inter-American Development Bank calls for a development that goes beyond economic growth („Desarrollo más allá de la economía“, Sangmeister 2000). While traditional economics claim that poverty cannot be reduced without economic growth, the experience of Latin America during the past 20 years has shown that growth alone is not enough and that it does not automatically "trickle down" to the poor. During the 1980s most Latin American countries followed the structural adjustment programs of the World Bank and the International Monetary Fund, strategies which led to economic growth and macroeconomic stability, but did not reduce the social problems of poverty (Sangmeister 2000).

Stiglitz (1998, 2002) argues that the aim of development should be the improvement of living conditions. The means to achieve this goal, however, is the increase of GDP, which means economic growth. Economic growth, therefore, is no end in itself, but should improve living standards.

While economic growth alone does not guarantee development, it is still a necessary condition. As the normative goals of development differ according to the social and cultural context, this research will use the term development in

the sense of economic growth. However, it will also take into account the structural changes of the economy, as they reveal whether the economy is competitive on a national or an international basis.

### **1.2.3 Remittances**

Remittances are monetary transfer payments sent by the migrants to support their families or friends who still live in the source countries or to achieve the migrants' personal goals, such as investment projects. They are sent by all different kinds of migrants: internal and international, male and female, legal and undocumented, temporary and established, high and low-skilled. Remittances are sent through the official banking system, through special agencies, with the help of fellow countrymen, or directly by the migrants, when he or she returns to the source country to visit family and friends. Non-monetary gifts – either sent by mail or brought by the migrant personally – are considered to be remittances in kind. Transfer payments by descendants of migrants and pensions paid to former migrants who had been migrants in the past are also considered remittances. Unlike other transfer payments, such as development aid or interregional adjustment programs, remittances are not channeled through formal institutions but reach the lower income strata directly. Remittances are not charity nor are they connected to certain regulators. They are money earned by the migrant families themselves and represent an important source of income (Durand et al. 1996b).

### 1.2.4 Migrant

Ravenstein (1885/89) presented the first classification of migrants. He distinguished between local migrants, who move inside the same community or city, and nearby migrants, who move to a neighboring county. Stage migrants move from their home community to their current place of residence in different stages. This kind of migrant may then become a remote migrant, who settles far away from his place of origin. Temporary migrants are those who live away from their homes for a certain period of time, but then return.

Jordan (1997) distinguishes between temporary and permanent migrants on the one hand and national and international migrants on the other. Permanent migrants settle at their destination, while temporary migrants return home after a certain period of time. National migrants move inside their nation, while international ones cross national borders to reach their destination. This may happen legally (documented) or illegally (undocumented). As national and international migrants may be either permanent or temporary, we obtain the following matrix (see table 1):

**Table 1: Different Kinds of Migration  
according to Jordan (1997)**

	Temporary	Permanent
National		
International		

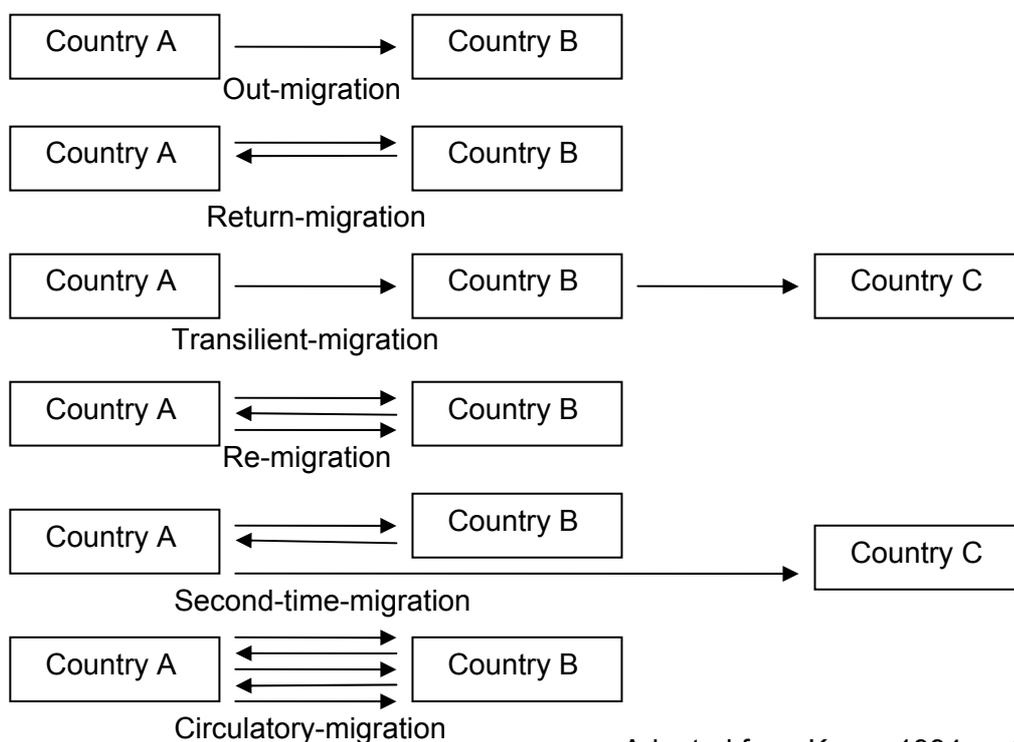
Jordan (1997)

As this research deals with international migrants, the following paragraph will only take this group into consideration. International migrants move in different ways or stages. A current classification of these stages is as follows (see Knerr 1994):

The first stage is out-migration from country A (home country) to country B (host-country or destination; see Fig. 1). Return migration refers to that same person returning to his/her home country. The term transilient migration describes the migration of a person from country A to country B and then to country C (this form of migration was called stage migration by Ravenstein

1985/89). A movement is called re-migration, if the person has migrated, returned and then migrated once again to the same destination. Re-migration may constitute a first step towards circular migration, which refers to movements back and forth between home and host-country. The most complex form of migration is called second-time-migration: it describes the movement of a person from country A to country B, the return to country A and afterwards the migration towards country C.

**Figure 1: Stages of International Migration**



Adapted from Knerr: 1994, p. 9

Circular migration is also called transnational migration, putting an emphasis on the fact that these migrants alternate their residence between country A and country B, which means that they regularly commute, and maintain close social ties in both locations. This research focuses on the economic impact of the migrants' activities in the source country, therefore it deals with migrants who have returned home (return-migration) and also with transnational migrants who maintain close contact with their communities of origin.

The terms migrant, immigrant, and emigrant refer to the same group of persons; however, they reflect a change in the point of view. While the term migrant covers all people who move their residency, an emigrant is defined from the point of view of the migrant's home community as a person who moves elsewhere permanently, leaving his traditional place of residence. From the point of view of the receiving community (or host community), any person who moves in from anywhere else is called immigrant (For further details about concepts of migration and migration patterns see chapter 6.1 and 6.2).

### ***1.3 Organization of the Research***

The research is designed as a combination of macro- and micro-analysis. The macro-analysis identifies the determinants of economic development taking into account migration movements and remittances. However, development on the macro level is always comprised of the sum of decisions made by individuals or households. Therefore, in a second step, individual behavior is analyzed with the help of data provided by a survey among migrant households and semi-structured interviews with key informants, both carried out by the author. The survey covers information about migration and remittance patterns, as well as the importance of social networks. Most of the semi-structured interviews were held with migrant investors in order to identify their migration history, skills acquired in the US, the kind of investment undertaken and the problems faced when investing. This two-level-analysis aims at explaining the development stated by the macro-analysis, through phenomena observed on the micro-level.

Chapters 2 and 3 present the theoretical framework, while chapter 2 covers different theories of and approaches to regional development, including traditional location theories and dynamic approaches derived from growth theory. After that, more recent theories are presented, such as Public Goods Theory, the theory of endogenous development, and New Economic Geography. Chapter 3 then expands the panorama, introducing the link between migration and development, which basically consists of the migrants' remittances. Therefore, in the first section of this chapter the motives for sending remittances are explained, the second part demonstrates theoretical approaches to the link between migration, remittances and development, while the last section gives an overview of the state of the art of empirical research. In

chapter 4 the research hypotheses are derived from the theories and the empirical findings presented before. In the second part of this chapter, methods for assessing the impact of migration on development are introduced and selected according to the research hypotheses. Chapter 5 deals with the different data sources used for this analysis, beginning with primary data which was collected by carrying out a survey and carrying out semi-structured interviews with key informants. Secondary data was taken from different sources provided by Mexican governmental institutions. The last section of chapter 5 presents the geographical characteristics of Zacatecas and especially of the two regions where the survey was carried out.

Chapter 6 begins with the introduction of different migration concepts and migration patterns. It then gives evidence regarding migration movements between Mexico and the US with a special focus on migration patterns in Zacatecas. The following chapter includes the analysis of economic development in Mexico and Zacatecas by applying a shift-analysis. The third section of chapter 7 uses a regression analysis to estimate the determinants of economic development for migration economies. The final part sums up the findings of the chapter. Chapter 8 analyzes the impact of remittances on development in Zacatecas at the micro-level by analyzing data gathered by the survey and through the semi-structured interviews with key informants. This includes migration and remittance patterns, sub-regional differences, the experiences of migrant investors, and an evaluation of political programs designed to foster migrant investment in Mexico.

The 9<sup>th</sup> chapter gives a summary of the results and draws conclusions from the findings presented before. The focus lies on the future of Mexican – US migration, the structural changes in Zacatecas and the impact of migration and remittances on development. The next section of this chapter makes suggestions for future political strategies for how to improve the impact of remittances on regional development, according to the findings, and finally, areas for further research are defined.

## **2 Theories of Regional Development**

The task of regional economics is to analyze the spatial aspects of economic activities. Regional economics analyze the localization of economic activities in space, the differences between regions with high levels of activities and those with lower activity, the division of labor between regions, and the differences of welfare between regions. (Krieger-Boden 1995, 3) Regional economics also treat problems such as how to preserve long-lasting economic growth, how lagging regions are enabled to catch up with prospering ones, the convergence or divergence between regions and policy options to overcome market failures, and to improve the spatial allocation of economic activity (Krieger-Boden 1995, 4f). Theories of regional development cover both differences regarding economic development between countries and between regions inside a country. This research deals with differences between regions on the sub-national level; therefore, the theories are presented with a focus on sub-national regional development.

The first section of this chapter deals with different theories of regional development. It starts with static models and then turns to dynamic models. The second part of this chapter looks at the importance of public goods for development and presents the theory of endogenous development. The next section explains the recent approaches of New Trade Theory and New Economic Geography.

### **2.1 Static Theories**

Static theories of regional development are divided into two groups: location theories on the one hand and approaches based on trade theory on the other. Location theory analyzes the distribution of economic activities in space according to land rent (von Thünen 1875), transport costs (Weber 1922) and the purchasing power of local markets (Christaller 1933, Lösch 1939) (v.Böventer 1962). Johann Heinrich von Thünen can be considered the founder of location theories as he developed the first core-periphery model. The center is formed by a city, which is surrounded by sites of agricultural production. The

location of production for specific goods is defined by their production and transport costs (Krieger-Boden 1995, p. 4ff).<sup>2</sup>

Weber (1922) focuses the attention on industrial production and especially on the heavy industries. Natural resources can only be found at certain locations. Considering that the transport of primary and intermediate products to the production sites as well as the transport of end products to the markets induces costs, Weber analyzes where to find the optimal<sup>3</sup> location for production. The basic model includes two natural resources and one sales market (given exogenously) that are all located at different sites. Production is located inside the triangle formed by the three places (at the place of minimal transport costs) (v. Böventer 1979, p. 153ff). Taking into account that transport costs decrease with increasing distance, Palander (1935) expanded the analysis and showed that the optimal location of production is often located at one of the places where the natural resources are found or at the sales market (Krieger-Boden 1995, p. 8ff).

Sales-oriented approaches focus on the regional distribution of demand. Each production site can only provide a limited region with certain goods; the extent of this region depends on the relative transport costs as compared to the production costs. Each region must have a certain minimum size regarding demand for it to be worthwhile starting production. However, the size of each region also has an upper limit regarding its extension, as transport costs increase with growing distance from the production site and reduce demand. In order to satisfy demand beyond these limits, other production sites are needed. As different goods have different production and transport costs, the specific extent of the region covered by one production site differs for each good.

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<sup>2</sup> According to Galtung (1971) economic and political power are concentrated in the center, while the peripheral regions depend on and are exploited by the center.

<sup>3</sup> "Optimal" in the sense of minimizing production and transport costs

Christaller (1933) distinguishes between higher-, middle- and lower-order places. Cities are ranked according to their importance as market places, or as centers of production or administration. According to Christaller (1933) and Lösch (1939) the production of those goods which need large-scale industries concentrates in central cities, while the production of goods which require smaller regions is also realized in secondary- or tertiary-order locations. The smallest unit – village – only hosts small service businesses (Eckey 1978, p. 61-66, Krieger-Boden 1995, p. 14 ff.).

A second set of static concepts is based on Trade Theory and the theory of Comparative Costs (Ricardo 1817, Heckscher 1919, Ohlin 1931). These theories were first developed to explain trade between countries, but later it was adapted to analyze trade between regions inside one country. As a consequence of their different endowment with production factors (labor or capital), countries/regions have comparative advantages producing certain goods (either labor or capital intensive). Trade between the regions allows the capital rich-region to specialize in capital-intensive production and the labor-rich region to focus on labor-intensive production technologies. As a consequence, prices for production factors and goods tend to adjust (Eckey/ Schumacher 2002, p 3f).

## ***2.2 Dynamic Theories***

Dynamic theories explicitly include the impact of technical progress on regional economic development. Giersch (1978/1979) describes the economic development of regions as follows: (1) Scale economies in the production of public and private goods lead to the formation of an administrative center (the so-called Thünen-City). (2) The production of some goods is determined by natural resources and therefore takes place where these are located. (3) Footloose industries are located between center and periphery, where production and transportation costs can be minimized. (4) The dynamic element of this approach results from new products or new production technologies that are not yet available everywhere. Both are the result of innovation that usually takes place in the center and step by step spreads out towards peripheral regions. These spillover effects from the center to the periphery explain different

states of development and also give incentives for the core region to generate new knowledge to maintain the advantage compared to the periphery.

Neoclassical growth theory is based on the Solow-Model (1956) and comes to the conclusion that factor movements between regions cause an equalization of prices. This model is based on a Cobb-Douglas production function. The welfare of a (regional) economy depends on its endowment with accumulated production factors in relation to its population, as they determine the per capita income. If the capital stock and domestic product grow at the same rate, the economy will reach a steady state growth. Therefore, two regions with the same rates of population growth, the same production function, the same savings ratio will reach the same steady state. Borts and Stein (1964) expand this model and show that a convergence of GDP per capita also takes place if the parameters (endowment with production factors) of the regions analyzed differ. If production in region 1 is labor intensive and in region 2 capital intensive, the marginal product of labor in region 1 is low as compared to the marginal product of labor in region 2. In the opposite case, the marginal product of capital will be relatively low in region 2 and relatively high in region 1. This causes the movement of labor from region 1 to region 2 and vice versa and the tendency towards the convergence of GDP per capita in both regions. One objection against this approach is that technological progress is not included in this model. If technological progress is not distributed evenly between the two regions (with the same factor endowments) and, for example, region 1 has higher rates of technological progress, then labor and capital productivity in this region will grow faster than in region 2. If this causes the movement of capital from region 2 to region 1 because of higher returns, then capital intensity and per capita income in region 1 will decline, leading to a divergent development. If, however labor also moves from region 2 to region 1, capital intensity and per capita income in region 2 will rise, leading to a convergent development. The actual development depends on whether capital or labor is more mobile (Krieger-Boden 1995, p. 32ff).

Assuming different rates of population growth and saving as well as different production functions in both regions, and in the absence of factor mobility, the panorama changes. Then each country or region has a different steady state determined by the three variables population growth, savings ratio and production function. In this case there is only relative convergence; countries with similar characteristics tend to follow the same paths, while countries with different characteristics do not show tendencies of convergence (Krieger-Boden 1995, p. 56).

Unlike neoclassical approaches, polarization theories assume divergence between the economic development of regions within one country. Polarization theories are based on the work of Perroux (1948) and Myrdal (1957). They question three basic assumptions of neoclassical approaches. According to them (1) production factors are heterogeneous and only partially mobile. This hinders substitution and thus the equalization of factor prices. (2) Instead of perfect competition they assume an economy characterized by monopolistic or oligopolistic structures with existing agglomeration externalities. (3) Information about innovations is not available free of charge and spreads out at uneven velocity. Also the attention is drawn to the importance of the sectoral composition for regional economic development.

Accidental differences regarding infrastructure, market access, or innovations may cause a short-time disequilibrium between two regions and then market forces strengthen it, causing a long-term divergence between the regions. Benefits resulting from agglomeration advantages support the emergence of growth centers as well as the slower development of peripheral regions. Thus differences tend to increase instead of being reduced (Maier/ Tödling 2002, p. 85ff).

Another explanation for regional economic growth is the export basis theory. According to this approach, it is only possible to achieve economic growth and the development potential of a specific region through the export of regionally produced goods. In this model production factors are not mobile. The regional economy is divided into a basic (export or traded) and a non-basic sector (non-traded). Exports, and thus economic growth, can only result from the basic sector; the non-basic sector is passive and produces inputs for the export sector. It depends completely on the performance of the basic sector, which

induces demand for primary and intermediary products. If the basic sector experiences an exogenously induced growth (an increase of exports), its demand for input from the non-basic sector will increase, inducing economic growth inside the region (Fritsch 1991, Brauweiler 1998, McGregor et al. 2000).

### **2.3 Public Goods Theory**

According to the theory of public goods, infrastructure is a decisive factor for regional economic development. The concept of infrastructure goes beyond pure material installations such as roads and includes the legal and institutional framework as well as human and social capital. Private and public infrastructures are considered substitutes, however, the marginal rate of substitution decreases and a complete substitution is ruled out (Jochimsen 1966). This approach considers infrastructure to be the decisive factor for economic development. A region will only be able to take advantage of its development potential if none of the determinants become a bottleneck (Giersch 1963). A lack of infrastructure may cause bottlenecks and hinder economic growth. To reach a maximum economic growth, private investment and public investment in infrastructure should grow at the same pace (Krieger-Boden 1995, p. 42f).

The success and competitiveness of regions can be seen as the capability to unfold and support their productive and creative forces as well as their ability to attract scarce (inter)nationally mobile resources and production factors. Both aspects depend on certain immobile factors provided either by the private or the public sector. In a market economy there is no possibility of directly influencing the decisions of the private sector. However, governmental units can control the provision and quality of public infrastructure and institutions. Regions compete among each other in order to attract an optimum of mobile factors by providing an optimal<sup>4</sup> set of infrastructure and institutions. Krieger-Boden (1995, p. 70) calls this the *institution-competition* between regions. Postlep (1999b) points out that besides “hard” location factors, such as physical infrastructure, factor prices, and the region’s geographical location, so-called “soft” factors gain importance: social climate, human capital, environmental quality and

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<sup>4</sup> To maximize economic growth

consciousness, modernity of the local administration (governance), business climate as well as a creative and innovative milieu (see next section) play an important role for investment decisions.

## **2.4 Endogenous Development and Innovative Milieu**

The theories of endogenous development and innovative milieu focus on the optimal employment of those production factors that exist in the region, in order to maximize economic growth. The theory of endogenous development argues that the economic development of regions depends on specific attributes and stochastic incidents and that it is highly path-dependent (Paque 1995). These theories explicitly include the importance of structural elements. Exogenous and endogenous factors determine the potential for development. Exogenous factors are determined by environmental conditions, national and global developments and cannot be influenced by regional politics or activities. General factors refer to universal trends in the aspects mentioned above, while the specific factors depend on changes in certain aspects that affect the position of region in relation to other regions, such as, for example, the growth of a sector that holds importance in the regional economy. Endogenous factors are those specific to a certain region. We consider as basic endogenous factors the geographical characteristics of a certain region – like resource endowments for example – that are not subject to human influence<sup>5</sup>. Only the latter – structural factors – may be influenced by politics, such as investment in education or infrastructure.

1. Exogenous factors are:

- a) general factors: demographic, political, economic, social, and technological development
- b) specific factors: changes in the locational advantages/disadvantages and agglomeration effects

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<sup>5</sup> With the exception of the exploitation and exhaustion of natural resources which changes the resource endowment of a region.

2. Endogenous factors are:

- a) basic factors: topographical characteristics, climate, spatial location and extension, natural resources, etc.
- b) structural factors: quantitative and qualitative labor potential, infrastructure, agglomeration (Brauweiler 1998).

Lucas (2000) stresses the importance of regional networks for economic development. These can be considered to be a multiple texture alongside business relations and production chains, also including social relations between the agents. Networks are especially important for small- and medium-sized firms. Many of them are not able to solve problems, such as access to markets, information, know-how or a satisfying speed of response to changing demand, just to name a few of the problems. Thus networks help to overcome these problems by providing

- low transaction costs regarding information, marketing, logistics
- the emergence of reputation and trust among the agents
- growing flexibility
- access to know-how
- reduced costs through the common use of technical installations
- common market access of several enterprises providing full service (Bleicher et al. 2001).

The formation of a socioeconomic network is more likely when the enterprises share a common history and the owners know each other well. Camagni (1995) gives the example of industrial clusters in Italy. According to his approach, the creation of an innovative environment or milieu can be considered a normative goal of regional development policies, which enables the region to realize an endogenous growth and become independent of external influences. This is important, “as externally driven growth seldom generates a sustained development process in the long run” (Camagni 1995, p. 318). The concept of innovative milieu should be looked at as a normative one. According to the GREMI group (Groupe de Recherche Européen sur les Milieux Innovateurs) endogenous development should pass through four “metaprocesses”:

1. The involvement of local resources to guarantee the genuine nature of the process. If there is no local entrepreneurship and external activities are attracted, they should be linked with local activities.
2. The creation of synergies among local actors and factors as well as between locals and foreign investors to compensate for the region's lack of other advantages.
3. The linking-up with external energies in order to maintain contact and exchange organizational and technical know-how. Autarchy bears the risk of a reduced competitiveness, a limited reaction capability to market changes and the disconnection from international evolutionary processes.
4. A continued process innovation. In the case of lagging regions this does not apply to advanced technology but includes intersectoral job shifts, the diffusion of successful practices, the application of advanced technologies to the traditional sectors, and radical innovations.

There are two ways for a region to move from a “no milieu - no innovation” state to an “innovative milieu” state, including the option of a long-lasting, self-sustaining development. The first option is to trigger development through an external innovative invention, which must be embedded and integrated into the local economy. The second option is progress through the development of local synergies that foster local growth and thus open the way to reaching superior levels of productivity and innovativeness (Camagni 1995).

## ***2.5 New Economic Geography***

During the last 20 years the most important approach to regional development has been Paul Krugman's New Economic Geography (Krugman 1991), which will be presented here together with the related New Trade Theory.

Existing or missing infrastructure plays an important role in the development of a region. Krugman gives the hypothetical example of several countries with the same factor endowments, which are able to produce bananas. However, in order to export this product, certain infrastructure, for example a dock to ship the bananas to their destination, is needed. The assumption in this example is that the world market is not large enough to absorb the production of all countries, but only of one or two. Once two countries have built docks they become exporters of bananas and supply the world market with bananas at the price of marginal costs. For the other countries it is not worthwhile investing in

docks as the markets are saturated. Which of the countries manages to export its product and which ones stay behind is indeterminate and depends on historical accidents, in this case, the construction of a dock. This example shows that economic growth is highly path-dependent and accidental incidents may be decisive. The same holds for agglomerations, which may also be the result of accidental historical incidents (Krugman 1989, 1999).

Scale economies and self-reinforcing externalities from agglomeration favor the centralization of production sites. Externalities consist of labor market pooling, technological spillovers and intermediate products. Enterprises benefit from the spatial concentration of qualified labor force; technological externalities allow enterprises to gain benefits easily from innovations; and providers of primary and intermediate products concentrate regionally in order to improve the access to mutually required products. Due to these externalities and economies of scale it is efficient to concentrate the production of certain goods at one or few locations and supply other countries and regions with goods from there, even if these countries or regions do not have comparative disadvantages in producing the same goods. The monopolistic or oligopolistic countries or regions, however, obtain rents that exceed marginal productivity. This implies that the maximum welfare of certain countries or regions is not necessarily identical with the maximum of global welfare (Osmanovic 2000).

Regarding transport costs, Krugman and Venables have developed the following assumptions: at an early stage of development, transport costs exceed the benefits derived from agglomeration, thus production is spread out evenly through space. Later – because of technical innovations and improved infrastructure – transport costs can be reduced; this leads to a centralization of production, as agglomeration benefits exceed transport costs and markets can be served from few production sites. In the final stage, transport costs are reduced even more and production moves away from the agglomeration towards peripheral regions for their lower wages (Krugman/ Venables 1995).

New Economic Geography together with New Trade Theory explains why countries or regions with the same factor endowments may show different paths of development. The example of the banana-exporting countries shows that accidental decisions (in this case to build a dock) may have long-lasting impacts, in fact the development path may even get “locked”. Once a country

gains certain advantages because of an accidental decision, benefits from agglomeration may deepen the polarization between prospering and poor countries. At the first stages of development high transport costs disfavor the agglomeration of production sites. Later on transport costs are reduced and scale economies as well as advantages from agglomeration induce a relocation and centralization of the industries. A further reduction of transport costs, however, may cause the movement of production sites to countries or regions with lower wages, overcompensating the benefits from agglomeration.

Economic geographers, however, discuss Krugman's ideas very controversially (Martin/ Sunley 1995; the dispute between Osmanovic 2000 and Barthelt 2001). Krugman's approach turns back to older concepts such as transport costs, infrastructure and economies of scale considering them determinants for the spatial organization and the development of economic activities.

### 3 The Migration – Development Link

Much theoretical and empirical research has been carried out concerning the link between migration and development; the studies can be divided into followers of the so-called “positive” or “negative” schools (Jones 1992). Taylor (1999) refers to these contrary schools as the “developmentalist extreme” and the “migrant syndrome”. The first school can be associated with the new economics of labor migration. It is argued that the decision to migrate is part of the family’s strategy to secure household income and to obtain funds, which can be channeled into new activities. Also

“remittances [...] set in motion a development dynamic by loosening production and investment constraints faced by households in poor developing environments.” (Taylor 1999)

The “positive school” argues that international labor migration leads to an international redistribution of production factors, which implies productivity gains on both sides. Additionally, international migration helps to sustain social institutions (Jones 1992).

The “negative school” is related to the perspective of polarization theory. It argues that international migration reflects the asymmetric economic relationship between the industrialized and developing countries (Jones 1992). It comes to the conclusion that the most productive part of the labor force leaves the sending areas and that remittances foster a shift from the production of tradable goods towards the production of non-tradeables (similar to the so-called Dutch Disease). Instead of exporting goods the sending regions specialize in sending migrant labor. Individual or household decisions, which are rational on a micro level and improve the economic situation of the individual or household in question, become – under the assumptions of the pessimistic view – harmful for society. The sum of micro decisions does not necessarily cause a maximum of economic growth on an aggregate level, which indicates a possible market failure. Results from former research conducted in various countries do not lead to a clear perception of the relation between migration, remittances and development (Appleyard 1992, Taylor 1999, de Haas 2005).

This chapter deals with the link between migration and development, first explaining the motives for sending remittances, the importance of social

networks and the so-called Home Town Associations (HTAs), and gives a panorama of the amount of money remitted worldwide and in Mexico. Then micro- and macro-economic theories concerning the impact of migration on development are presented. Section 3.3 sums up and compares the findings of the two previous sections and derives the working hypothesis. The final part of this chapter presents methods for analyzing the impact of migration and remittances on regional development.

### ***3.1 Motives and Interests for Sending Remittances***

In order to understand the way remittances are used and their resulting impact on development, we have to take a look at the migrants' motives for sending remittances. Analyzing the reasons for private income transfers, Cox (1987, 1990) identifies two possible motives: altruism and exchange. Cox's findings indicate that income transfers are closely related to certain interests of the sender and that in addition to altruistic aid for family members or friends, they are to be considered as an expression of the migrants' (material) interest (for example, to secure his or her inheritance). A more recent study by Schrieder and Knerr (2000) about remittances from internal migrants in Cameroon supports this view. These facts are backed by the new economics of labor migration (Nelm, see Taylor 1999) which consider migration movements as the result of rational family decisions to diversify risks. The migrant is sent abroad upon the agreement of sending remittances to support the family which lives in a rural area and depends on the unsteady and fluctuating income from agricultural activities. Lucas and Stark (1985) consider remittances the result of an implicit contractual arrangement between migrant and home. Rapoport and Docquier (2005) have come to the conclusion that remittances should be explained as informal inter-temporal contracts within the family and not as the result of altruism. However, the flow of remittances also depends on the objectives pursued by the migrant, and the amount of money remitted to the home country varies, whether:

1. he plans to settle permanently in the host country,
2. he tries to minimize the time spent in the host country or,
3. he aims at maximizing wealth within a certain time (Lianos 1997).

According to Goldring (1998) and Alarcón (2004) this individualistic and family-oriented notion mentioned above needs to be expanded. Migrants channel a growing share of remittances into in different kinds of investment projects in their home communities. The reason is not altruistic either, as migrants invest in local infrastructure and other areas to secure their political and social leadership, which they would not be able to maintain otherwise (Goldring 1998).

The World Bank (2002) differentiates between four different types of remittances: family remittances, collective remittances, savings for personal investments, and savings for entrepreneurial investments (see Table 2). Each type is sent by a specific social group to specific people in the home communities and has a specific purpose. Therefore, the impact of the four kinds of monetary transfer on social and economic development differs considerably.

We can observe, however, that the migrants' plans change over time and therefore sending patterns are also subject to changes. Migrants who settle permanently in the host country tend to reduce the share of income remitted. However, as incomes are likely to increase with the time spent in the host country, the amount of money transferred to family members in the country of origin might increase. "Remitting is a process that changes over time. It reflects the migrant's underlying notions of who he or she is and where his or her responsibilities lie" (DeSipio 2000, p. 20).

**Table 2: Mexico: Main Economic Characteristics of different Types of Moneys Sent or Invested by Migrants**

<b>Type of remittance</b>	<b>Sent by</b>	<b>Sent to</b>	<b>Main instruments or incentives that influence the amounts sent</b>
Family remittances (providing for the basic needs of households)	Individual migrants	Relatives in hometowns	<ul style="list-style-type: none"> <li>• Banking facilities</li> <li>• Transfer facilities</li> <li>• Transfer costs</li> </ul>
Collective remittances (social and philanthropic motivation)	Migrant clubs (HTAs)	Local leaders or organizations in hometowns Local governments	<ul style="list-style-type: none"> <li>• Local demands and local leadership</li> <li>• Matching programs and funds</li> </ul>
Savings for personal investments (welfare motivations)	Individual migrants	Relatives Invested by migrants themselves	<ul style="list-style-type: none"> <li>• Personal investment schemes (housing, other)</li> </ul>
Savings for entrepreneurial investments (business motivations)	Individual migrants	Investors/ partners Invested by migrants themselves	<ul style="list-style-type: none"> <li>• Investment environment in hometown</li> <li>• Technical assistance</li> <li>• Information</li> </ul>

Source: World Bank 2002

In their analysis of the performance of the guestworkers' behavior regarding savings and remittances Merkle and Zimmermann (1992) argue that there is a negative relation between the amount of remittances and the planned duration of residence in the host country. Also, migrants who have spouses or own real estate in their home countries remit significantly more money than those who do not have spouses or own real estate. In addition, larger households remit significantly less than smaller households. Education however does not influence the patterns of remitting money. Remittance patterns also depend on the membership of the migrant to certain social groups and on his or her plans for the future (World Bank 2002).

### **3.2 Theoretical Approaches Towards the Link Between Migration and Development**

This section presents theoretical approaches regarding the impact of migration on development. While the former analyze only the movement of labor as a change of factor endowment, more sophisticated approaches also include the impact on the structure of production and the impact of remittances.

Assuming perfect markets within each country but not between the countries Barry and Soligo (1969) analyze the link between migration and the increase of per capita income. The increase (loss) of the non-migrants' income is considered as an improvement (deterioration) of welfare. The authors conclude that emigration – that is the loss of the production factor labor – causes a reduction of welfare for the remaining population through a reduced supply, which induces an increase in consumer prices. There is however one exception: if the emigrant group owns a substantial share of the capital stock and leaves it behind, the capital/labor ratio is altered, capital becomes more abundant and labor more scarce. As a result wages increase.

Wong (1986) extends this analysis to an m-good and n-factor model with linear homogenous technologies. If all factors are mobile, factor movements will be beneficial for the receiving country. For “those left behind” (TLBs) – i.e. the non-migrants of the sending country – the changes in welfare can be split in two effects:

- first, the *emigration harm* caused by the outflow of people together with their physical capital, and
- second, the *emigration help* due to an inflow of foreign capital, which in fact is the physical capital left behind by the emigrants.

Hence the welfare impact of emigration for TLBs also depends on the emigrants' capital endowment. The net effects depend on the emigrants' capital abundance and the amount of physical capital they leave behind. Welfare for the remaining population only improves, when the overall capital/wage ratio of the economy rises as a consequence of emigration movements (when the *emigration help* exceeds the *emigration harm*).

In response to Wong's article, using an indirect utility function, Quibria (1988) states that a factor inflow is always beneficial for national welfare, whereas the outflow of factors is harmful, as it reduces potential production. Applying these results to Wong's analysis it becomes clear that emigration benefits the economy of the source country, if the migrants leave behind any amount of productive physical capital, or if capital-poor individuals migrate. Both effects mean an increase in the capital/labor ratio of the sending country.

Differentiating between the production of traded and non-traded goods in a labor exporting economy Rivera-Batiz (1982) analyzes theoretically the impact of labor migration on the production structure of a labor-exporting economy and states that production possibilities are reduced by emigration, because the labor force is reduced. Before migration there was equilibrium in demand and supply for both traded and non-traded goods. After migration occurs, the capital/labor ratio increases, the equilibrium of demand and supply is disturbed, and the production frontier is reduced, which primarily affects the production of labor intensive goods. Before migration occurred, optimal production and optimal consumption coincided; now production possibilities and consumer preferences match no more. As traded goods can be imported, supply will not be restricted and prices will be constant. The price for the non-traded good, however, will rise in the country of emigration causing a shift towards the production of the non-traded good. Wages in the non-traded sector rise, while wages in the traded sector are constant. Real income for non-migrants who work in the traded sector decreases.

Going further into this matter and differentiating between the emigration of labor- and capital-rich individuals, Rivera-Batiz (1984) finds that the emigration of labor-rich individuals reduces the output of labor-intensive goods. Conversely, the emigration of capital-rich individuals reduces the production of capital intensive goods, as they take their capital with them. Assuming that non-

traded goods are labor intensive, the emigration of labor-rich individuals leads to a rise of the (relative) prices for these kinds of goods, while the emigration of capital-rich individuals causes a decline in the (relative) prices for non-traded goods. In the latter case, the real income for non-migrants belonging to the capital-rich class would increase, while the effect for non-migrant individuals belonging to the labor-rich class is ambiguous and might decline, if their consumption of non-traded goods is small enough.

Expanding the analysis of factor movements by taking into account the impact of migrants' remittances, Hatzipanayotou (1991) builds a two-country-temporary-equilibrium-model. Migrants are not considered part of the receiving countries' population; their income and consumption are considered part of the sending countries' economy. The amount of remittances is supposed to be the migrant's income minus the share needed for subsistence in the host country. He concludes that assuming free trade, migration benefits both sending and receiving societies. The first one benefits from remittances – even though they are used up completely for consumption – and the latter from increases of domestic production, income and welfare. A possible introduction of tariffs on trade reduces the benefits derived from increased trade activity between the two countries. However, for the sending country this reduction might be offset by the migrants' remittances.

Quibria (1997) includes the difference between traded and non-traded goods, capital-rich and capital-poor individuals and the migrants' remittances as determinant factors for the welfare of the remaining population. On the one hand emigration of labor from the poor (labor-rich) classes leads to an increase in the welfare of non-migrants of that same class, because real wages increase. On the other hand, it causes a decrease of welfare of the rich classes, caused by the falling rental rate of capital, because the capital/labor ratio increases. Nevertheless, the overall welfare index (income of capital-rich and capital-poor individuals) of the society improves, if a sufficient inflow of monetary transfers offsets the reduction of welfare caused by the changes in the capital/labor ratio. Still, regardless of the amount of remittances, real wages rise and the return to capital falls.

Domingues Dos Santos and Postel-Vinay (2003) argue that free worker mobility can have an expansionary effect on the developing economy. Some migrants

return to their home country after they have accumulated a certain amount of knowledge abroad. This increase of human capital has positive effects on the economy of the sending country and in the future fewer natives are likely to emigrate and even more migrants are likely to return. De Haas (2005) considers circular migration to be the best trigger for enhancing the developmental impact of migration and remittances. Migrants would be more likely to return to their home countries and undertake investments if they had the possibility of returning to the host country at any time.

In her theoretical and empirical analysis Knerr (1989, 1990) goes beyond the simple consideration of remittances as capital and discovers that the impact of labor migration and spending remittances is similar to an export boom in the primary sector. The model differentiates between the production of two kinds of goods: traded-goods ( $X_1$ ) and non-traded-goods ( $X_2$ ) the latter being perishable or non-transportable goods, or goods with restrictions in foreign trade. The price of  $X_1$  is given externally by the world market, while the price for  $X_2$  is set by domestic conditions of demand and supply. The goods are produced with two production factors: labor and capital. While labor is mobile between the two sectors, capital is fixed for the period under consideration. If migration occurs due to the loss of labor force, employment and output in both sectors will decrease.

Migrant workers send remittances to support their families that were left behind in the sending country. The result of the growing inflow of foreign exchange is an increase in demand for all kinds of goods and services and rising wages. The increased demand is satisfied on the one hand by a growth of imports (in the case of traded-goods) and on the other by a boom in the non-traded-goods sector of the economy. National production is shifted from the traded-goods sector towards the non-traded-goods sector, thus causing deindustrialization and reducing the competitiveness of the region. The results of these changes in the structure of the economy are:

- a) higher wages,
- b) higher prices for non-traded-goods,
- c) lower output of the traded-goods sector,
- d) higher net imports, and
- e) in the case of low (high) income elasticities of demand for non-tradable goods, a lower (higher) output of these goods.

Under the (more realistic) conditions of unemployment or underemployment in the labor-exporting country, additional demand induced by remittances can be satisfied at unchanged prices and marginal costs. This means that wages and prices for non-traded goods stay the same, while the output of the traded-goods sector is reduced and imports rise.

Even if there is an economic boom induced by remittances, i.e. higher wages and higher consumption levels of the local population, it is financed by transfers and not by the economic power of the region itself. One particular effect of this situation caused by remittances is that consumption possibilities exceed production, i.e. the GNP is higher than the GDP. This is due to the fact that the households' income is not only determined by national or regional economic activities, as some also receive transfer payments resulting from the labor export at their disposal.

This phenomenon is similar to the so-called "Dutch Disease", which originally referred to an economic boom as a result of the export of primary products. Remittances replace production activities as an important source of "foreign"<sup>6</sup> revenue. The region specializes in the production or export of migrant labor (Delgado Wise et. al. 1994), which in this case causes the symptoms of Dutch Disease. A model presented by Wahba (1998) which analyzes the impact of labor import by the Arab Gulf countries backs these findings. She concludes that symptoms of Dutch Disease may result from large capital inflows.

At this point the rough definition of development made in chapter 1.2.2 gains importance. Regarding economic development, the problem of a Dutch Disease economy consists of the dependency on the export of one single primary product (in our case migrant labor), that has few forward and backward linkages. The economy concentrates on the production of that specific primary good and the production of other tradable goods decreases, a so-called

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<sup>6</sup> Foreign in this case can also mean with origin in another region of the same country.

deindustrialization. Economic growth induced by export activities is not sustainable. If the demand in the world market for the primary product is reduced, the exporting country suffers significant losses of income. After the export boom towards the production of non-tradable goods the region will have lost its interregional competitiveness in the tradeables sector. In terms of export basis theory: if the export basis disappears, positive economic impulses from export activities also disappear and the country will not be able to maintain its levels of per capita income.

### ***3.3 Migration and Development***

On the macro-level Knerr (1989, 1990) and Amuedo-Dorantes and Pozo (2004) present evidence that the inflow of remittances has significant effects on the economic structure and the exchange rate of the sending country, thus causing an effect similar to the Dutch Disease.

Macro-approaches look at migration as the movement of production factors from one country to another; in this case the factors of labor and capital (remittances) move in opposite directions. However, migration is more than merely a reallocation of production factors, it is a social process which includes a great number of actors and institutions, and thus its consequences go beyond the movement of two production factors and are not easy to predict.

From the perspective of regional development, independent and self-sustaining economic development induced by migration is most likely if investments play an important role in the use of remittances and create employment opportunities. In many cases the low reliability of the existing data does not allow an exact analysis. Arnold (1992) points to the weak databases regarding the amount of remittances, which hinder precise calculations. This problem is caused by the fact that large shares of remittances do not reach the source countries through official channels, thus little reliable information exists (García y Griego 1995, Durand et al 1996a, Freund and Spatafora 2005).

The higher the amount of remittances, the higher the development potential that can be derived from the monetary transfers. Nevertheless, it is not only the amount of money remitted but also the use of remittances that determines the possibility of a self-sustaining economic development in the source country. The question whether remittances foster development or not depends on the share

channeled into productive investment (Russell 1986) or the share used to purchase locally produced goods, as these induce local multiplier effects (Russell 1992). This is why some countries have implemented measures to channel a certain share of remittances directly into the productive sector to increase the positive impact on economic growth (Stahl/ Arnold 1986, Athukorala 1993). Self-employment or employment in small businesses is considered to be the best way to stop international migration in the affected areas and imply self-supported sustainable economic development (Escobar Latapí/ Martínez Castellanos 1991, Durand et al. 1996a/ 1996b, Nyberg Sörensen 2002). However, remittances cannot be seen as additional savings for the migrants' families in their home communities, which can be used for investment at any time. They should be considered as the wage earned by the migrant, which does not necessarily improve the savings capacity of the receiving households. Therefore remittances are not used for investment purposes (Canales Cerón 2004).

The use of remittances for consumption purposes or productive investment also depends on the varying conditions on the individual-, household-, community- and macroeconomic levels. A study by Durand et al. (1996b) based on the survey carried out by the Mexican Migration Project reveals a significant influence of education and wealth on the spending patterns. It is more likely that migrants tend to spend their remittances on housing if they are well-educated and already own a house or a lot. Migrants from wealthy communities are more likely to spend their remittances on consumption. The probability of productive investment is positively correlated with education and the number of dependents. Also "migradollars" are more likely to be channeled into productive means, if the migrant already owns land, a business or a home.

Remittances are not always used in a way that maximizes monetary utility, this fact depends highly on the cultural imprint of the receiving culture. Migrants and their families are submitted to social pressures and the desire to increase their social status in the home community. They employ the money earned in the US in certain ways to achieve these goals. Migrants tend to adopt the consumption patterns of their host countries and money earned through international migration is usually perceived differently in comparison to local income (Guidi 1992). As a consequence, spending patterns of migrants are different from

those of non-migrants. Migrants wish to be perceived by their families and friends as successful and wealthy. They try to impress with lots of “easy money”. Therefore they tend to spend their money on

“... lavish hospitality, conspicuous consumption and the building of large showy houses” (Kurien 1994).

In Mexico many migrants return to their home communities in large and expensive cars purchased in the US, they organize large *fiestas* and their participation in the regional *ferias* is above average. Smith (1976) describes that in rural communities *fiestas* have, among other things, the task of leveling out economic differences among the population. Wealthy people participate more than most in the expenses; special duties, which imply higher spending, are assigned to distinguished members of society. By these means of organization the community manages to even out the existing economic differences of its members and it is likely that the migrants’ behavior, i.e. the spending patterns of their remittances, is dominated by this kind of social organization in their communities. It is very likely that migrants in Mexican rural communities behave like wealthy people in the example described by Smith (1976). Spending money on *ferias* allows the migrants to build social capital in their home communities, even when they are absent for most of the year. Driving expensive cars and installing parabolic antennas will also increase the status of the migrant and his family (Smith 1992, Moctezuma 1999).

As mentioned in section 3.2, the different uses given to remittances influence their impact on development. The migrant and his family face the decision between channeling the monetary transfer into any kind of productive investment and dedicating it to family subsistence and consumption. Investment activities can be divided into six categories (Durand 1988, Durand et al. 1996b, Conway/ Cohen 1998, Tuirán 2000, Goldring 2003):

1. Bank savings
2. Local capital investment (housing, land)
3. Investment in human capital (education)
4. Microeconomic investment (business)
5. Community support systems (infrastructure)
6. Expenditures on health care.

Migration and remittances are considered an important engine for investment and economic development by many scholars (see the research of Durand and Massey – for example: Massey/ Parrado 1994 and 1997, Durand et al. 1996a and 1996b). However, remittances can also have an adverse impact on agricultural production, first, because the household head is abroad and cannot take care of the land on his own and second, because when receiving remittances agricultural production is no longer worthwhile (Stahl/ Arnold 1986, Taylor 1999).

The family, which receives transfers, has the option of either saving the money, spending it on consumer goods, channeling it into productive investment, or dividing the money between the three options. In the case of low-capital endowment, the impact on economic growth and development is greater when the money is channeled into productive investment. But:

- Consumption also has growth implications.
- Consumption also increases the demand for goods and service.
- This increases income in the trading and production sector.
- Suppliers benefit from the increased demand through multiplier effects.

If monetary transfers are used for consumption, multiplier effects will benefit the local and regional economy, if the goods consumed by the migrants or their families are produced or at least sold inside the region. Therefore the consumption of locally produced goods and services benefits the local economy and may help to reduce income disparities inside the region, as families that do not participate in migration activities can also benefit from the increased economic activities (Taylor 1992, Taylor/ Wyatt 1996, de Haas 2005).

Arroyo and Berumen (2000), however, consider the migrants' remittances already to be an integral part of Mexican economy. Contrary to Durand et al. (1996a) both authors argue that it is not fair to think that the migrants' remittances induce additional multiplier effects and thus an increase of the GNP in the dimensions described above. On the contrary: for decades remittances have already been part of the aggregate demand in Mexico and also of the input-output matrix. Only the annual increase in the amount remitted can be considered additional income and thus multiplier effects must be calculated on the basis of this annual increase, if at all. They conclude that the multiplier effects of remittances are over-estimated. Even if remittances are considered part of the national income and not only as an additional income, remittances represent 13 billion US\$ direct income which benefits many of the poorest families in Mexico. Also the multiplier effects (no matter whether considered additional or not), which create a multiple of this amount as indirect impacts of remittances, would cease to exist.

## **4 Hypotheses and Methodology**

Chapters 2 and 3 have discussed the theoretical framework for this study including theories of regional development and approaches towards the link between migration and development. In the first part of this chapter the hypotheses will be derived from the research questions presented in chapter 1 and the theories presented in chapters 2 and 3. In the second part, methods for analyzing the impact of migration and remittances on economic development are introduced.

### ***4.1 Research Hypotheses***

Section 2.1.1 presents static theories of regional development, which explain development as a consequence of the geographic properties of regions, such as natural resources, transport costs, ground rent, and the purchasing power of local markets. These theories help to explain the economic development of regions from an ex post perspective. Dynamic theories of regional development focus on changes in the factor endowment of regions and conclude that the capital/labor ratio must grow at an optimal pace to allow maximum growth. The Public Goods theory includes infrastructure as an important factor for regional development, which can be divided into physical and institutional infrastructure. The first can be regarded as part of the region's capital endowment and the latter as part of human capital or the quality of labor. The theory of endogenous growth attributes importance to the structure of the economy. Besides capital endowment, regional production chains play an important role for development. New Economic Geography draws the attention towards transport costs, infrastructure and benefits from agglomeration.

The theoretical approaches towards regional development differ regarding their perspective and their emphasis. The endowment with natural resources and production factors, transport costs, infrastructure, the innovative capabilities of a region, and positive returns from agglomeration can be considered as important for regional development. The only theories that directly indicate an area for political action are public goods and export basis theory.

Comparing the development of an economy with and without migration from the perspective of the sending country, the most striking differences are, on the one

hand, the loss of labor and the inflow of monetary resources in form of workers' remittances on the other. This can be considered as a change in factor endowments. Consequently, theoretical approaches analyzing the link between migration and development concentrate on the aspects of the movement of production factors from one economy to another. Migration alters the factor endowments of both the receiving and the sending country. Including the spending effects of the migrants' remittances, theoretical approaches are expanded as seen in section 2.2 and also include multiplier effects and changes in the economic structure of the sending country. Figure 2 shows the determinants of regional development and how migration influences them.

Most theoretical approaches to the impact of migration on regional development assume full employment in the sending country, which means that a loss of labor alters the capital/labor ratio of the economy. In many cases however the sending countries have high levels of unemployment, thus former unemployed individuals can replace the migrants. Therefore, if this is the case, migration movements will not influence the capital/labor ratio and the loss of labor does not represent constraints for production. Hence remittances can be considered to play the most important role regarding the connection between migration and development in the labor-exporting country.

Theories of regional development consider the growth and the ratio of human and physical capital as well as regional production chains to be decisive for development. Arguing from the viewpoint of development economics Heidhues (1998, 2000) and Calva (2000) consider the following aspects crucial for development:

1. Access to credit
2. Infrastructure, i.e. road and communication networks
3. Access to technical administrative and market know-how and information
4. Access to education and health institutions
5. Building up social capital
6. Regional production chains and an innovative milieu

Postlep (1999b) lists the following points as reasons for the economic stagnation in East Germany:

1. Weak export base
2. Capacities of the construction sector are too high
3. Lack of innovative clusters
4. Missing access to nationwide or international markets
5. Lack of capital and liquidity
6. High wages and low productivity.

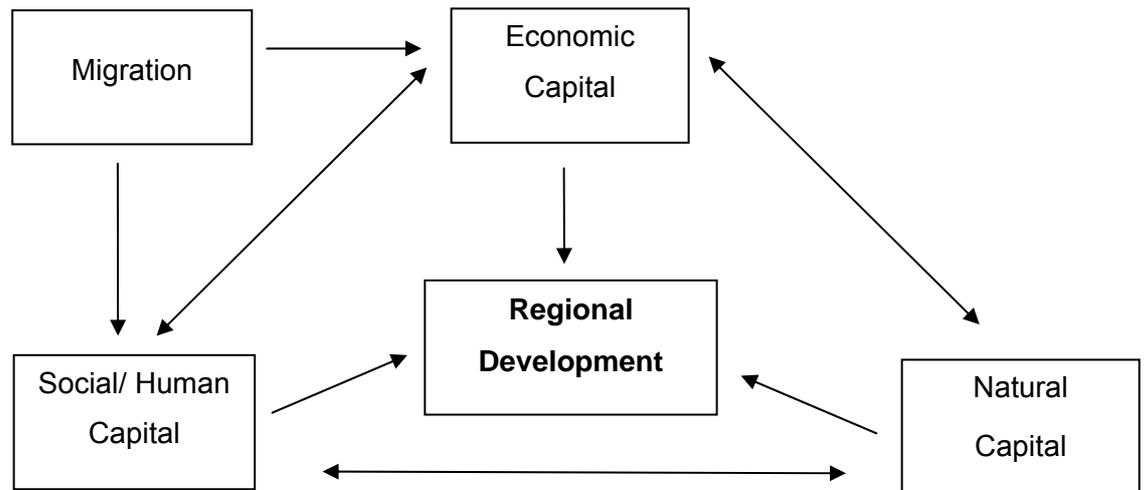
The situation in the former GDR, poor regions in Mexico and less developed countries are different. However, the three authors agree that capital and credit, innovative clusters and production chains, and the access to markets are central for development. In the case of rural Mexico, infrastructure, education and health also represent decisive bottlenecks for development. Capital, credit, infrastructure, innovative clusters and production chains can be considered economic capital, while education and health are part of social and human capital. Access to markets is determined by both kinds of capital: economic capital if infrastructure represents the bottleneck and human capital if information and know-how are scarce.<sup>7</sup>

Figure 2 explains the impact of migration on the determinants of regional development. Economic, natural, social and human capital influence regional development, as they represent the local factor endowment. However, the three forms of capital are also linked among each other. Social/human and natural factors interact through the communities' condition, social organization, social ecology, settlement conditions and the use of natural resources. The link between economic and natural capital is represented by businesses, types of economic activities, efficiency of economic sectors, new technologies and competitiveness. The interaction of social/human and economic factors consists of the quality of infrastructure, education and training, relations between institutions and communities, and social economy (Cannarella 2003).

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<sup>7</sup> The economy of the new Länder of (the former GDR) has received billions of Euros as subsidies since 1990; however it has not yet been possible to initiate a positive economic development.

**Figure 2: Influence of Migration on the Development Process**



Cannarella (2003), modified by the author.<sup>8</sup>

Formalizing the above list and figure results in the following formula:

$$[1] \quad RD = f(\text{Inv, Inf, IM, SN; HC, NC})$$

with:

RD = Regional Development

Inv = Investment

Inf = Infrastructure

IM = Innovative Milieu

SN = Social Networks

HC = Human Capital

NC = Natural Capital

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<sup>8</sup> Cannarella considers migration to be part of the social capital. It has, however, already become clear that there is also a strong impact on economic capital through the migrants' remittances. For the three types of capital introduced he gives the following definitions:

Economic Capital: property, trade, consumption, income, savings, needs, labor, products, enterprises, innovation, technology, taxes, prices

Social/Human Capital: sense of community, culture, traditions, labor market activities, technical/technological infrastructure, education, spirit of independence, administrative and institutional infrastructure

Natural Capital: buildings, climate, biodiversity, soil, water, plant and animal resources, roads, railways, energy

Taking into account the way migration and remittances influence these factors and the economy of a region, the following determinants can be identified:

- Amount of remittances
- Percentage of remittances channeled into investment
- Kind of investment realized (social/public or private)
- Changes of human capital (skills acquired in the US, education)
- The creation of an innovative milieu and production chains
- The future of migration and remittances.

These variables indicate how migration and remittances influence economic development in the sending regions. The changes in the economic structure will be the result of the combination of the determinants named above.

There are many theories of regional development and approaches to the impact of migration and remittances on development. A central question is whether regions that show different levels of development tend to show patterns of convergence or divergence. According to Krugman (1991) slight differences regarding resource endowment and infrastructure may cause strong differences between the economic development of regions. In many cases there are no tendencies towards convergence between developed and less developed regions; on the contrary, divergence is more likely to be found. Once a region has adopted a negative development path it will be difficult to reach convergence with regions that display higher rates of economic growth (see chapter 2, and Krugman 1991).

From the list displayed above it is possible to derive that migration may have a significant impact on regional development. The findings of Knerr (1990), Delgado Wise (1994) and Wahba (1998), show that this effect is negative on a macro level; the first research hypothesis is therefore formulated as follows:

- **Remittances have a negative influence on economic development in the migrant's sending regions.**

The same authors state a change in the economic structure of the sending country which specializes on migrant labor instead of on the production of goods (Delgado Wise 1994), that may cause effects similar to Dutch Disease (Knerr 1990, Wahba 1998). If this is the case on the national level, the effect

must be even stronger on the micro-level for the sending regions. The second hypothesis to be analyzed is therefore:

- **On the regional level remittances cause effects similar to Dutch Disease.**

The Immigration Reform and Control Act (IRCA, also known as Simpson-Rodino-Act) of 1986 and the start of North American Free Trade Area (NAFTA) in 1994 has had a significant impact on migration patterns (Cornelius: 2000). The amount of remittances is, however, closely linked to migration patterns; the third hypothesis is, therefore, that:

- **Due to changing migration patterns, the amount of money remitted per migrant is expected to decrease.**

The central question to analyze in this research is how migration patterns and economic development differ on a sub-regional level. This research assumes that there are significant variations between the different Mexican states regarding migration patterns and the impact of migration and remittances on development. However, even within a single state, migration and remittance patterns are not the same, a fact that brings about the last two hypotheses:

- **Migration patterns vary significantly between the municipalities inside a state**
- **The impact of migration and development differs between the sub-regions.**

#### ***4.2 Measuring the Impact of Migration on Regional Economic Development: A Methodological Approach***

The phenomenon caused by the influence of migration and remittances on regional development requires an analysis that covers both the macro- and the micro- perspective. On the macro-level, development is the result of the sum of micro-decisions taken by economic agents like individuals, households, enterprises and the governmental sector. Their aggregate determines economic growth and changes in the economic structure. This investigation applies a multi-level analysis, including changes on the macro level – that is, the economic structure – and changes on the micro level – that is, the behavior of

migrants and their families. This includes migration patterns, sending and spending patterns of remittances and the behavior of migrant investors. Another factor of influence is the impact of political programs that were established to channel remittances in certain ways.

Especially when analyzing a Dutch Disease economy it is important to cover not only the development of regional and national GDP, but also to analyze the structure of the economy, as it contains information about the sustainability of the development path and the future development potential of the region.

The following sections present ways to measure the impact of migration and remittances, both on the macro and on the micro-level. Table 3 provides an overview of the hypotheses tested and indicators, data sources and methods used. More detailed information the data sources used can be found in chapter 5.

Knerr (1994, pp. 115) presents different methods of assessing the macroeconomic impact of out-migration and remittances on development. Each of them aims to analyze different aspects of the relation between migration and development and requires a certain data base.

Cost-Benefit Analysis (CBA) is used to estimate the impact of a certain project on the welfare of society as a whole. Each act of migration could then be considered to be a single project. In order to carry out a CBA, very detailed information is needed on the situation before and after the migration movement has taken place. It is important to have knowledge about the opportunity costs of migration. Immaterial aspects like the impact on the social structure also need to be quantified and taken into account. For analyzing the regional impact of migration this would mean collecting detailed household data about migrant and non-migrant families.

**Table 3: Hypothesis, Indicators, Data, and Methods**

	<b>Hypotheses</b>	<b>Indicator</b>	<b>Data Source</b>	<b>Method</b>
<b>Macro Level</b>				
1	Remittances have a negative influence on economic development.	GDP of the States	INEGI: Economic Survey	Regression analysis
2	Remittances cause effects similar to Dutch Disease	Economic Structure	INEGI: Economic Survey	Shift analysis
<b>Micro Level</b>				
3	Due to changing migration patterns the amount of money remitted per migrant is expected to decrease.	Propensity to send Remittances/ Migration Patterns	Survey of the author	Correlation between migration- and sending patterns
4	Migration patterns vary significantly between the municipalities inside the same state.	Percentage of Migrants – organized in HTAs – who helped others to cross the border – who live near and meet frequently <sup>9</sup> with migrants from the same community – migration patterns	Survey of the author, CONAPO	Correlation between the municipality and degree of organization
5	Economic development varies significantly between the municipalities inside the same state	– sending patterns – household income – housing conditions – education	Survey of the author, INEGI: SIMBAD, and Census	Correlation between migration activities and income/housing

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<sup>9</sup> The concept of “frequently” here is left open to the interviewee; as they do not have detailed information about how often migrants in the US meet with members from the same community, the notion of “frequently” was left to the interviewee in Mexico.

The Social Accounting Matrix (SAM) is based on the Input-Output Analysis and can be used to give an analysis of how a change of expenditure in one sector influences the others through the linkages between them. The inflow of remittances is considered an increase of household income and with the help of a SAM it is possible to calculate the multiplier effects this change has on the other economic sectors. For example, using a SAM estimated by Adelman and Taylor (1992) for Mexico, Durand et al. (1996a, 1996b) calculated the impact of the approximately 2 billion US\$ remittances the country received in 1990. The authors conclude that each US\$ remitted increases the Mexican GDP by US\$ 2.90, so the US\$ 2 billion causes multiplier effects as high as US\$ 5.8 billion. National output rises by a total of US\$ 6.5 billion. However, there is no SAM available in Mexico on a regional level, so it was not possible to calculate the impact of remittances on economic development for a certain region.

Regarding the input data, Computable General Equilibrium Models (CGE) can be considered the most demanding method for assessing the impact of migration and remittances. At the same time, they have the highest potential for supplying comprehensive results. Based on the assumption that producers are profit maximizers, production has non-increasing returns to scale and consumers are utility maximizers. Demand and supply curves are estimated (production, consumption, foreign trade, public sector). A CGE may simulate the impact of policy options, changes in relative prices or (as in our case) the increase of household income by remittances. On the macro-level CGE models are built top down, using aggregate data provided by official statistics. For the village level it is important to cover the diversity of economic activities that characterizes rural economies. For example Taylor et al. (1999) analyze the potential impact of reforms in agricultural policy for village economies in Mexico also taking into account migration movements and remittances. They estimate their results from a survey among 60 village households in Michoacán. To calculate a CGE model on the regional level it would be necessary to cover a higher number of households with a higher diversity of characteristics. The assumption of non-increasing returns to scale contrast with Krugman's (1991, 1996) theories that are based on increasing returns to scale, which are responsible for agglomeration benefits. Therefore the CGE is not suitable for this analysis.

Regression Analysis is a rough procedure to estimate the impact of remittances and other factors on regional economic development. This kind of analysis does not provide any information about the way remittances influence the different economic sectors; it does, however, reveal information about the direction in which the dependent variable is influenced by the explaining variables (Knerr 1994, 115).

Shift Analysis (Tengeler 1989) is a classic method used to measure structural changes of a regional economy as compared to a superior unit. The development of a region is explained by a structural and a location effect (also called proportional shift and differential shift, Tengeler 1989, p. 47). The former explains past development by the specific economic structure of the region, for example, the presence of sectors that experienced growth above average. The latter explains the impact that specific characteristics which cannot be found in the economic structure have on the region's development. These location factors can be economic and institutional infrastructure, human and social capital, and all other factors mentioned in chapter 2 and section 3.2.

Regression analysis and shift analysis best fit the aims of this research, as they permit the estimation of changes in the economic structure and the direct link between remittances and economic development.

On the micro-level the impact of migration and remittances on the behavior of households and investors is analyzed. Data was taken from official Mexican statistics, a survey and interviews with key-informants. Chapter 5 gives detailed information about the methods of gathering primary data and the techniques applied.

Analysis is done by simply applying standard statistical methods, such as correlation analysis, to find out whether the connection between two variables is significant. To test whether the results of both the macro- as well as the micro-analysis are significant, the  $\chi^2$ -test is used. A difference between two values, that is, the rejection of the zero-hypothesis, is considered significant if the probability of error is less than 0.05 (Backhaus et al, 2003, p 230ff).

## **5 Data Sources**

This chapter presents the data sources that form the bases for the analysis carried out in chapters 6, 7 and 8. It starts with secondary data, which was used mostly for macroeconomic analysis and then explains the methods that were used to collect primary data for micro-analysis. The final section of this chapter gives a panorama of the geographic characteristics of Zacatecas and especially the two regions studied.

### **5.1 Primary Data**

In order to gather primary data directly from the migrants' households, investors and other key-informants, a survey was conducted and semi-structured interviews were carried out.

#### **5.1.1 The Survey**

The survey was designed in cooperation with the Maestría en Ciencia Política (Prof. Dr. Raúl Delgado Wise, Prof. Dr. Miguel Moctezuma, Prof. Dr. Hector Rodríguez Ramírez) of the Universidad Autónoma de Zacatecas to assess the impact of migration on the households' economic activities. To avoid problems with the questionnaire, a pre-test was elaborated and the interviewers were trained on how to apply it. The research assistants Rosy del Valle and Juan José Moctezuma carried out the interviews between July and September 2001. For the purpose of assessing the regional differences of migration patterns and regarding the impact of the migrants' remittances, the survey was applied in seven municipalities, which belong to two different regions of Zacatecas.

The interviews were always carried out in the municipal capital and in one other village in the municipality. In order to increase representativity the sample size was calculated according to Cochran (1972, p. 93ff):

Where:

- n = the sample size
- d = an acceptable error of size that can be incurred at probability  $\alpha$ .
- t = the abscissa of the normal curve that cuts off an area of  $\alpha$  at the tails
- N = the true population size
- P = the true proportion of the population with a specific characteristic
- Q = the true proportion of the population without a specific characteristic or (1-P)

The error rate d is set at 0.1. At a level of confidence of 0.9 t equals 1.65. All computations are based on an estimated true population of P=0.5 and Q=0.5 because this results in the most conservative and largest estimates for required samples for each stratum. N varies according to each municipality.

Using the number of migrant households displayed in Table 4 the sample sizes for the different municipalities were calculated as follows:

**Table 4: Optimal Sample Sizes**

Municipality	Households with migrants	Optimal sample size	Households interviewed	Percentage of migrant households interviewed <sup>10</sup>	Migrants covered
Atolinga	289	55	60	20.0%	249
Huanusco	347	57	49	14.1%	144
Juchipila	818	63	47	5.7%	142
Tlaltenango	1273	65	93	7.3%	252
<b>South</b>		<b>240</b>	<b>249</b>		<b>787</b>
Río Grande	5163	68	106	3.8%	195
Sombrerete	3234	67	62	1.9%	152
Sain Alto	927	64	69	7.4%	149
<b>North</b>		<b>199</b>	<b>237</b>		<b>496</b>
<b>TOTAL</b>		<b>439</b>	<b>486</b>		<b>1283</b>

Source: Own survey, INEGI (accessed 10/15/2004)

In each village or town a number of blocks was randomly selected (about one third) to avoid a bias caused by specific characteristics of certain neighborhoods. The interviewers knocked on every door of the selected block. If the household had at least one migrant member the questionnaire was applied.

<sup>10</sup> Households with migrants/ households interviewed \* 100

Interviews were held with an adult person living in the household. Due to the season the survey was carried out (from July to September 2001) almost no migrants were present, as they tend to return home only at Christmas. The author is aware that all information obtained by the survey is indirect, that is, not from the migrant himself. Data is reliable, as the questions mainly deal with the behavior of the migrants in Mexico and activities performed by the whole family.

In three cases (Huanusco, Juchipila and Sombrerete) the interviewers did not collect enough interviews; nonetheless, the sample size in the aggregate of each region meets the criterion set by Cochran's formula. The sample can be regarded representative as it also meets the prerequisites defined by Kromrey (1994, 224ff):

- (a) all units have the same chance to be included in the sample
- (b) each unit is unique and clearly defined
- (c) the selection of one unit does not influence the chances of other units to enter the sample
- (d) all potential units have to be present at the moment of selection.

The regions selected represent two of the four economic regions of Zacatecas and they both belong to the area of high outmigration (Delgado Wise/Rodríguez Ramírez 2005). *Tlaltenango*, *Atolinga*, *Huanusco* and *Juchipila* represent the canyons located in the south of Zacatecas. In the north of the state, which belongs to the Agricultural Strip, the survey was applied in *Río Grande*, *Sombrerete*, and *Sain Alto*. In total, interviews were conducted in 486 households, which included 1283 migrants. This gives an average of 2.64 migrants per household interviewed.

The distribution throughout the municipalities is as follows:

**Table 5: Coverage of the Survey**

Municipality	Number of households*	Households with migrants**	Households with migrants (percentage)**	Households interviewed**	Migrants covered***	Migrant households interviewed (percentage) <sup>11</sup>
Atolinga	932	289	31.3%	60	249	20.8%
Huanusco	1247	347	27.8%	49	144	14.1%
Juchipila	3135	818	26.2%	47	142	5.7%
Tlaltenango	5071	1273	25.1%	93	252	7.3%
<i>Subtotal</i>	<i>10385</i>	<i>2727</i>	<i>26,3%</i>	<i>249</i>	<i>787</i>	<i>9.1%</i>
Río Grande	11870	5163	43.5%	106	195	3.8%
Sombrerete	13202	3234	24.5%	62	152	1.9%
Sain Alto	3846	927	24.1%	69	149	7.4%
<i>Subtotal</i>	<i>28918</i>	<i>9324</i>	<i>32.5%</i>	<i>237</i>	<i>496</i>	<i>2.5%</i>
<b>Total</b>	<b>39303</b>	<b>12051</b>	<b>30.6%</b>	<b>486</b>	<b>1283</b>	<b>4.0%</b>

Source: Meza Merlos/ Márquez Covarrubias (2005)\*, INEGI (accessed 06/21/2005)\*\*, own survey\*\*\*, own calculation

### 5.1.2 The Questionnaire

The questionnaire is divided into four parts (for the complete questionnaire, please see annex 1):

- a) information about the household
- b) migration patterns
- c) remittances
- d) investment

The analysis of the questionnaire in chapter 8, however, does not follow the same order, which means that the results presented later follow a different sequence than in the questionnaire. When presenting the results, the number of the corresponding survey is indicated<sup>12</sup>.

<sup>11</sup> Households with migrants/ households interviewed \* 100

<sup>12</sup> For various reasons, some questions were not included in the analysis. Explanations are given in annex I.

Interviews were conducted with one adult per household. This goes along with a loss of certainty, as the interviewee is not necessarily able to give the answers with the same precision as the migrant. The focus, however, was on the household level and on the behavior of the migrants in Mexico, therefore it is fair to assume that the interviewees had a good level of information. The author is aware of these limitations.

The survey reveals information about the two regions of Zacatecas selected regarding the following topics, which are relevant for economic development in the sending regions:

- migration and remittance patterns
- the migrants' investment activities
- the impact of migration on entrepreneurial activities in the sending regions
- the building of social capital (HTAs).

It therefore provides information to work on the research hypotheses 3, 4 and 5.

The definition of the term 'migrant' in the survey does only relate to labor migrants who left with the aim of getting a job in the US, but also includes all other household members that went to the US, except tourists. This covers spouses or parents who went to the US to live with their family. The general information section contains questions about sex, age, year of first migration, kinship of the interviewee and legal status in the US.

The second part covers aspects such as marital status at the time of the first migration and at the time of the interview, motives for migration, changes of the frequency of return and impact of the out-migration of one or more household members on productive activities. The relevance of formal and informal migration networks was also explored, by asking about membership in a HTA and the relation to other migrants in the US.

The third section of the questionnaire examines the flow of remittances. Questions were asked to assess changes in the amount received, the use of remittances, and their importance for living conditions as well as who decides how they are used. Some questions about participation in community activities were asked as well. There was no question asked regarding the amount of

remittances received, as many people refuse to talk about money directly and this question might incommode the interviewee.

The last part focuses on investment. The questions cover the following aspects: Has there been any investment in cattle, machinery, agricultural inputs, land or the establishment of a small<sup>13</sup> or medium sized enterprise with the help of remittances? Did the family participate in one of the political programs that try to raise the share of remittances used for investment?

### **5.1.3 Semi-structured Interviews with Key-Informants**

To complete the data set originating from the survey, 61 semi-structured interviews with key-informants were realized between January 2000 and October 2001. Among these were 46 interviews with return-migrants who had established themselves with different kinds of productive investment in their communities. The other six interviews were conducted with representatives of the municipal government and opinion leaders in order to analyze the process of community investments and the impact on community development.

#### **5.1.3.1 Interviews with Investors**

According to Massey and Parrado (1998) about 21% of the businesses in the municipalities are launched and owned by return-migrants, therefore it was difficult to identify investors. The research was expanded to more than the seven municipalities covered by the survey in order to question a larger number of return-migrants who had carried out any kind of investment in their home communities. These interviews were carried out in the following municipalities: Valparaíso (5), Jerez (11), Sain Alto (5), Sombrerete (2), Juchipila (8), Jalpa (4), Atolinga (4), Momax (4), Río Grande (5), Tlaltenango (1) and Chalchihuites (6). Contact with the investors was established by the help of the municipal government or by asking the owner of the business if the enterprise had been established by means of money earned in the US. This procedure might cause a bias in the selection of the interviewees, as they were not chosen randomly.

The interviews were usually conducted in or near the business. We explained the purpose of the interviews and asked the owner of the business if she or he

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<sup>13</sup> Small enterprise or business as well as small scale agriculture are to be understood here as self-employment, including the help of family members, but without any employees.

could devote some time to answering a couple of questions regarding the migration phenomenon. Although we usually interrupted them during their working hours, most interviewees were willing to dedicate some time to the interview. Only in the case of Chalchihuites was it observed that some interviewees were incommunicative and the only person unwilling to answer the questions was also found in this municipality. This person said that he had already got into trouble because of talking too openly about this topic.

The duration of the interviews was between 20 and 90 minutes with an estimated average of about 60 minutes. Questions were asked about:<sup>14</sup>

- age at the first migration
- time spent in the US
- migratory status
- the different occupations and locations
- the decision to return and the plans upon return
- investments made
- governmental help received
- obstacles when carrying out the investment
- educational level of the migrant
- the current residence and occupation of the children.

The interviews with return-migrants who carried out productive investment contain information about the kind of businesses established by migrant investment, their linkages with the regional economy and human capital acquired by the migrants during their stay in the US. This human capital can include administrative or technical skills and knowledge about North American markets.

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<sup>14</sup> For the complete Interview-Guide see annex II.

### **5.1.3.2 Interviews with Governmental Representatives and Opinion Leaders**

To assess the impact of community investments on local development, six interviews were carried out with people involved in the process of planning and realization of these projects. In the municipality of Juchipila the focus is on the building of a barrage to collect water for the irrigation of the community of El Remolino. In Sain Alto we analyze the effect of the construction of a highway connecting the village of Emiliano Zapata with the main highway and the capital of the municipality. These interviews included representatives of the municipal government, members of the HTAs and non-migrant promoters of the projects. Questions included topics such as:

1. How did the idea for the investment project come up?
2. Which forms of organization exist between the migrants and the community of origin?
3. What are the problems during the planning and construction phase?
4. What are the benefits expected and attained for the community and the participants?

In Juchipila, the head of the “Obras Publicas” department (building authority), as a representative of the municipal government, and two members of the corresponding HTA were interviewed. In Sain Alto we interviewed the deputy of the municipal president and two residents of Emiliano Zapata: a shop owner and a schoolteacher who played an important role initiating the project. Interviews were conducted in the Town Hall or in the houses of the interviewees. The purpose of the interviews was explained briefly and all the interviewees were open to answering the questions.

The analysis of the community investment activities carried out by the Mexican HTAs in their home communities gives information about the economic impact of infrastructure projects such as the paving of roads, the building of embankment dams for irrigation and the investment by migrants in education and health.

## 5.2 Secondary Data

The statistical data was taken from the official Mexican statistics provided by the Mexican National Institute for Statistics, Geography and Information (INEGI)<sup>15</sup>, the Bank of Mexico (Banco de México) and the National Population Council (CONAPO)<sup>16</sup>.

Most information provided by INEGI can be found in the online databases ([www.inegi.gob.mx](http://www.inegi.gob.mx)) or on the website of the Zacatecan state government ([www.zacatecas.gob.mx](http://www.zacatecas.gob.mx)). Only some special data was taken from the statistical yearbook of Zacatecas (INEGI 1999).

Data on the municipal level provided by INEGI is based on the national census covering social, demographic and economic aspects. The census is conducted as a complete population survey and therefore provides reliable and detailed data. It was realized in 1980, 1990, 1995 and 2000. The data is accessible through the municipal database SIMBAD<sup>17</sup>, which contains data on the municipal level.

Aggregate economic data can be found in the economic database of INEGI (BIE)<sup>18</sup> and at the website of the Bank of Mexico. The economic database contains detailed information about economic development in all Mexican states from 1993 to 2003. Available data starts in 1993, because this was the year of the monetary reform. Among other topics, this information includes the share of the different economic sectors in GDP, Foreign Direct Investment (FDI), the number of employees in the Maquiladora industries, and revenues from export activities in different economic sectors.

Information about the amount of remittances received and the exchange rate was obtained from the Bank of Mexico. Data about remittances must be seen as estimates, as large shares are channeled through unofficial ways and therefore do not enter the official statistics (García y Griego 1995, Durand et al 1996a, Freund and Spatafora 2005).

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<sup>15</sup> INEGI = Instituto Nacional de Estadística, Geografía e Informática

<sup>16</sup> CONAPO = Consejo Nacional de Población

<sup>17</sup> SIMBAD = Sistema Municipal de Bases de Datos

<sup>18</sup> BIE = Banco de Información Económica

The website of the National Population Council offers detailed data about migration activities in each state, the percentage of households participating in migration, and the share of remittances channeled into each state. This data is partly taken from the INEGI census data and partly provided by surveys and studies undertaken by CONAPO itself.

### **5.3 Geographic Characteristics of Zacatecas**

Zacatecas is located in the center of Mexico, about 600 km north of Mexico City, which is the economic, political, and social center of the Mexican Republic. The distance from the booming border regions with the US, however, is about 700 km. The harbors of both the Gulf coast (Tampico/ Ciudad Madero) and the Pacific coast (Mazátlan) are even further away. The most important north-south highway runs about 200 km east through the neighboring state of San Luis Potosí. As a consequence, potential spill-over effects from transport (establishment of hotels, warehouses etc.) do not reach Zacatecas and transnational investors prefer San Luis Potosí or Aguascalientes because of their better traffic-infrastructure (INEGI accessed 07/28/2005). The elevation of villages and towns above sea level ranges between 1200 and 2400 meters. More than 68% of the surface belongs to semi-dry or dry climates, average rainfall recorded at the meteorological stations varies between 387.6 and 760.0 mm per annum, average temperatures are between 20.5° and 15.4° C (INEGI: 1999).

Following Christaller (see chapter 2.1) it is possible to identify two main centers in Zacatecas: the capital Zacatecas as the administrative center of the state, and Fresnillo, the industrial and economic center of the state. Both cities are important for the whole state. The cities of Río Grande and Sombrerete in the north and Juchipila, as well as Tlaltenango, in the south, can be considered secondary centers with regional importance mainly as hubs for trade and commerce.

In geographical terms the state of Zacatecas can be divided into four basic regions:

- The semi-desert in the north-east
- The agricultural strip, which reaches from the south east to the north west,
- The western valleys and
- The canyons, which encompass the southeastern part of the state.

Each region has its specific characteristics regarding their economic activities and especially the kind of agriculture, i.e. the crops cultivated, livestock, land-ownership, extension of the agricultural units, and market integration. In total Zacatecas has about 1.563.000 ha of arable land, of which about 163.000 are irrigated, which equals about 10% (for further details see 5.2.3.). The hypotheses developed in chapter four will be tested in seven municipalities belonging to two of the four regions that will be presented in more detail.

The two regions are quite different with respect to their economic activities. While in the north large-scale farming dominates, the canyons specialize in small-scale animal husbandry. In addition the regions we selected have their own specific characteristics. The density of population varies: while the north averages 20.55 inhabitants per square kilometer, the south reaches 25.13, which is about 25 percent higher than the north. Average rainfall in the south is 626.7 mm per year, which is 62 percent higher than the average rainfall in the north (387.6). Geographically, the north is dominated by extended valleys and the municipalities of the south (with the exemption of Atolinga) are characterized by their location at the bottom of two canyons.

**Table 6: Characteristics of the Two Regions Studied**

	North	South
Population	141,977	44,564
Surface	6907 km <sup>2</sup>	1773 km <sup>2</sup>
Population/km <sup>2</sup>	20.55	25.13
Main economic activity	Farming	Livestock
Economically active people	31.8%	39.8%
Income level (economically active people who earn more than twice the minimum wage, 3 US\$/day)	29.9%	36.8%
Average farm size	22.00 ha	22.89 ha
Geography	Valleys	Canyons
Average rainfall per annum	387.6 mm (Río Grande)	626.7 mm (Jalpa <sup>19</sup> )

Source: INEGI (1999, accessed 09/15/2004)

The region of the canyons comprises 11% of the total state surface and is characterized by its inefficient use of the water resources as only 10% of the surface is irrigated. The cultivated crops are maize and beans, although in the municipalities of Apozol and Tabasco there are also considerable guava plantations. The canyons are the animal husbandry region of Zacatecas, and this specialization tends to dominate the agricultural production in the region. The large number of cattle leads to excessive use of pasture throughout the whole region and as a consequence the prices for basic cereals, grains and forage are higher than in Mexico City. This is especially the case in the area of Tlaltenango and farmers sell their calves before they reach the age for slaughter, thus losing a large part of the profit in comparison to the final production step. In the region of the canyons, private property dominates over the community properties of the *Ejidos*<sup>20</sup> (Cervantes Herrera/ Ramírez Miranda 1993, pp. 47-64). Other economic activities like industrial production or mining can be neglected.

The agricultural strip represents about 27.8% of the total surface of Zacatecas. It is subdivided into three zones: north, central, and south. The basic products of the north are beans, maize, cereals and fruits. The production pattern of the

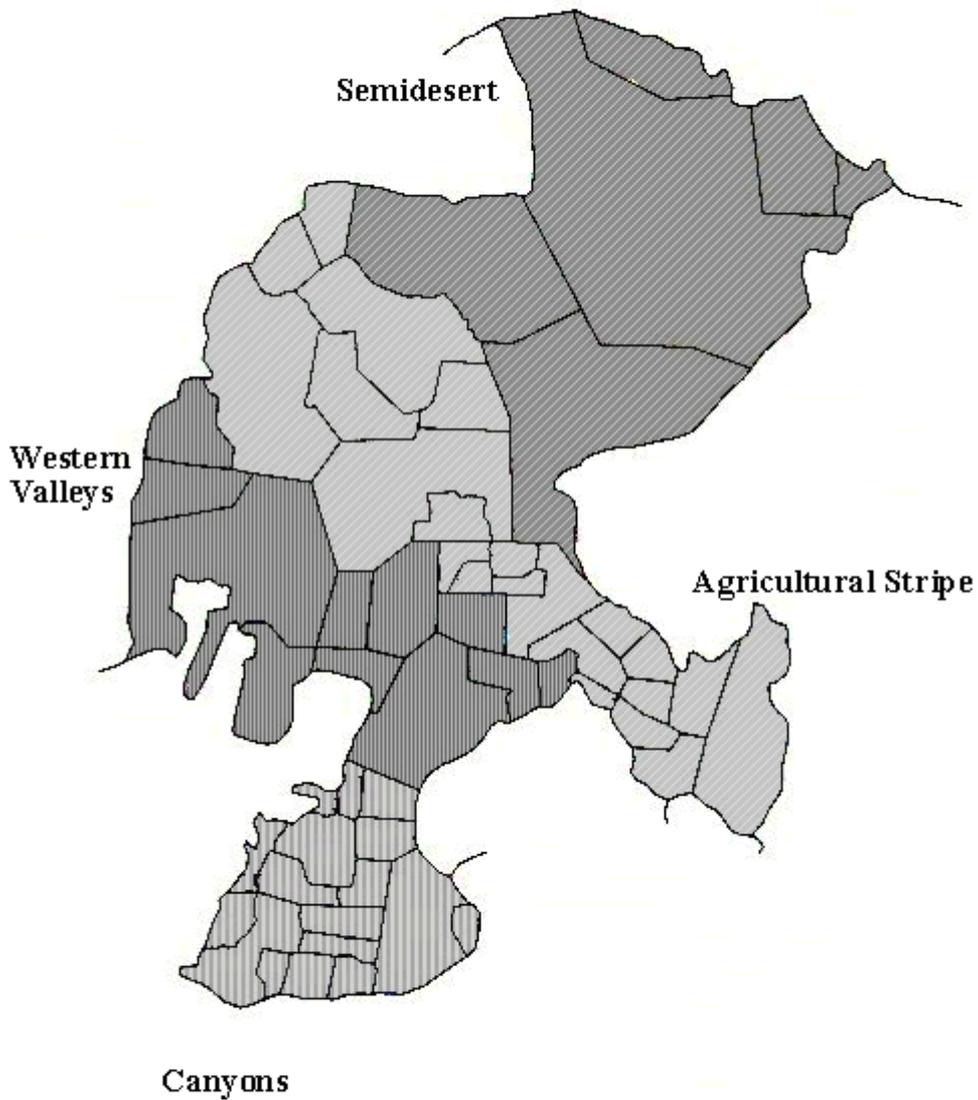
<sup>19</sup> Neighboring municipality to Juchipila

<sup>20</sup> A traditional form of community land. The members of the *Ejido* cultivate their corresponding land, which they do not own. The right of cultivation is usually passed to the oldest son.

central region is more diversified and also includes different kinds of vegetables. The south has less precipitation and therefore agriculture is limited to maize, beans, and nopales (cactus leaves). Before the Mexican revolution (1911-1917) the agricultural strip was marked by large landed property using advanced technology. After the armed conflict was over Zacatecas still suffered from unstable economic and social conditions, which discouraged the federal government and private industries from investing in the agricultural sector (as well as in the other sectors).

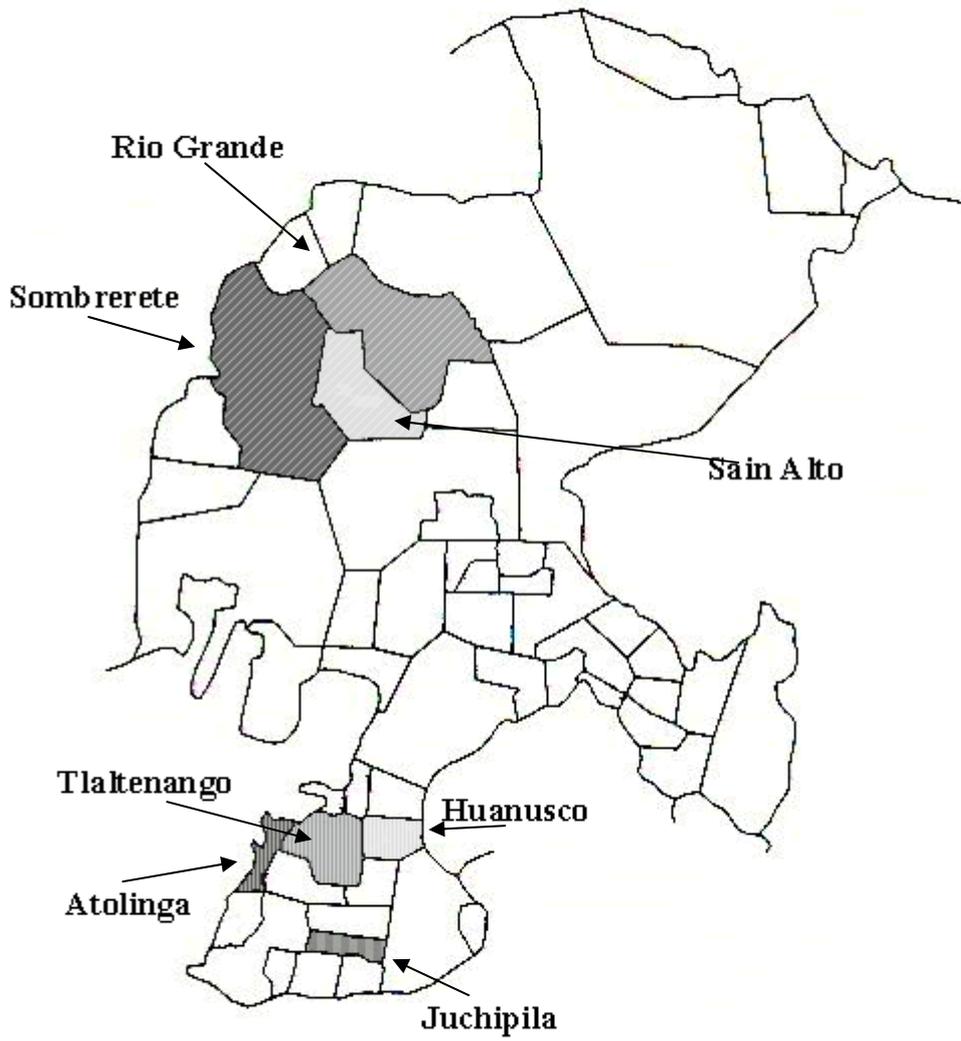
This region experienced a huge increase in its irrigation potential: from 1970 to 1988 the surface with access to irrigation increased from 30.562 ha to 146.494 ha (Ramírez Miranda 1993, 29). Compared to the other regions, the agricultural strip stands out due to its irrigated surface, its level of mechanization, and the concentration of agro-industrial and infrastructure in general. An ample productive diversification, market orientation and a superior evolution of the organization of producers characterizes agricultural production in this area. The most important products are maize, beans and chili, which are cultivated in various forms. Thus the only important industrial production can be found in the agricultural strip. It is located mainly alongside the highway from the capital Zacatecas to the second largest city, Fresnillo (for more detailed information about the economic structure of Zacatecas see chapter 7.2).

**Figure 3: Economic Regions in Zacatecas**



Source : INEGI: 1999

**Figure 4: Municipalities Studied**



Source: INEGI 1999

## **6 Migration Movements between Mexico and the US**

To understand and to evaluate current migration movements between Mexico and the US as well as the link between migration and development, it is important to have a look at theoretical concepts first. Chapter three has shown that the impact of migration on economic development depends on remittances and these depend highly on migration patterns. The migrants' motives and their relation to the sending communities determine the amount of remittances and their engagement in community or microeconomic investment.

The sixth chapter begins with the presentation of different concepts of migration, starting with individual-based models presenting a relatively low degree of complexity and then turning to more complex approaches. The second section gives a historic panorama of migration movements between Mexico and the US, paying attention to the different factors that have determined the evolution of migration movements, such as changes of the institutional framework and social networks. The panorama of different migration patterns as well as of the regional distribution of migration activities in Mexico form the last two parts of this section. After that, preliminary results from the survey regarding migration patterns in Zacatecas are presented. The final part of chapter 6 sums up the findings and compares theoretical approaches to the empirical evidence.

### ***6.1 Concepts of Migration***

International labor migration has been the subject of scientific research since the late 19<sup>th</sup> century. In 1885 Ravenstein published the first scientific analysis of migration movements. Good overviews of the existing migration theories can be found in Massey et al. (1993), Knerr (1994), and in a more illustrative form in Pries (2001). The different theories of migration that complement each other will be explained in the following paragraphs<sup>21</sup>. The last part of this section deals

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<sup>21</sup> At this stage it is interesting to note that Straubhaar (2000) reversed the focus completely. The estimated 150 million international migrants represent only about 2% of the world's population, a fact which indicates that in spite of significant income differences most people remain in the country where they were born. It seems that remaining at the place of residence also implies location-specific advantages.

with new migration patterns that have emerged recently and altered the relation between sending and receiving country.

Ravenstein (1885/89), Lewis (1954), Ranis and Fei (1961) and Todaro (1976) explain migratory movements on a macro level by the differences of demand and supply for labor in different countries or regions. Certain regions or countries have a high supply of labor and low wages while other regions or countries have a low supply of labor and thus high wages. The existing wage differences “push” or “pull”<sup>22</sup> workers from the low wage region to the high wage region, leading to an adjustment of labor supply and demand and an equalization of the wage differences. These approaches analyze labor migration merely as the movement of the production factor labor. On the other side, a rise in home earnings or the employment level deters migration. FDI, maquila value added exports and imports can be considered substitutes for labor flows (Aroca Gonzales and Maloney 2005).

Todaro (1969, 1980) explains migration movements as the decision-making of individual actors, taking into account the expected income in the country or region of origin and the destination as well as the risks and transaction costs of migration. If the expected income at the destination (including the risk of being unemployed for a certain time after arrival and the costs of migration) is higher than the expected income at the place of origin and the costs of migration, the individual will move.

$$[3] \quad M = f(e_{l_m} - e_{l_n} - c)$$

Where:

M = Migration

$e_{l_m}$  = expected income for migrants

$e_{l_n}$  = expected income for non-migrants

c = transaction costs of migration

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<sup>22</sup> Push-factors are those circumstances that motivate migrants to leave their home country, such as low wages and uncertainty. “Pull-factors are those circumstances that attract migrants to the host country, such as higher wages and social security.

The dual labor market theory (Piore 1979) explains migration movements as the need for cheap immigrant labor in industrialized countries. This need for cheap labor attracts migrants from low-income countries towards high-income countries. Because of low social status and few possibilities of upward mobility, citizens of industrialized countries try to avoid poorly paid jobs belonging to the bottom segment of wages and status. The consequence is a lack of labor in the secondary segment of the labor market (low wages, little upward mobility) which might be filled by immigrant workers who focus on employment and earnings. However, the society of origin remains their social reference system from which they derive their perception of social status and prestige (Joly 2000).

Some authors argue that the decision to migrate does not only depend on individual decisions, but also assume more complex interpersonal social and economic relations that determine migration movements. The New Economics of Labor Migration (NELM; Stark/ Bloom 1985) try to overcome some of the shortcomings of the approaches presented above. The idea of individual decisions made independently by the migrant is completed by the assumption that the migration of individuals can be considered part of family or household decisions to raise and secure income, as well as to obtain funds for investment activities (Taylor 1999). The reasons for sending one or more family members abroad are the unstable economic conditions, the lack of unemployment insurance and of access to credit or crop insurance, in other words: underdeveloped capital markets. Migration therefore can be considered the families' attempt to level out existing risks in their own economy and to gain access to economic resources for investment purposes. While the neoclassical and the dual labor market theories basically explain the initiation of migration movements and focus more on definite emigration, the NELM explicitly takes temporary migration into consideration and concentrates on how individuals or families make migration decisions. According to the NELM the migrant always maintains close ties to the household of origin and his family.

The concepts mentioned above explain the initiation of migration movements. The social networks approach, however, focuses on the perpetuation of these movements. It is based on the concept of social capital (Palloni et al. 2001, Bourdieu 2005). Bourdieu and Wacquant developed this concept further defining social capital as follows:

“Social capital is the sum of the resources, actual or virtual, that accrue to an individual or group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition.” (Bourdieu/ Wacqant 1992, p. 119)

Regarding the phenomenon of migration Palloni et al. (2001) define social networks as follows:

“...as sets of interpersonal ties that connect migrants, former migrants, and non-migrants to one another through relations of kinship, friendship, and shared community origin.” (Palloni et al. 2001, p 1263)

The migration networks consist of former migrants who now live in the source country again, migrants who live in the destination countries, and non-migrants, who live either in the origin or the destination country and who are connected through ties of kinship, friendship and shared community of origin. Migration networks represent a strong social capital that helps to lower the costs and risks of migration and increase the expected returns, for they provide knowledge about the migration process itself and the labor market in the places of destination. The emergence of so-called bi-national (Moctezuma 1999) or transnational (Pries 1998, 2001, 2004) social spaces is the result of mature migration networks that become evident in established daughter communities and social clubs in the countries of destination. Once a migration process has started, private institutions and voluntary organizations emerge. These organizations help to satisfy the demand created by the imbalance between people who want to cross the border and the restricted access to the richer country. They lower transactions costs for legal migrants and open doors for those who do not have access to legal documents, i.e. by illegal/ undocumented border crossing, the arrangement of marriages, counterfeit documents etc.. As a consequence these institutions support a continuing flow of migrants.

Massey (1993) presents an approach called cumulative causation. He points out that each act of migration alters the social context for subsequent migration decisions. Migration processes strongly influence the distribution of income, the organization of agriculture and other economic activities, culture, the distribution of human capital, and the social meaning of work. Non-migrant families feel disadvantaged by the increasing wealth of migrant families, and therefore they

are more likely to migrate themselves, in order to overcome this situation (Massey et al. 1993). It can be summarized as follows:

“Each act of migration generates a set of irreversible changes in individual motivations, social structures, and cultural values that alter the context within which future migration decisions are made.” Massey et al. (1994, p. 1498)

Under the assumptions of cumulative causation theory, migration becomes a self-perpetuating process because each movement creates the social structure which promotes it.

Wallerstein (1974) set the theoretical basis for the application of the world systems to the phenomenon of migration. According to this theory migration can also be seen as the result of disruptions and dislocations that occur during the process of the capitalistic penetration of peripheral markets, which is known as globalization (Massey et al. 1993). Traditional systems of land tenure are destroyed; the extraction of raw materials and the transfer of production sites turn peasants into workers and destroy traditional forms of social and economic organization. In addition, the expansion of communication and transportation systems reduces the costs of migration and leads to the creation of cultural links between core (industrialized/rich) and peripheral (developing/poor) countries. As a consequence of these world systems it is possible to observe complex migration systems, which include a considerable number of locations in different countries (Massey et al. 1993).

The different concepts and approaches towards migration presented here do not exclude each other; on the contrary, as each theory concentrates on a different aspect of the migration process, together they paint a picture of how migration occurs. Neoclassical and dual labor market theories explain the reasons for population movements on both sides of the border, the NELM focuses on the question of how decisions whether to migrate or not are made. Network theory, cumulative causation and world systems explain the continuity of the migration process. Each theory by itself is not able to explain the different and complex migration movements all over the world; together, however, they paint a comprehensive and understandable picture of the existing migration movements and their relation to global developments.

## **6.2 Migration Patterns**

There are different concepts regarding the integration or incorporation of migrants in the host country's society. This section will present the traditional forms of integration and then present new tendencies. This is important as the form of integration in the host society has important impacts on their economic performance, especially regarding the transfer of remittances (Moctezuma: 1999).

Traditional scientific research divided existing migration movements into three basic categories (Conway/ Cohen 1998):

- Emigration/immigration (integration in the host society)
- Temporary migration (without integration, return to the sending country, "guestworkers", seasonal workers, contract workers)
- Diaspora (formation of ethnic minorities, no cultural/social integration).

These traditional categories, however, do not cover a new form of migration, which has been studied by Smith (1999), Goldring (1992, 1998, 2002) and Pries (1996, 1998, 2004), where migrants move back and forth various times during their working life. This pattern is called "transmigration" and has become possible only because of new technologies of transportation and communication. In the case of Mexico-US migration it became evident during the 1980s. In contrast to the classic migration patterns mentioned above, the "transmigrants" do not belong to a certain cultural or social environment; they live and work alternating in both sending and receiving countries, forming new social spaces: so-called transnational social spaces or transnational communities (Pries 1998). Modern forms of transportation and communication enable the migrants to be in constant contact both with their communities of origin and with the places of destination. Moctezuma (1999) calls these transmigrants bi-national or established migrants. In addition to extended periods of residence in the host country, referring to the case of Mexico and the US Moctezuma and García Zamora (1999) define the following aspects:

- living together with their partners
- birth of their children in the US
- knowledge of the US labor market
- command of English
- acquisition of goods and economic liabilities

- socialization and adoption of new social expectations
- access to better jobs.

Transnational migrants therefore form stable social networks and a stable pole for first-time migrants to turn to. Unlike Diaspora migrants they maintain their links to the sending country and their home communities, thus forming an essential part of the social networks that emerge between sending and host country.

### ***6.3 Migration between Mexico and the US: the Evidence***

Migration between Mexico and the US constitutes one of the oldest and largest among current migration movements in the world (Zlotnik 1998) and scientific attention was drawn very early towards this phenomenon; Gamio (1930) and Salinas (1955) conducted early scientific research dealing with these movements.

From 1970 to 1990 the Mexico-born population in the US grew from 760.000 to 4.3 million, which equals an average growth rate of 8.7% per annum. Estimates say that by 1996 the number had increased to 6.7 million and was calculated in 2003 to have reached almost 10 million, which means that 10% of the people holding a Mexican passport are currently living in the US (CONAPO, accessed 10/15/2003). After India and China, Mexico has the third largest migrant population worldwide (GCIM 2005).

Almost all Mexican migrants move to the USA and therefore strengthen the economic, cultural and social ties between these two countries (Zlotnik 1998). The phenomenon of international labor migration plays an important part in Mexico and for that reason receives intensive scientific attention<sup>23</sup>. Recent estimates by CONAPO (2000) reveal that the number of people of Mexican origin<sup>24</sup> in the US has grown to 22 million<sup>25</sup>, a figure which represents about 8% of the overall population of the US, or 22% of Mexico's population. Migration movements from Mexico to the US have grown during the last two decades (see figure 5).

Migration has become an important aspect of Mexican policy and politics. During his campaign in 1998 Ricardo Monreal – now governor of Zacatecas – held several events in the US, speaking in front of the Zacatecan clubs, promising to improve political participation of the migrants in their home communities. Migrants and migration policies were also important issues during the 2000 presidential campaign. Presidential candidate Vicente Fox put two issues on his agenda: the right to vote for Mexicans living abroad and the negotiation of a new appointment regarding the legal movement of temporary workers towards the US<sup>26</sup>. In 2000, both countries – Mexico and the US – elected new governments. In Mexico the PRI lost power after 71 years and the newly elected president Vicente Fox Quezada together with his correspondent George W. Bush put the migration issue on the agenda again. Both governments agreed to negotiate a new treaty on officially contracted temporary laborers (Delgado Wise 2002). The rise in xenophobia after September 11 2001, however, stopped that process, and while the Mexican government continues to insist, the US refuses to discuss the subject. This was the reason behind the secretary of foreign affairs Jorge Castañeda's resignation in January

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<sup>23</sup> Secretaría de Relaciones Exteriores, Commission on Immigration Reform (Ed.: 1997), Cornelius/ Martin (1993); Robinson et al. (1993); Massey/ Basem (1992); Massey/ Parrado (1994, 1998); Durand et al. 1996a), Taylor (1995); Taylor et al. (1996), Zahniser (1999)

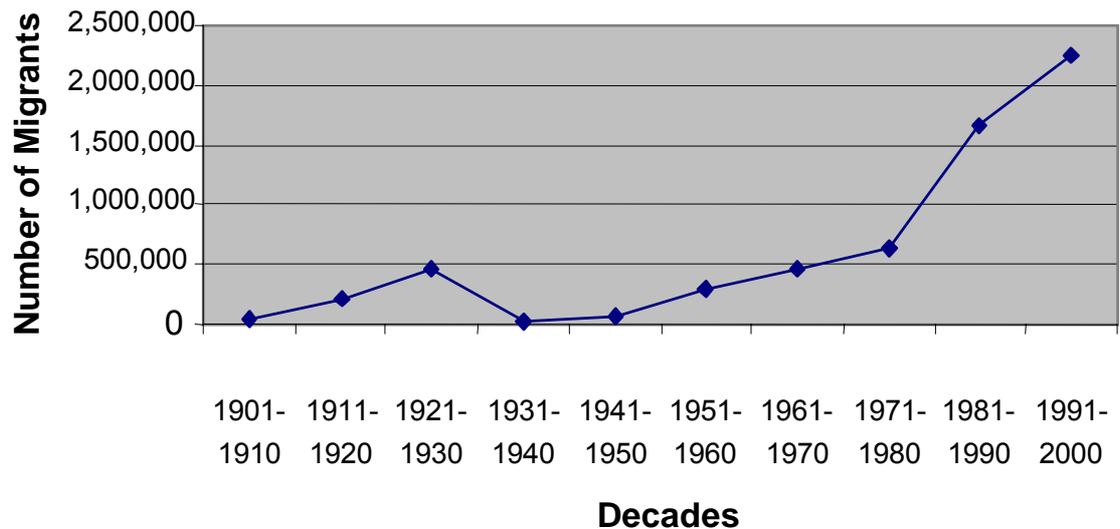
<sup>24</sup> Mexican origin includes those individuals born in Mexico and with Mexican ancestors.

<sup>25</sup> This figure includes US citizens who are first generation Mexicans as well as legal and illegal migrants.

<sup>26</sup> At the moment there are several programs for temporary workers, which only allow minor numbers of migrants.

2003. He had put the migration issue as number one on the agenda and was not able to bring the US back to talks on this subject.<sup>27</sup>

**Figure 5: Migration from Mexico to the US, 1900-2000**



Source: U.S Citizenship and Immigration Services (accessed 03/14/2004), own calculation

### 6.3.1 Income Differences

In an attempt to look closer at the causes for migration movements between Mexico and the USA, we might note the 3000 km borderline, which considerably facilitates social and economic interaction. Large parts of the US Southwest (the states of California, New Mexico, Colorado, Texas, Arizona and Nevada) belonged to Mexico until the first half of the 19<sup>th</sup> century, when the US formally purchased them after the defeat of Mexican president Santa Ana. Therefore, there has always been a close relation between the two countries, including large Mexican minorities in the states which used to belong to Mexico before 1847, creating strong social, economic and also cultural ties.

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<sup>27</sup> In January 2004 George W. Bush announced changes regarding the immigration laws and an amnesty for those undocumented migrants who fulfill certain conditions.

As explained above, migration theories consider the so-called pull- and push-factors to be responsible for the initiation of migration movements. During the last century the US showed a better economic performance than Mexico and therefore economic differences between both countries have pulled in Mexican migrants, while the instability of the Mexican economy has fostered migration movements.

The current patterns of migration between Mexico and the US can be explained by analyzing their historic roots. The consolidation of large landed property and the modernization of Mexican agriculture during the rule of Porfirio Diaz (1876-1910) were responsible for the marginalization of large shares of the rural population in Mexico. This situation created a high potential of people migrating in order to improve their living conditions. Most people living in rural areas did not own land and had to work for the *hacendados* or *latifundistas* (owners of large landed properties). From the beginning of the Mexican Revolution until the 1930s, many people migrated to the US, fleeing from the unstable political and economic situation.

On the other side of the border there has been great demand for cheap labor during different phases. During the 1880s, the US-railroad-companies recruited Mexican workers for the construction of railroad tracks. These recruitments took place in some states in central Mexico (Zacatecas, Guanajuato, Michoacán, Jalisco, and San Luis Potosí) which still show the highest migration rates today. Nevertheless, migrants were also employed in the farming, mining and construction sector. Before 1908 the movement of migrants between Mexico and the US was not even recorded and was only introduced in 1925 when the first visa control system was applied (Fogel 1982). After the Mexican Revolution in 1917 US farmers and railroad companies pledged to exempt Mexican migrants from literacy tests, thus removing obstacles for the immigration of cheap labor from the southern neighbor (Martin 1995). The economic crisis of the 1930s led to large-scale deportations of Mexican immigrants as well as of descendants of those Mexicans who remained in their dwellings when the US took over the southwestern states in 1847 (see figure 5).

### 6.3.2 The Bracero Program

There was recruitment of Mexican workers not only in the 1880s, but also around 1909 (about 1000 contract laborers) and 1917 (73.000 laborers) However, the so-called “Bracero Program” (*bracero* is Spanish for unskilled day-laborer) marked a new step in labor migration between Mexico and the US. It was the first time a bilateral agreement was signed by the two governments allowing Mexico to demand minimum standards for the workers, such as the participation of Mexican officials in the recruitment process and racial discrimination of Mexicans was considered unacceptable. US recruitment offices were established first in Mexico City, Guadalajara and Irapuato, later on also in Monterrey, Tampico, Chihuahua, Zacatecas, Aguascalientes, Hermosillo and Mexicali. Mexicans were contracted by a US governmental agency in these locations to work for a period of up to six months in a specific job. However, after returning to Mexico the braceros could enlist again. The US agency covered the transport from Mexico toward the US destinations. During the contract time braceros were allowed to move freely in the US (García y Griego 1996).<sup>28</sup>

The Bracero Program was introduced as a consequence of the labor shortages in the US during World War II, thus in 1942 large-scale recruitment of Mexican workers took place, mainly to work in the agricultural sector. Nevertheless, in the late 1940s undocumented migration also rose hand in hand with the number of contract laborers. This threatened the continuation of the program and in 1954 US authorities started “operation wetback”, deporting over one million undocumented Mexican migrants, basically substituting braceros or contract workers for undocumented “wetbacks” (García y Griego 1996). During the bracero program more than 4.5 million Mexicans were contracted for temporary work in the US, which makes an average of about 209.000 contracts issued per year (Verduzco 1995)<sup>29</sup>.

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<sup>28</sup> A good description of how recruitment worked and about the working conditions can be found in Basok (2000).

<sup>29</sup> Please note that 4.5 million contracts are not equal to 4.5 million migrants, for individuals could get contracts for several years.

### 6.3.3 The Post-Bracero Years

The end of the Bracero Program in 1964, however, did not mean the end of migration movements from Mexico to the US. US agriculture still demanded cheap seasonal labor and illegal migration expanded. During the program workers were recruited in their Mexican communities and taken directly to their US employers. The contracts ended after six months and the braceros had to return to Mexico. Not all of them got new contracts for another season. The workers who did not receive new contracts had acquired a certain amount of knowledge about ways of crossing the border, the US labor market and US society as a whole. Many of them therefore crossed the border again and looked for work on their own. Personal relationships between employer and migrants replaced the governmental regulated contracts (Massey 1986, Donato 1994). As a result even during the existence of the Bracero Program illegal migration increased and knowledge about the movements was created. After the program had ended in 1964 a lot of Mexican people had the experience of working in the US and establishing contacts with US-employers and they had knowledge about crossing the border and looking for work on their own. Social capital was passed on to brothers, sons, friends and neighbors etc.; lowering the barriers for future migrations. It is therefore a common observation that migrants from the same community of origin also have the same destination, forming so-called daughter communities, which reproduce the social and cultural life of Mexico in the US (Smith 1992, 1999, Pries 1998, Goldring 2002).

On the Mexican side, even after the land reform had been carried out, the high inequality of land distribution persisted and represented an important push factor. Most farmers are still smallholders and work on so-called *minifundios* of less than 5 hectares, which are too small to allow family subsistence. On the other hand there is a relatively large number of *latifundistas* who own more than 500 hectares. However, these farmers practice land- and/or capital-intensive agriculture and therefore do not offer many employment opportunities (Calva 2000, pp. 168ff). Neither the service nor the industrial sectors offer enough jobs. The booming Maquiladora sector mainly employs young unmarried women and does not present an alternative for the un- or under-employed (Berndt 2001).

The politics of import substitution pursued in Mexico from the 1940s until 1982 also increased the number of potential migrants, as agriculture was not considered to play a key role in development and small-scale agriculture particularly received very little support. During this time Mexico tried to achieve higher levels of development by giving support and subsidies to the industrial sector only, trying to reduce its dependence on imports in that sector. The following crisis of the 80s and structural adjustment programs implied by the World Bank and the IMF caused the loss of jobs and the reduction of subsidies for small-scale agricultural production made many peasants give up production. These measures even increased the number of people willing to migrate (Calva 1997).

During the bracero years primarily men over 15 migrated and almost half of them went with a bracero contract. After the program had ended the percentage of undocumented migration as a share of the total number of migrants rose from 37% to over 70% for first time migrants (Donato 1994). Still the majority of the migrants came from rural areas, 80% originated from only five states<sup>30</sup>, they were mostly single males, almost all of them had had a job before leaving Mexico, education levels were low and movements were temporary. Obviously the patterns established during the bracero years had a strong impact on the migration movements afterwards. But the percentage of migrants who were occupied in agriculture dropped from 76% to only 40% until the 1970s (Donato 1994).

#### **6.3.4 The Immigration Reform and Control Act (IRCA) of 1986**

During the 1970s the share of women and children grew from 10.9% to 31.5% and 12.1% to 19.8% respectively (Donato 1994). The growing number of undocumented migrants caused severe preoccupation in the regions of destination and was a source of social conflict (Verduzco 1995). The US government tried to solve this situation by a legalization of undocumented migrants who had already spent some years in the US and at the same time by closing the border to more migrants. As a result of these measures employers still had access to cheap labor from Mexico and at the same time illegal

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<sup>30</sup> Jalisco, Michoacán, Guanajuato, Zacatecas, Durango

immigration was curbed, in response to those political groups that demanded the end of illegal immigration from Mexico. On the other hand, sanctions against employers that hired undocumented migrants were never really enforced. The consequence was increased discrimination against Latinos, as employers were afraid of being sanctioned when hiring undocumented migrants. These even included wage discrimination against legal immigrants (Durand et. al 1999).

In 1986 the Immigration Reform and Control Act (IRCA) – also known as the Simpson-Rodino Law – was passed, legalizing the status of many undocumented migrants. Besides granting residence the IRCA also allowed family reunification, which had large scale impact on migration patterns, because the migrant who obtained legal residence now also had the right to bring his family from Mexico to the US. The right of legal residence in the US is passed on to the following generations; hence the children of a legal migrant automatically obtain the right to residency.

The legalization program was started in 1987 and by 1991 more than 3 million people (with about 2.3 million Mexican citizens among them) who had illegally entered the US before 1982 got legal papers (Corona 1993, Verduzco 1995). Due to the Mexican economic crisis after 1982, the origin of Mexican migrants became more disperse and there was a shift from rural to urban migration<sup>31</sup>. It must be noted that many first-time migrants come from the border states. Corona (1993) also observed a growing participation of female migrants and an increased duration of the time the migrant spends in the US, which indicates a more permanent migration pattern. In fact, the percentage of migrants who entered the US as permanent residents (green-card holders) dropped from 85% in 1965 to 40% in 1992, while the share of migrants entering as US citizens rose from 12% to 51% during the same period. This indicates that former braceros became legal residents and then even US citizens. The record also displays a growing share of migrants who are not in the labor force (children, students, retirees, housewives), thus suggesting that migrants were more likely to settle permanently in the US (Donato 1994, p 716f). Almost 50% of the migrant women crossing the border between 1975 and 1993 did so to be

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<sup>31</sup> This however, might just be just a consequence of increasing urbanization in Mexico as the INEGI considers villages with more then 15.000 inhabitants to be urban.

together with their husbands and to settle permanently in the US (Papail/ Robles Sotelo 1996). Durand et al. (2001) confirm these trends towards a slight increase of female participation and a more permanent migration also throughout the decade of the 1990s. Besides the growing share of female migrants, also the share of people not belonging to the labor force— either over 50 years old, or children in school age – rose.

Cornelius and Marcelli (2000), who calculate a “sojourner-ratio” of temporary migrants who move back and forth between their community of origin and the place of destination in the US, present similar results: According to the authors the sojourner-ratio has fallen from 43.6% to 28.4% from 1980 to 1990. Conversely, this means that the percentage of permanent migrants has increased from 56.4% to 71.6%.

As a consequence, the number of community members who established themselves for larger periods of time in the so-called daughter communities, located in the US, rose during the 1990s. Nevertheless, even established migrants, who have been living in the US for years, do not abandon their social, political, economical and emotional ties with their source community forming strong social networks (Lozano 1997, Moctezuma/ García Zamora 1999, Cornelius/ Marcelli 2000, Goldring 2003).

### 6.3.5 The North American Free Trade Area (NAFTA) and Migration

On the first of January 1994 the North American Free Trade Area (NAFTA) between Canada, the US, and Mexico was opened. NAFTA includes the free movement of goods between the three member countries; however, NAFTA does not include the free movement of people. The globalization of production and financial transactions represents a challenge for national governments to maintain control of their economies, which touches the field of international migration involving both sending and receiving countries (Hamilton/ Stoltz Chinchilla 1996).

Before NAFTA became effective many scientific studies were made to estimate the effects of free trade on migration movements between Mexico and the US. Many authors<sup>32</sup> concluded that the reduction of subsidies in the Mexican agriculture, together with the reduction of tariffs on trade with agricultural products would increase migration pressures in marginal rural areas of Mexico. Although problems were obvious and predictable, migration was not a major issue during NAFTA negotiations (Bustamante 1994). The political argument was that NAFTA would foster foreign direct investment in Mexico and thus create a great number of employment opportunities (Hamann 2002).

NAFTA includes the reduction of agricultural subsidies in Mexico over a time period of 10 years; hence the economic bases for Mexican smallholders who until 1994 depended on government help are threatened. Since 1994 Mexican smallholders also faced the penetration of national markets by US-based transnational agribusiness and thus falling prices for agricultural products such as maize, wheat, or beans. Because of poor soil, small farm sizes and the lack of advanced technology most of them will not be able to sell their products at competitive prices. It seems likely that many of the households search an escape by migrating to the north. Cornelius and Martin (1993) estimated a number of about 600.000 campesinos (smallholders) who would look for their future in the US, because they were going to lose their economic bases as a

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<sup>32</sup> e.g. Cornelius/Martin (1993); Martin (1995); Robinson et al (1993), Hamilton/Chinchilla (1996); Taylor et al. (1996); Zapata Martelo (1995); Bustamante (1994); Young (1995); Andreas (1996); Vega Cánovas/Alba (1997).

consequence of NAFTA. They also argued that after some years the Mexican economy would adapt to the new circumstances and migration would decrease below its previous level.

On the other hand it was pointed out that Mexican smallholders already had diversified their income sources during the last decades – among others through international migration and remittances – so dependency on subsidized cultures like maize and beans has diminished (Yúnes 1997). The share of income that results from international migration and remittances has been growing in recent years. Yúnes assumes that income gained through remittances would stop peasants from leaving their lands. Nevertheless, this strategy of income diversification through migration has reduced dependency on agricultural income and subsidies but led to the dependency on external transfers. Before income from remittances was derived the families relied on the changing market prices for their staple foods and now they depend on the amount of money the migrant family member is willing to remit. As predicted by Cornelius and Martin (1993) migration movements increased after NAFTA became effective in 1994. Figure 5 depicts that at least legal migration from Mexico to the US did not decrease; however, the increase during the 1990s has decreased as compared to the 1980s.

The economic integration between Mexico and the USA through NAFTA has not only led to increased international migration between these countries. Also internal migration in Mexico towards the Maquiladora industries at the border increased during the 1990s as compared to the 1980s (Zlotnik 1998, INEGI accessed 06/21/2005). The booming Maquiladora (see also chapter 7) industries in the less populated border regions grew from 113,897 employed workers in 1980 to 1,069,172 in 2003 (INEGI accessed 04/24/2005). Most of these workers moved to the north from other parts of the country. For some this internal migration will only be the first step towards international migration to the USA. As a consequence of the growth of the Maquiladora industries in the north of Mexico, also the internal migration movements have changed their direction. While in the past, Mexico City was the destination of most internal migrants, since the 1990ies it is the booming enclaves of the US industries in the border

region that appear to have the biggest attraction (Garrocho 1995, CONAPO 2000).

### **6.3.6 Migration Networks**

This section has a look on the formation of social networks and on their importance for border crossing. The third part describes the emergence of the migrants' clubs, while the last part deals with their importance for economic development.

#### **6.3.6.1 *The Formation of Migration Networks***

There is a long, unbroken tradition of Mexican migration towards the US. In historical perspective the migration networks were strengthened by a measure that was meant to reduce migration. During the period from 1951 to 1980 legal immigration rose only slightly. From 1981 to 1990, however, it more than doubled in comparison to the previous decade. After the IRCA was passed during the 1990s the number of legal migrants even topped the figure of the 1980s (U.S. Citizenship and Immigration Services 06/15/2004). A few years after the IRCA was passed more than 2.3 million former undocumented migrants obtained legal status. For all these migrants it was now possible to settle in the US and to bring their families.

The migrants who established themselves in the US together with the already existing Mexican minority<sup>33</sup> led to the formation of strong social networks. Those migrants who settled in the US for longer periods or even permanently now formed the backbone of the emerging migration networks. Experiences and knowledge acquired by the migrants have been shared with family, friends and neighbors and thus spread out through the migrants' communities of origin. This knowledge represents a strong social capital, which was accumulated in the sending regions, reducing the cost of migration and also providing non-migrants with information and assistance enabling them to undertake migration movements on their own. The growing number of established migrants formed a stronger community and much stronger social networks than the temporary

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<sup>33</sup> Because of Hispanic people living in the southwest states of the US since the mid 19<sup>th</sup> century and the few migrants that got permanent residence before IRCA

ones that had existed before (Cornelius 1990, Cortés Sánchez 1999, Palloni et al. 2001).<sup>34</sup>

Communities with a long tradition of migration have accumulated social and human capital during the last 60 years. Since the first migrants have been settled in the US, the social capital is not only present in the home communities but also on the other side of the border. Between Mexico and the US international migration networks have developed which are built of the social ties of kinship and friendship that exist between the migrants' communities of origin and the so-called daughter communities in the US<sup>35</sup>. Migrants from the same town or village in Mexico who move along the existing social networks, gathered in certain receiving areas. These transnational communities, unlike "Diaspora"-communities<sup>36</sup>, keep close contact to their sending region. The migrants themselves even consider that all localities on both sides of the border belong to the same community. This means that someone who lives in a daughter community is still considered to be a full member of the community of origin (Massey 1986, Moctezuma 1999). They also congregate and provide newcomers with vast knowledge about labor and housing markets in the receiving country (Moctezuma 1999, p. 180). Furthermore, social networks also facilitate the penetration of the US labor market. A study by Moctezuma reveals that most newcomers found their first job with the help of a family member or friend from their home community – in this case Sain Alto, Zacatecas (68%). Also subsequent jobs are often obtained through the assistance of social networks, 55% of the interviewees said that they were recommended by a family member or a friend from Sain Alto (Moctezuma 1999, 131).

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<sup>34</sup> In addition to social networks resulting from international migration other networks surge as a consequence of internal migration in Mexico. Internal movements do not have the same extent as international ones. Nevertheless, there is evidence that, for example, migrants from the "Mixteca Poblana" settled in Puebla, Mexico City and some border cities (Pries: 1998). People from Sain Alto, Zacatecas, settled in Durango, Guadalajara, Monterrey, Tijuana and Ciudad Juárez (Moctezuma: 1999). Those people completed and extended the social networks providing additional contact points for their community members.

<sup>35</sup> A detailed description of the historic emergence of a specific migration network – already during the bracero years – in the village of Las Animas, Zacatecas can be found at Mines and de Janvry (1982).

<sup>36</sup> Diaspora is defined as the formation of ethnic minorities in the host country, without cultural or social integration (Conway/ Cohen: 1998)

Migration between Mexico and the US is more likely when a family member, or at least community member, already possesses migration experience (Zahniser 1999). Migration networks and transnational communities lower monetary and social costs since they provide assistance for the migration process and offer familiar social and cultural, background. Escobar Latapí et al. (1999) conclude that

“... networks and binational communities provide the backbone of migration: they are channels which make migration possible for a majority of Mexican emigrants.”

Social networks are efficient so that for many people in the core migration regions it is easier to find a job in the US than in their region of origin. In fact, at the end of the 70s the US found itself in a severe economic crisis, while Mexico experienced an oil-driven economic boom. Nevertheless, movements between the two countries increased during this period instead of being reduced (Massey 1986). Migration has become a self-perpetuating-process via social networks. It is a circular development: migration leads to the formation of networks, which lead to more migration, which leads to an expansion of the existing networks. Massey et al. (1993, 1994) believe that the networks are able to maintain the migration process by themselves, and that they are therefore responsible for the ongoing migration process since each migrant creates the social structure necessary to support their continuation. This means that areas with high migration activities find themselves in a circle, which will be difficult to end. Risks and costs of undocumented movements have been reduced because of migration networks and therefore it is fair to conclude that migration patterns of documented and undocumented migrants have been adjusted to a certain extent. Winters et al. (2001) even consider migration networks to be the most important factor determining the migration process. Once efficient networks are established, migration is hard to detain.

### **6.3.6.2 The Role of Migration Networks for Border Crossing**

In addition to employer sanctions the IRCA also included measures taken by the US INS<sup>37</sup> to reduce illegal immigration, such as the operations “Hold The

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<sup>37</sup> INS = Immigration and Naturalization Services, now: US Citizenship and Immigration Services

Line” and “Gatekeeper”, which were intended to keep the border closed. One consequence of stricter border control is that illegal migrants prefer to stay in the US for a longer time in order to avoid the risks involved in border crossing. These illegal migrants integrate themselves into the growing Mexican expatriate community.

Social networks however, do not only help arriving migrants to get along in the US; as mentioned above, they also play a major role in reducing the transaction costs of migration and fostering movements. According to Moctezuma (1999) there are mainly five ways of crossing the border for first-time undocumented migrants due to social networks:

- For all migrants who cannot rely on social networks there is the possibility of crossing the border on their own. There are still migrants who try to get to “the north” individually, sometimes accompanied by others in the same situation. Since there is no knowledge about how to cross the border, the likelihood of being apprehended by the border patrol is rather high.
- Through the assistance of a “coyote”, who in most cases is a person unknown to the migrant. They are people who help newcomers to cross the border in exchange for a certain amount of money. They say that anyone who arrives in Tijuana will be offered the services of a coyote. However, the danger involved is sometimes fatal, since certain areas of Tijuana and San Diego are not safe and there are reports of many coyotes that take the down payment and just disappear or abandon the migrants in unknown territory. The coyote operates exclusively in the border region and charges an average of 1000 US\$ (Moctezuma 1999).
- The help of a “guide migrant” from the same community of origin: The “guide migrant” accompanies migrants from their place of origin to their destination and only charges about 100- 200 US\$ for the service. (Moctezuma 1999)
- Help from “recruitment migrants”: Some US employers send experienced Mexican workers back to their communities of origin to recruit people for agricultural labor. The experienced migrants organize transport and border crossing. This way of recruiting workers is advantageous for the employers, since there is a positive selection of migrants, as the recruiters only pick those workers who are disposed to hard work.
- The help of an intermediary: The undocumented migrant reaches a border city and looks for a person from his (or her) home community who lives there and already has some knowledge in border crossing. This internal migrant organizes the border

crossing procedure, i.e. provides a reliable coyote. On the other side of the border the migrant is picked up by compatriots and taken to his or her destination.

All these ways, except the first two, are based on social networks where experienced migrants help newcomers to cross the border safely. Moctezuma (1999 102) and Pries (1998, 2004) studied the intensity of social networks, which include a large number of locations in Mexico and in the US. They conclude that migration networks have improved and provide an efficient means for undocumented border crossing.

Cornelius (1989, 2001), Papademetriou (1993) Jones (1995), Durand et al. (2001) analyze the effect of US migration policy on the movements, concluding that it has not been possible to reduce migration by restrictive laws or an increased border control. It is not possible to regulate illegal immigration through stricter border control. Everyone who tries to cross the border succeeds sooner or later, as with each try first-time migrants gather experience and improve their knowledge of border crossing (Massey/ Singer 1995). The measures taken by the INS after the IRCA was passed are inefficient, as they do not prevent people from trying to cross and/or eventually crossing the border. Migrants with access to social networks receive efficient help to cross the border. Migrants who are not backed up by a network try to evade the border patrol by crossing through the desert and mountains without guidance; the only effects caused by increased border enforcement<sup>38</sup> are growing risks faced by the migrants when crossing the border. Eschbach et al. (1999) and Cornelius (2001) report a significant increase in fatalities after border enforcement had been strengthened<sup>39</sup>.

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<sup>38</sup> For example, operations such as “Hold The Line” in the El Paso area, “Gatekeeper” in San Diego, “Rio Grande” in Brownsville and “Safeguard” in Nogales, Arizona (Eschbach et al: 1999).

<sup>39</sup> Singer/ Massey (1998) look at the interests of the groups involved in illegal border crossing: illegal migrants and border patrol officers. Border patrol officers are interested in making arrests and processing them rapidly, illegal Mexican migrants – if arrested – want to return to Mexico as soon as possible to be able to try again. Therefore, about 97% of all migrants arrested renounce their right to a public hearing in order to be returned to Mexico as quickly as possible, usually within 24 hours. The process of illegal border crossing is considered a “trial and error” process. Migrants try to cross, are returned to Mexico by the border patrol and try again the next day, until they finally reach their destination. As long as they manage to cross the line successfully, we observe that even migrants who are not backed by social networks acquire the necessary knowledge for illegal border crossing this way. Also during the process they acquire new social ties that lower the risks of apprehension. On the other side, social networks provide

### **6.3.6.3 The Migrants' Social Clubs**

The increasing social networks and the growing presence of Mexicans and individuals with Mexican ancestors in the US led to the formation of the migrants' social clubs (also called Home Town Associations – HTAs). The number of these clubs grew fast after the IRCA was passed in 1986. Most clubs are organizations of daughter communities in the US; they are associations of people that share the same region of origin in Mexico. The migrants' clubs were established to organize cultural events; however, they also pursue the goal of stimulating investment in the social and economic infrastructure of the home communities (Federación de Clubes Unidos Zacatecanos en Illinois: FdCUZel 1999).

The migrants' clubs are the official representation and manifestation of the informal social networks. They represent transnational communities and facilitate communication, interchange and political and social contact between sending and receiving regions. The clubs are joined by documented as well as undocumented migrants and US citizens with Mexican ancestors. While there are more than 700 Mexican clubs registered in the US (World Bank 2002, 14), Zacatecas alone accounts for more than 200 of them registered at the "Federación de Clubes Zacatecanos". The HTAs of migrants from Zacatecas are located in 7 different states in the US. California hosts about half of them, Illinois a fifth, and the rest are spread in Nevada, Texas, Florida, Colorado, and Georgia. These clubs represent communities from 27 of the 56 Zacatecan municipalities with focus on Valparaíso (20 clubs), Francisco R. Murguía (17 clubs), Jerez (8), Tepechitlan (7), Fresnillo (6), Jalpa (5), Monte Escobedo (5), Tepetongo (5), Tlaltenango (3), Juchipila (3) and Río Grande (3). On average each club has about 400 members, thus in total about 80.000 people of Zacatecan origin are organized in the US (Moctezuma 1999, Federación de Clubes Zacatecanos). However, the estimated number of Mexican migrants in the US of Zacatecan origin is estimated to be about 1.3 million; hence only 6.2% of the migrants from Zacatecas are organized in social clubs. Leaders of the HTAs estimate the proportion of fellow countrymen belonging to social clubs

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migrants with information and assistance during the migration process and hereby spread the knowledge within migrant communities. One therefore cannot expect to block migration just by stricter border enforcement.

to be a little higher, about 10% (World Bank 2002, 14). Nevertheless, both figures display that it is only a small share of migrants that organize themselves in HTAs.

#### ***6.3.6.4 The Role of Home Town Associations (HTAs) for Development in Mexico***

Existing social networks account for many investment activities. Migrants form clubs in the receiving communities and members save money for investments in their home communities (Moctezuma 1999). The community of San Mateo in the municipality of Valparaíso can serve as an example: money saved by the migrants' clubs was used to build a paved road towards the community, to put up streetlights and to make some land arable. Although HTAs are mainly representations of the migrants' village or town of origin it is noteworthy that many Latino groups from different countries cooperated in sending aid to El Salvador when the country was struck by Hurricane Mitch in 1998.

Investment in community support systems is, besides consumption and private or microeconomic investment, another important factor for the development of peripheral villages with high emigration ratios (see also chapter 6.6). Migrants wish not only to support their families' consumption and investment, but also to foster community development. Smith (1992) reports migrants from the Mixteca region undertaking collections for the construction of a local sewerage system. The first infrastructure investments by migrants' were initiated in Zacatecas in 1983 (Flores Olague et. al. 1996). Serrano Calvo (2005) reports a variety of community investment projects in the countries of Central America. The absent migrants for example contribute to the local "fiestas patronales", so-called "collective remittances" help to reconstruct the church tower, cover expenses to buy park benches, finance the repair of a clinic or school as well as investing in the equipment for a rural library. Even though it is possibly less than 1% of the total amount of remittances that is dedicated to community investment, this equals 35 million US\$ for four Caribbean countries: Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. This amount is double the amount in international development aid that these five countries receive together. A high proportion of these remittances is dedicated to social activities or investment in basic infrastructure. These investments have partly liberated the local

governments from their responsibilities and show the importance of transnational social ties for the subsistence of these communities (Serrano Calvo 2005).

Portes and Mooney (2000) give examples where international migration and social networks lead to a positive impulse on development. Many HTAs were founded especially with the goal to improve the living conditions in the migrants' home communities, either through community investments or by microeconomic investment, such as the Club Campesinos of Juchipila, for example. There are about 4000 Latino non-profit organizations in the US, which are important agents of social improvement of Latino minorities, but also of development in their hometowns. HTA activities are wide-ranging, as can be seen in table 7. One deficiency of HTA activities is the limited planning capacity when deciding where to channel the financial assistance (Orozco 2000a, p. 9).

**Table 7: Activities Performed by Migrant Communities for their Home Country**

<b>Category</b>	<b>Kind of activity</b>
Charity	Toys, clothes, church donations
Investment in Infrastructure	Parks, cemeteries, sports complexes, road construction, ambulances, fire trucks
Investment in Human Development	Scholarships, sports utilities, libraries, health equipment
Microeconomic Investment	Income generating programs for the community
Other	General fund raising

Source: Orozco: 2000a

Alarcón (2005) points out that by financing infrastructure projects such as the construction of roads and bridges, transaction costs for economic development are reduced. Improving health and education facilities can be considered investment in human capital, which also has positive impact on the potential for economic development.

A single migrant is usually not able to pay for the paving of a road, the reconstruction of a church or the construction of a barrage. At this point the importance of the social organizations formed by Mexican migrants and especially by people from Zacatecas in the areas of destination becomes

obvious. Most HTAs are organizations of daughter<sup>40</sup> communities in the US. They are not just social clubs of Mexicans residing in a certain area in the US; they are associations of people who share the same region of origin in Mexico. Also the migrants' clubs pursue the goal of stimulating investment in the social and economic infrastructure of the home communities (FdCUZel 1999). Joint action is required to accomplish these goals. HTAs play a major role in organizing and implementing community investments; in other words, social organizations like the migrants' clubs are the basis for community investments. Section 8.4 will give more detailed information about the different political programs implemented to support community investment.

### **6.3.7 Regional Distribution of Migration Processes in Mexico**

As a consequence of their historic roots Mexican labor migration movements are not spread evenly across Mexico. The majority of migrants come from the five traditional migration states in central Mexico (Guanajuato, Jalisco, Zacatecas, Durango, Nayarit, Aguascalientes, Colima and Michoacán, see figure 6), where the first recruitment took place in the late 19<sup>th</sup> century and where the agencies were located during the bracero years. Since the 1980s new sources have been added due to the economic crisis (such as Baja California, Chihuahua, the D.F.(Distrito Federal), Guerrero, Puebla, Querétaro and Mexico State<sup>41</sup>, see figure 6). Even inside these states migration ratios differ strongly between the municipalities. The pressure impressed on the Mexican economy by NAFTA obviously does not provoke the same responses in all regions, even though conditions are similar. The impact of international migration also differs among the regions (López Castro/ Zendejas Romero 1995).

Verduzco and Unger (2000) classify the intensity of migration movements from Mexico to the US into four categories: *extremely low* migration refers to a municipality in which the proportion of individuals participating in migratory movements is between 0.1% and 1.0% of the economic active population (EAP). In the case of *low* migration between 1.1% and 7.0% of the EAP is

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<sup>40</sup> Moctezuma (1999) calls communities formed abroad by migrants from just one place of origin daughter communities.

<sup>41</sup> Even though Mexico City has become a sending region the majority of migrants still has rural origin and come from regions that host only 20% of Mexico's population.

involved in labor migration to the US, with respect to *medium* migration the percentage lies between 7.1% and 25% of the EAP. And in municipalities with *intense* migration more than 25% of the EAP participate in international labor migration. Of the 2428 Mexican municipalities 62% show some migration movements, 43% of them, however, have low, and 18% very low migration activities. In the states located in the southeast of Mexico (Chiapas, Tabasco, Campeche, Yucatán, and Quintana Roo) 66.5% of all municipalities have no significant migration, while almost all municipalities of the northwestern states take part in the migration movements. Only 4.5% of all municipalities show high migration ratios. Migration is mainly a rural phenomenon. 88% of the 109 municipalities with the highest migration rates are located inside the nine states which show the highest migration: Jalisco, Michoacán, Guanajuato, Zacatecas, Durango, Chihuahua, San Luis Potosí, Guerrero and Oaxaca. 48% of these municipalities are concentrated in just three states: Jalisco, Michoacán and Zacatecas. 100 municipalities with intense or high migration show lower salary levels, productivity and investment than average Mexico. These municipalities develop only a light industry, which is closely linked to early agro-industrial transformations. These municipalities have problems attracting any form of investment (Verduzco/ Unger 2000).

Verduzco and Unger state that even though almost all municipalities with urban characteristics show some kind of migration, rural migration still dominates over urban<sup>42</sup> (Verduzco/ Unger 2000). Contrary to this, CONAPO (2000, 21) states a dominance of urban migration over rural migration: 55% of the migrants stem from urban municipalities and 45% from rural ones. This contradiction can be explained by the fact that CONAPO draws the limit between “urban” and “rural” at 15,000 inhabitants, which is 5,000 less than in the calculation of Verduzco and Unger (2000). Concerning the regions of origin CONAPO (2000, 21) comes to the same results as Verduzco and Unger (2000); 55.0% of the migrants stem from the traditional region of out-migration in central Mexico, 23.5% stem from the north, 11.7% from central Mexico and 9.8% from the south.

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<sup>42</sup> Verduzco/ Unger (2000) consider municipalities with 20,000 and more inhabitants to be urban.

By far the most important destination is the state of California, and the US states of California, Texas, Illinois and Arizona, together receive more than 90% of the Mexican migrants (CONAPO 2000, 23).

The regional character of Mexican migration movements is reinforced by the differences within the Mexican economy. On the one hand, Mexico's industrial sector – concentrated in Mexico City, Monterrey and the border region – competes with the most advanced countries (e.g. the automobile industry). On the other hand, some sectors (agriculture) show a poor performance and are not able to compete with the corresponding sectors of the US and Canada (Cypher: 2001, Shadlen: 2002).

## **6.4 Migration Movements in Zacatecas**

This section presents survey data which is compared with the results from previous studies, where available. The focus will be on migration patterns, differences between male and female migration, social networks as well as migration patterns before and after the IRCA went into effect in 1986. For the purposes of this study, the year of change considered is not 1986 but 1990, for it took some years before undocumented migrants took advantage of the possibilities to obtain legal documents (Cornelius 2001).

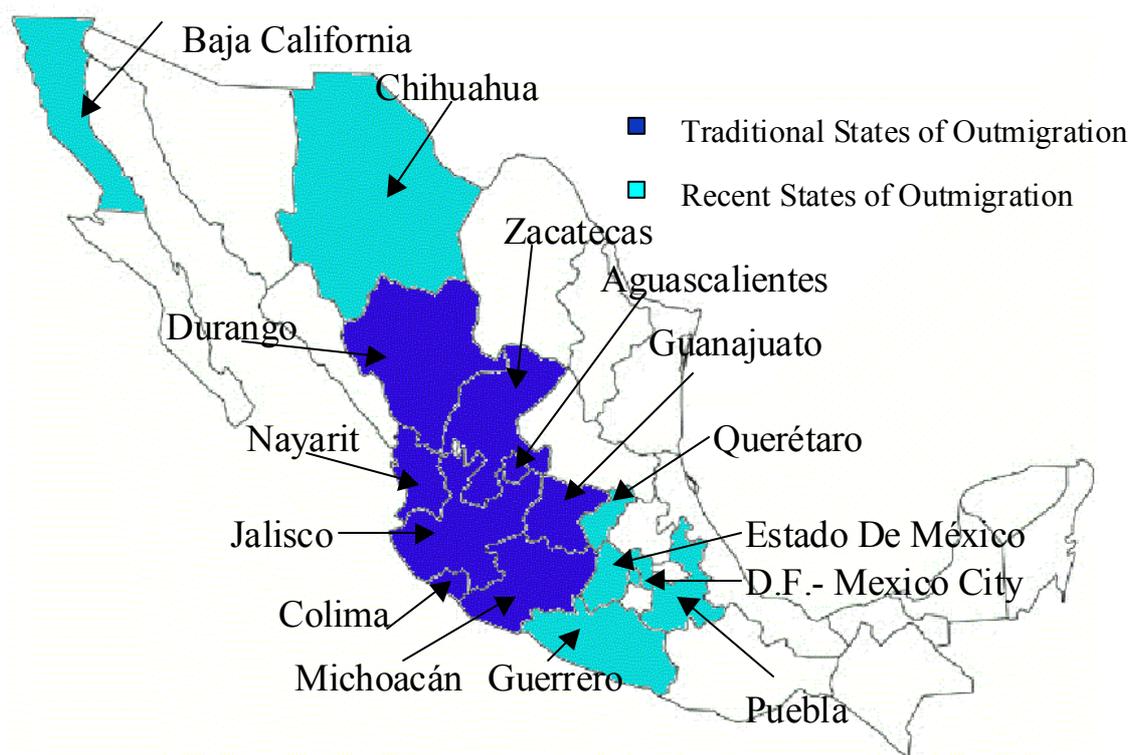
### **6.4.1 Demographic Development in Zacatecas**

The birthrate in Zacatecas is 23.3 children per 1000 inhabitants and does not differ much from the national average (21.7 children per 1000 inhabitants). The mortality rate in Zacatecas is 5.0 deaths per 1000 inhabitants, while the national average only reaches 4.3. These figures suggest a similar population growth in Zacatecas as in the national average. Yet, in the period of 1990-2000 the population growth in Zacatecas was only 0.6% compared to 1.9% on the national average<sup>43</sup>. The high emigration movements from Zacatecas towards the US as well as other Mexican states can partly explain this difference.

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<sup>43</sup> The oldest official data are available for the period 1950 – 1960. In this decade Zacatecas had a population growth of 2.1% compared to 3.1% on the national average.

**Figure 6: High Emigration States in Mexico**



Source: Verduzco/ Unger 2000, CONAPO 2000

This development is even more intense with respect to the population growth of some municipalities. A growing number of municipalities in Zacatecas have a negative population growth; from 1970 to 1980 there were only 15 municipalities with a negative population growth. In the following decade from 1980 to 1990 the number of municipalities that were losing population grew to 20. During the last 10 years of the 20<sup>th</sup> century this number reached 32<sup>44</sup>, which means that more than half of the 57 municipalities in Zacatecas experienced population loss, in spite of rather high birth rates. Of the seven municipalities covered by the author's survey only Tlaltenango and Río Grande do not appear in the following list. However, in the period from 1995 to 2000 both municipalities also lost population and it has to be taken into account that Tlaltenango and Río Grande are regional market places and therefore have a different economic dynamic than those municipalities that rely mainly on agriculture.

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<sup>44</sup> Not counting the municipality of Guadalupe that only had a negative population development because of the creation of a new municipality – Trancoso – that was separated from Guadalupe.

This loss of population is even more problematic, as most migrants are male and between 15 and 49 years old, which leads to an asymmetric distribution of the age-pyramid. This unequal distribution can be measured by the masculinity-index – the number of male inhabitants per 100 females. In the Mexican Republic the masculinity index is 95.38, in Zacatecas however 93.37. In some municipalities it is even lower: Río Grande: 88.53; Sain Alto: 90.72; Huanusco: 87.17; Atolinga: 88.18; Juchipila: 88.16; Moyahua: 85.62; Nochistlán: 83.77; Tepetongo: 84.62. With the exception of Tlaltenango (where the masculinity index is about the state's average: 94.04), all municipalities in which the survey was applied have a masculinity index below the state's average.

Table 9 shows the age and gender composition of the municipality of Atolinga as an example. For the age cohorts between 15 and 49 there is a surplus of female inhabitants. In some of the age cohorts the masculinity index is far below the municipal average of 88.18. For the age cohort 20 to 24 it is 62.62 and for the cohort 35 to 39 it is 68.87. This age composition is the result of highly male dominated migration movements, especially of individuals between the ages of 15 and 49.

**Table 8: Population Growth Rates in Selected Municipalities**

<b>Municipality</b>	<b>1970-1980</b>	<b>1980-1990</b>	<b>1990-2000</b>
Apozol	1.61%	0.12%	-0.78%
Apulco	1.03%	0.01%	-0.45%
<b>Atolinga</b>	<b>-0.40%</b>	<b>-1.28%</b>	<b>-2.77%</b>
Benito Juárez	0.11%	0.31%	-0.35%
Cañitas Felipe Pescador	2.40%	-0.33%	0.63%
Concepción del Oro	-0.21%	-1.34%	-1.34%
Chalchihuites	2.31%	0.10%	-2.08%
García de la Cadena	-0.12%	-2.25%	-0.99%
Fco. R. Murguía	1.59%	0.81%	-1.10%
Genaro Codina	1.54%	0.48%	-0.26%
Joaquín Amaro	-2.14%	-2.02%	-4.65%
<b>Huanusco</b>	<b>-0.39%</b>	<b>-0.92%</b>	<b>-1.83%</b>
Jalpa	-0.38%	0.29%	-0.38%
Jerez	1.10%	0.50%	-0.57%
<b>Juchipila</b>	<b>-0.65%</b>	<b>0.00%</b>	<b>-0.70%</b>
Luis Moya	3.01%	2.04%	-0.10%
Mazapil	-1.50%	-1.16%	-2.14%
Melchor Ocampo	-0.66%	-1.02%	-2.54%
Mezquital del Oro	0.70%	-1.15%	-1.62%
Momax	-1.39%	-0.88%	-1.78%
Monte Escobedo	-1.43%	-0.81%	-1.54%
Moyahua	-1.29%	-0.99%	-1.88%
Nochistlán	1.03%	-0.47%	-0.96%
<b>Sain Alto</b>	<b>0.97%</b>	<b>2.73%</b>	<b>-0.15%</b>
El Salvador	0.62%	-2.50%	-0.79%
<b>Sombrerete</b>	<b>2.01%</b>	<b>0.63%</b>	<b>-0.28%</b>
Susticacán	-1.80%	-0.72%	-2.03%
Tepechitlan	1.34%	-0.58%	-0.62%
Tepetongo	-1.23%	-1.20%	-2.57%
Teúl de González Ortega	-0.05%	-0.34%	-0.70%
Valparaíso	0.06%	-0.60%	-1.77%
Villa González Ortega	4.18%	2.20%	-0.31%
Villanueva	1.09%	-0.06%	-0.97%
Zacatecas (State)	1.69%	1.20%	0.60%

Source: INEGI (accessed 04/15/2005) own calculations  
Municipalities surveyed are marked bold.

### **6.4.2 Migration Patterns**

One feature to be analyzed in the survey is the migration patterns and especially the changes in migration patterns since the IRCA was passed. In order to assess migration patterns and their changes we have analyzed the following issues:

- migration performance (temporary, from temporary migration to permanent migration, permanent, retired)
- legal status (documented, undocumented)
- age of the migrant at the time of his or her first trip to the US
- real estate property in the US

Pre-IRCA and post-IRCA characteristics of these variables are compared.

Temporary migrants are those that do not have a permanent residence in the US, but return to Mexico after having worked in the US for a limited time. Their family lives in Mexico. Permanent migrants are those who have established themselves in the US and return to Mexico only for a few weeks per year. These migrants live with their family in the US. The migrants in the category “temporary to permanent” started as temporary migrants and later became permanent residents in the US. A retired migrant is a person who used to work in the US, but now lives in Mexico and does not move to the US for labor reasons anymore.

**Table 9: Age and Gender Composition of Atolinga**

Age Cohort	Male	Female	Masculinity Index
0 to 4	129	125	1.032
5 to 9	166	166	1.000
10 to 14	205	202	1.014
15 to 19	143	170	0.841
20 to 24	67	107	0.626
25 to 29	69	85	0.811
30 to 34	70	99	0.707
35 to 39	73	106	0.688
40 to 44	66	73	0.904
45 to 49	78	87	0.896
50 to 54	71	72	0.986
55 to 59	62	69	0.898
60 to 64	71	101	0.702
65 to 69	65	69	0.942
70 to 74	46	46	1.000
75 to 79	51	41	1.243
80 to 84	20	27	0.740
85 to 89	14	15	0.933
90 to 94	9	8	1.125
95 to 99	2	4	0.500
Total	1477	1672	0.883

Source: INEGI (accessed 10/15/2004)

At the time of the interviews 17.5% of all migrants in the sample were reported to be temporary migrants; this means that these people move to the US for a limited time span, just to work there. 14.5% had been permanent migrants from the beginning, however, the lion share of 60.2% corresponds to individuals who went to the US as temporary migrants first of all and then, in the course of time, became permanent residents. Therefore at the time of the survey, about 74.7%<sup>45</sup> of all migrants were permanent residents in the US. 7.8% were categorized as retired migrants who had been working in the US either as temporary or as permanent migrants but returned to Mexico to live there. This does not mean that the people have retired from working life, but rather indicates that they do not undertake migration movements anymore. No migrant

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<sup>45</sup> The actual percentage of permanent migrants is the sum of those migrants who were permanent from the beginning (14.5%) and those who started as temporary migrants and later became permanent (60.2%).

was reported to have changed from a permanent pattern towards temporary migration.

**Table 10: Migration Patterns (Question 5.5)**

	N	Percentage
Temporary	224	17.5%
Temporary to Permanent	773	60.2%
Permanent	186	14.5%
Retired	100	7.8%
Total	1283	100.0%

Source: Own survey

The percentage of those migrants (60.2%) who changed from temporary migration to permanent after some time particularly underlines the change in migration patterns that developed from temporary movements to more permanent ones, including longer stays in the US and permanent settling.

Of all the 1293 migrants covered by the survey, 676 (52.7%) were legal or documented migrants, while the number of undocumented migrants reaches 47.3% (607) (question 4.7). With respect to the legal status one might expect a significant difference between permanent and temporary migrants as individuals with legal documents are expected to have a higher propensity of being permanent migrants than undocumented individuals. The result of the survey shows, however, that for both groups more than 70% of all migrants are permanent ones, with only a slight advantage of 76.4% against 70.7% for legal migrants. This fact seems to indicate that legal status is not a decisive factor in the propensity to settle permanently in the US.

**Table 11: Migration Patterns and Legal Status (Questions 5.5 and 4.7)**

	Legal		Undocumented	
	N	Percentage	N	Percentage
Temporary	113	16.7%	111	18.3%
Temporary to Permanent	446	66.0%	327	53.9%
Permanent	84	12.4%	102	16.8%
Retired	33	4.9%	67	11.0%
Total	676	100.0%	607	100.0%

Source: own Survey

After the IRCA was passed in 1986 a huge wave of family reunification was initiated. Many migrants who met the requirements and obtained legal documents in the following years made use of the option to bring their families to the US. Hence one would expect a relative increase in documented migration after IRCA, because the more recent migrants would have had access to legal documents because of their relatives who had already migrated and obtained legal documents. Nevertheless, this is not the case. Table 12 depicts that pre-IRCA migrants (67.7%) are almost twice as likely to be documented as post-IRCA migrants (34.8%). Obviously these migrants had the opportunity to obtain legal documents under the IRCA regulations and accumulated more time in the US to qualify for legal documents.

**Table 12: Legal Status Before and After IRCA (Questions 4.7 and 4.4)**

	Before IRCA		After IRCA	
Documented	426	67.7%	201	34.8%
Undocumented	203	32.3%	377	65.2%
Total	629	100.0%	578	100.0%

(In 76 cases the respondent did not answer when the migrant first left)

Source: Own survey

Regarding the migration patterns, we have shown in table 12 that legal status has no significant influence on whether a migrant settles permanently in the US or just moves temporarily to Mexico's northern neighbor. Therefore, the following result is not surprising. Of those migrants who moved to the US prior to the IRCA, 70.6% are permanent residents, while the percentage of those who undertook their first migration after IRCA reaches 78.6%. Taking into account that in the latter group only 34.8% have legal documents, this fact underlines the observation that the possession or the absence of legal documents has no influence on the decision of whether to settle permanently in the US or not.

**Table 13: Migration Patterns Before and After IRCA (Questions 5.5 and 4.4)**

	Before IRCA		After IRCA	
Temporary	119	18.9%	93	16.1%
Temporary to permanent	375	59.6%	342	59.2%
Permanent	69	11.0%	112	19.4%
Retired	66	10.5%	31	5.4%
Total	629	100%	578	100%

Source: Own survey

25.7% of all migrants are reported to own real estate property in the US. As could be expected, migrants classified as “temporary” own fewer properties in the US than those migrants classified as “permanent”. Only 15% of temporary migrants are reported to own property in the US, while more than 30% of those migrants who live permanently in the US own a house, land, or an apartment in the US (see table 14).

**Table 14: Migration Patterns and Property in the US (Questions 5.5 and 5.12)**

	Property		No property		Total
Temporary	31	15.0%	175	85.0%	206
Permanent	275	30,7%	620	69.3%	895
Retired	1	1.1%	91	98.9%	92
Total	307	25.7%	886	74.3%	1193

Source: Own survey

Another variable that needs to be considered when analyzing migration patterns before and after the IRCA is the average age of the migrants at the time of their first trip north. We observe that the average age at the time of the first trip to the US increased from 20.60 years before the IRCA to 23.13 years after the Simpson-Rodino law was passed. Standard deviation also increases slightly and the maximum age of a migrant at the time of his or her first trip increased from 53 years to 64. These findings indicate that migrants made vast use of the possibility of family reunion given by the IRCA, for the increase in average age and in maximum age seem to reveal that many migrants took advantage of

these changes and brought their parents with them. Migration of minors can be explained by parents taking their children with them, who stay in the US.

**Table 15: Average Age of Migrants at the Time of the First Migration (Questions 4.3 and 4.4)**

	Average	N	Standard Deviation	Lowest Age	Maximum Age
Before IRCA	20.60	608	6.80	1	53
After IRCA	23.12	578	8.14	7	64
Total	21.83	1186	7.58	1	64

Source: Own survey

On average only 17% of the migrants are reported to have their main residency in Mexico. Regarding the place of permanent residence we can observe that older migrants have a higher probability of living in Mexico than younger ones. The percentage of migrants living in the US is highest among the two youngest age cohorts (1- 14 and 15-24) with 84% and 90% respectively and lowest among the oldest age cohort (65-90) with 60%. This fact can be interpreted in two ways: (1) After passing their working age in the US, migrants tend to move back to their home communities. (2) Older migrants went to the US under the regime of the Bracero Program and did not obtain legal documents to stay in the US permanently.

**Table 16: Place of Residence and Age (Questions 4.6 and 4.3)**

Age	Mexico		US		Total	
1-14	8	16.0%	42	84.0%	50	100%
15-24	24	10.2%	212	89.8%	236	100%
25-34	85	16.2%	439	83.8%	524	100%
35-44	59	19.2%	243	80.5%	302	100%
45-54	25	25.0%	75	75.0%	100	100%
55-64	18	32.1%	38	67.9%	56	100%
64-90	6	40.0%	9	60.0%	15	100%
Total	225	17.5%	1058	82.5%	1283	100%

Source: Own survey

Of all migrants covered by the survey the percentage of documented (52.7%) and undocumented (47.3%) does not differ widely. However, with the exemption of the first age cohort, with increasing age we can observe an increasing

percentage of documented migrants. The fact that 80% of the migrants between 1 and 14 years are documented can be explained by the fact that these children were taken to the US by their parents who had already gained legal documents (table 17).

**Table 17: Legal Status and Age (Questions 4.8 and 4.3)**

Age	Documented		Undocumented		Total	
	Count	Percentage	Count	Percentage	Count	Percentage
1-14	40	80.0%	10	20.0%	50	100%
15-24	70	29.7%	166	70.3%	236	100%
25-34	244	46.6%	280	53.4%	524	100%
35-44	193	63.9%	109	36.1%	302	100%
45-54	73	73.0%	27	27.0%	100	100%
55-64	44	78.6%	12	21.4%	56	100%
64-90	12	80.0%	3	20.0%	15	100%
Total	636	52.7%	597	47.3%	1283	100%

Source: Own survey

### 6.4.3 Gender Aspects

In order to assess differences between the migration patterns of male and female migrants we will rely on the following issues:

- share of female migrants before and after IRCA
- differences regarding the length of stay of male and female migrants
- different motivations for migration
- differences regarding the legal status of male and female migrants
- differences regarding the marital status of male and female migrants

The survey carried out by the author gives a total share of 26.6% female migrants. However, before 1990 the extent of female migration was about 20%, and it rose later to 31%. This depicts a clear increase of female migration after 1990.

**Table 18: Female Participation before and after the IRCA  
(Questions 4.2 and 4.4)**

	Before 1990		After 1990		Total	
Male	500*	79.5%	399*	69.0%	942	73.4%
Female	129*	20.5%	179*	31.0%	341	26.6%

\*In the case of 76 migrants the respondent did not remember when the migrant first left

Source: Own survey

After the sharp increase of female migration in the 1990s it is interesting to compare the migration patterns of male and female migration and legal status. The vast majority of female migrants live permanently in the US – 87.1%; on the other hand only 70.2% of all male migrants are reported to have permanently changed their residence to the US. The chi<sup>2</sup> Test shows a significant dependence of sex and migration patterns on a more than 0.001 confidence level.

**Table 19: Migration Patterns and Gender (Questions 4.2 and 5.5)**

	Male		Female	
Temporary	194	20.6%	30	8.8%
Temporary to Permanent	526	55.8%	247	72.4%
Permanent	136	14.4%	50	14.7%
<i>Total Permanent Migrants*</i>	662	70.2%	297	87.1%
Retired	86	9.1%	14	4.1%
Total	942	100.0%	341	100.0%

\* Temporary to Permanent + Permanent

Source: Own survey

These findings are backed by Cornelius/ Marcelli (2000) who state a tendency towards gender convergence and also report an increasing propensity of female migrants to be permanent settlers in the US. Of the migrants that were reported to be permanent, the participation of females is also above average: 31.7% of

the permanent residents are female in comparison to the overall female participation of only 26.6%.

The motives for migration differ significantly between male and female migrants. For male migrants the vast majority of 93.4% is reported to have moved to the US for labor reasons. Only 4.0% migrated because of family reasons and the number of migrants that went to the US for vacation (1.4%) and other motives (1.2%) can be disregarded. In the case of female migrants, labor reasons with 53.6% were the most important cause for leaving the home community, while the percentage of females who moved to the US because of familiar reasons is significantly higher than for male migrants: 39.0% against 4.0%. 4.7% of the female migrants went to the US with the declared intention of a vacation trip and then stayed to work, and 2.7% did so for other motives.

**Table 20: Motives for Migration (Questions 4.2 and 5.4)**

	Male		Female	
Labor	870	93.4%	181	53.6%
Family	37	4.0%	132	39.0%
Vacation	13	1.4%	16	4.7%
Other motives	11	1.2%	9	2.7%
Total	931	100.0%	338	100.0%

Source: On survey

According to the results of the survey, 57.8% of all female migrants possess legal documents to stay and work in the US, while only 50.8% of all male migrants do so (table 21).

**Table 21: Legal Status and Gender (Questions 4.2 and 4.8)**

	Male		Female		Total	
Documented	479	50.8%	197	57.8%	676	52.7%
Undocumented	463	49.2%	144	42.2%	607	47.3%
Total	942	100.0%	341	100.0%	1283	100.0%

Source: Own survey

While only 19.6% of the male migrants are married or live in a permanent partnership, almost 50% of all female migrants are married. The number of divorced individuals can be disregarded for both sexes.

**Table 22: Marital Status and Gender (Questions 5.3 and 4.2)**

	Male		Female	
	Single	755	80.3%	170
Married/ Cohabiting Couples	184	19.6%	167	49.1%
Divorced	1	0.1%	3	0.9%
Total	940	100.0%	340	100.0%

Source: Own survey

Regarding the age composition of the group of female migrants, there is no significant difference between the age cohorts. This indicates that female migration is well established and does not tend to increase (table 23).

**Table 23: Gender and Age (Questions 4.6 and 4.3)**

Age	Male		Female		Total	
	15-24	181	76.7%	55	23.3%	236
25-34	379	72.3%	145	27.7%	524	100%
35-44	228	75.5%	74	24.5%	302	100%
45-54	79	79.0%	21	21.0%	100	100%
55-64	41	73.2%	15	26.8%	56	100%
64-90	10	66.7%	5	33.3%	15	100%

Source: Own survey

#### 6.4.4 Social Networks

The importance of social networks as a representation of the migrants' social capital and therefore representing an important means to promote the migration processes and to channel monetary flows were described in chapter 6. As variables indicating the existence of social networks we included the following questions:

- Did the migrant help any other person to cross the border?
- Does the migrant in the US live close to relatives or friends from the same Mexican village?
- Does the migrant frequently meet relatives or friends from the same Mexican village?
- Do any of the migrants from this household belong to a social club or HTA?

In total, 51.3% of the migrants were reported to have helped another person to cross the border from Mexico to the US and to obtain jobs and housing there. In the US more than three quarters (76.4%) of all migrants live close to relatives and friends with the same Mexican origin and 65.4% meet their countrymen from the same Mexican village on a regular basis.

**Table 24: Social Networks (Questions 5.18, 5.19 and 5.20)**

	Yes		No		Does not know	
	Count	Percentage	Count	Percentage	Count	Percentage
Promotion of any other individual to cross the border	643	51.3%	522	41.7%	88	7.0%
Lives near other family members, extended kin or friends in the US	946	76.4%	227	18.3%	65	5.3%
Gathers frequently with family members, extended kin or friends in the US	779	65.4%	199	16.7%	213	17.9%

Source: Own survey

A study by CONAPO (2000, 146) confirms this data and found that about 80% of the temporary migrants have friends or relatives in the city or area of destination. The percentage of those who received active assistance from family members or friends either to cross the border or to find a job in the US, however, only reaches 63%. 19.8% of the interviewees answered that at least one migrant from the household in question belongs to a social club or HTA (table 25).

**Table 25: Membership in a Social Club or HTA (Question 6.11)**

Don't know	83	18.8%
Yes	87	19.8%
No	270	61.4%
Total	440	100.0%

Source: Own survey

### ***6.5 Comparing Theoretical Approaches and Empirical Evidence of Mexican Migration to the US***

According to the migration theories based on rational choice, the highest migration rates could be expected in the Mexican states with the lowest GDP per capita. Among the five states with the highest migration ratio (Michoacán, Zacatecas, Guanajuato, Morelos, Durango, for further details see table 40) only two (Zacatecas and Michoacán) belong to the five poorest states. Some Mexican states like Guerrero, Oaxaca and Chiapas are even poorer than the core migration states but they have not developed the same levels of outmigration. The poorest state, Chiapas, has a migration ratio below the national average.

The difference in wages between Mexico and the US is a necessary condition, but not enough to explain migration movements. In the case of Mexico the Bracero Program initiated migration movements. Increasing migration from the bracero states led to the formation of growing migration networks. After the IRCA was passed the number of migrants increased, building strong social networks. When NAFTA came into force, the increased penetration of the Mexican economy, especially of agricultural markets, by US produced goods meant a considerable income reduction for many peasants. The increase of wage differentials motivated more people to migrate, taking advantage of the already existing social networks. Current migration movements can be understood as the result of a combination of the influence of migration networks and increasing marginalization of certain groups in Mexico.

The findings presented above underline that migrants from Zacatecas have also developed strong social networks, supporting migration movements and easing the social costs of migration. There is no evidence for increasing migration movements in Zacatecas after the IRCA; however, there is a clear tendency

towards more permanent migration. Due to migration movements, more than half of the municipalities in Zacatecas have a negative population growth. Migration movements are predominantly male and therefore Zacatecas has a masculinity-index of 93%. In some municipalities this figure is below 90%, especially in the age cohorts 15 to 39. After the legalization through the IRCA, the percentage of women among all migrants rose from 20% to 30%. The percentage of permanent migrants is higher among females (87% against 70%).

## **7 The Impact of Remittances on Economic Development in Zacatecas: The Macro Level**

This chapter aims to analyze economic development in Zacatecas from a macro-perspective. It will first provide answers to hypotheses 1 and 2 by analyzing the changes of the economic structure in Zacatecas and the factors that influence development.

Since the economy of Zacatecas is part of the national economy of Mexico and dependent on national economic policies and developments, the first section of this chapter gives a short overview of the economic development and the changes in economic policy in Mexico during the 20<sup>th</sup> century. Section two describes the economy of the state of Zacatecas during the last decade and analyzes whether the state developed a Dutch Disease economy as a consequence of migration and remittances. The third part of this chapter analyzes the determinants of development linking economic development with migration, remittances, foreign direct investment and the share of agriculture in the state's GDP by the estimation of a regression-analysis. The last section sums up and evaluates the findings of this chapter.

### **7.1 Panorama of the Mexican Economy**

This section provides a short overview of economic development in Mexico, with a special focus on disparities between the regions.

#### **7.1.1 Economic Development in Mexico during the 20<sup>th</sup> Century<sup>46</sup>**

After the Mexican Revolution (1910-1917) and the political consolidation thereafter,<sup>47</sup> the Mexican government pursued the economic paradigm of Import Substitution, developed by the CEPAL, for many decades. Economic and social developments differ between these two periods. From 1934 until 1982 the real average economic growth was about 6.1% per annum, leading to increases in

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<sup>46</sup> The following explanations are structured in terms of the presidential *sexenios* (the six year period of government of the Mexican presidency), as policies may change significantly after the elected president takes office.

<sup>47</sup> It took until 1934 to overcome the unstable situation and there were several armed uprisings after the revolution

income and living conditions for large parts of the population. The minimum wage grew constantly during the 30 years from 1947 to 1976 (Calva 2000, 21f). The basis for the “Mexican Miracle” was laid in 1938 by the nationalization of the oil industry during the government of Lázaro Cárdenas (1934-1940) and ended, when – due to the price crash – the export of crude oil could not guarantee the provision with foreign currency any more.

At the end of his government Luis Echeverría (1970-1976) adjusted the exchange rate due to increasing inflation, foreign debt, capital flight and trade deficit. This can be considered the first sign of the end of the import substitution model in 1982, when foreign debt became overwhelming and, due to falling prices for crude oil, Mexico was not able to repay its debts anymore. Newly elected president Miguel de la Madrid (1982-1988) had negotiated debt restructuring and implemented structural adjustment programs to maintain access to international credits in order to avoid a complete breakdown of the Mexican economy as well as of the international banking system. The subsequent politics of austerity mainly involved a cut in governmental spending and a slow liberalization of markets and trade; a first step was to join the GATT (now WTO) in 1986 (Schröder 1992, 29f and 84f). After the crisis of 1982, average growth did not regain the same level as before and declined to an average of 2.23% for the time from 1983 until 1999. The minimum wage fell back to the level of 1962 (Calva 2000, 128). While the percentage of the Mexican population living below the poverty line<sup>48</sup> was reduced from 77% in 1963 to 48.5% in 1981, it grew after changing the economic model and adopting the politics of open markets and free trade to 78% in 1996 (Calva 2000, 130).

The financial sector has passed through a series of turbulences during the last 25 years. As a consequence of the 1982 crisis the financial sector was put under strict political control and banks were nationalized. Money exchange – travelers’ checks and cash – was only allowed in “casas de cambio” (exchange houses). Commercial banks were not allowed to change foreign currencies, in order to stop inflation. In the years 1990 and 1991, during the government of Carlos Salinas de Gortari (1988-1994), banks were privatized again and

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<sup>48</sup> This refers to individuals who are not able to cover the basic necessities of nutrition, health, education, housing, clothing and public transport. The set of necessities was defined by INEGI together with CEPAL (SEDESOL: accessed 04/24/2005).

restrictions were loosened. Nevertheless, after the crisis of 1995 many banks went bankrupt and the state created a governmental fund (the FOBAPROA) to give support to keep the banks working. The cost of rescuing the banking system is estimated at 140 billion US\$. The crisis of the financial sector caused a contraction of credits given to private enterprises. In 1994 total bank loans to the private sector equaled 45% of the GNP; six years later, in 2000, this figure had dropped to 11.6%. While large companies were able to get credits on the international markets (US\$ loans increased by more than 300% during the Zedillo administration, 1994-2000), small and medium sized enterprises were basically cut off from any credit. In 2000 the top 19 banks that existed in 1994 had merged into 8, only 4 of them remaining majority-owned Mexican banks (Cypher 2001)<sup>49</sup>.

### **7.1.2 Regional Disparities in the Mexican Economy**

Metropolitan Mexico City, where public investment is concentrated, generates about 32 % of the GNP, causing regional disequilibria (Curzio Gutiérrez 1995, INEGI accessed 04/24/2005). GNP per capita in the states of Nuevo Leon, Campeche, and Quintana Roo is three to four times higher than the GNP per capita in those states that have the lowest income per capita, such as Chiapas, Oaxaca and Zacatecas (INEGI accessed 04/24/2004, see also table 39 in chapter 8.1.1). Calva (2000, p. 148) describes the economic development as being marked by strong regional disparities, which manifest themselves in

- a marginalization of a large share of Mexico's population
- profound disparities regarding infrastructure, income per capita, social services, education and training
- the excessive concentration of economic activity and population in few urban areas
- political and cultural centralism and the lack of state or municipal sovereignty

The NAFTA treaty only considers of the free circulation of goods, service and investment. It does not include the free movement of labor and there are no programs to foster development in disadvantaged regions.

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<sup>49</sup> In 2001, the Spanish Banco Bilbao Vizcaya purchased Bancomer, the second largest Mexican bank.

Nevertheless, since the 1980s a slight redistribution of GNP between the states can be observed. The central zone (D.F. and Mexico State) has a decreasing share of the national GNP, while the center-north (Guanajuato, Aguascalientes and Querétaro) and the north (Chihuahua, Baja California, Nuevo León, Coahuila and Sonora) show an increasing participation. In the industrial sector, Mexico City alone lost about 9.5% of national production, and the northern region gained exactly this percentage. The Theil-Index, measuring the regional concentration of economic sectors, shows a decrease in all sectors with the exception of agriculture (Arroyo García 2001). This means that all sectors but agriculture were less concentrated in 1999 than in 1980; this can be considered a consequence of NAFTA, and the growing Maquiladora sector, as many industries moved from the center to the northern part of the country. In the case of agriculture NAFTA favors large-scale production; thus in this sector we can observe a slight move towards concentration as many small-scale producers were crowded out.

The highest economic growth rates regarding employment and GNP can be observed in the Maquiladora sector, where foreign companies use the comparatively low wages in Mexico to carry out labor-intensive production. But integration of the Maquiladora sector into the national economy is low. Most primary products and inputs are imported; production is completely exported and free of tariffs. Only about 3% of all input originates from Mexican producers, which is why positive multiplier effects of the Maquiladora sector are limited to the wages paid to the workers. (Calva 2000, 136ff). In fact, employment in traditional, that is, non-Maquiladora industries was reduced by 13.5% between 1981 and 1993, and in 2000 did not reach the level of 1981 (Cypher 2001). Contrary to this tendency, Maquiladora employment in 2000 is almost 10 times higher than in 1981 (INEGI 04/15/2005). This shows a clear tendency towards the “maquiladorization” of the Mexican industry. This means a lack of production chains, innovative clusters and innovative milieu, as there are almost no backward linkages between the Maquiladora industries and the regional economy.

## **7.2 Economic Development in Zacatecas**

This section will analyze the economic development and the economic structure of Zacatecas as well as its position in Mexico's national economy. The following section deals with the position of Zacatecas in Mexico's national economy and its development since 1970. A shift analysis is used to explain these developments, by calculating a structural and a location factor. The second part focuses on the economic structure and its development in Zacatecas during the same period and finally some information is given about the specific location characteristics of Zacatecas.

### **7.2.1 Zacatecas in the Context of Mexico's National Economy**

Zacatecas is among the three poorest states regarding per capita income, reaching only 52% of the national average (for further details see table 39 in chapter 8.1.1). Zacatecas has by far the lowest share of economic active population, as only 37.48% of Zacatecas' people are economically active. Guerrero has the second lowest participation with 43.32% - almost 6% higher than in Zacatecas. The national average lies at 49.33%. Zacatecas ranks 24<sup>th</sup> of 32 states in terms of productivity, reaching 68% of the national average (INEGI accessed 10/15/2004, own calculation). Since 1970 the participation of Zacatecas in national GDP has decreased from 1.02% to 0.75% in 2003. This means a loss of economic weight by 26.5% for the state (INEGI accessed 09/12/2005). The position of Zacatecas in Mexico's national economy will be determined by applying a shift-analysis. The results will also explain the reasons for economic development from 1993 to 2003.

Shift-analysis (Tengeler 1989, p. 53) reveals information about the development of a certain region compared to the national economy. The first step is to calculate the regional factor (RF):

$$[4] \quad RF = S_i^{t_1} : S_i^{t_0}$$

Where:

$S_i^{t_0}$  = Share in the national GDP in Region i at Time  $t_0$ .

$S_i^{t_1}$  = Share in the national GDP in Region i at Time  $t_1$ .

This relation shows whether a regional economy has lost or gained economic weight or importance during the time of observation. A Regional Factor below one, for example, indicates that the region analyzed has lost importance regarding the national economy, while a Regional Factor higher than one means that the region has gained weight and improved its position compared to other regions. However, the Regional Factor only describes the development of a certain region compared to the reference region; it does not provide any analysis regarding the causes of the development observed.

According to shift analysis, the development of a region is determined by its economic structure and by certain characteristics of its location, called structural and location effects. These elements help to analyze the reasons for the economic development during the observation period. A positive development, for example, maybe the result of an elevated share of modern high-tech industries in the region, thus it has a structural advantage compared to regions with an economy dominated by agriculture or industries, that do not have high growth potential. However, the development of a region also depends on locational characteristics, such as infrastructure or the educational level of its inhabitants. Even without the presence of booming industries a region may display a positive economic development due to its advantages in some location characteristics, which favor this particular region above average.

The Regional Factor, that is, regional development, can be explained by the interaction of the Location Factor (LF) and the Structural Factor (SF) in the region under observation. The relation between the three factors is as follows:

$$[5] \quad RF = SF * LF$$

The next step is the calculation of the structural factor. It provides information about the way a region's economy would have developed had all sectors followed the patterns of the national economy.

where:

$S_j^{t_0}$  = Share of sector j in the national economy at time  $t_0$ .

$S_j^{t_1}$  = Share of sector j in the national economy at time  $t_1$ .

$S_{ij}^{t_0}$  = Share of sector j in the economy of region i at time  $t_0$ .

n = number of economic sectors.

$$[6] \quad SF = \sum_{j=1}^n \frac{S_j^{t_1}}{S_j^{t_0}} S_{ij}^{t_0}$$

The location factor then explains the difference between the expected and the observed development of a region. It represents the development that would have occurred had location preferences of the entrepreneurs stayed the same. It is calculated as:

$$[7] \quad LF = \sum_{j=1}^n \frac{S_{ij}^{t_0}}{S_j^{t_0}} S_i^{t_1}$$

where:

$S_j^{t_0}$  = Share of sector j in the national economy at time  $t_0$ .

$S_j^{t_1}$  = Share of sector j in the national economy at time  $t_1$ .

$S_{ij}^{t_0}$  = Share of sector j in the economy of region i at time  $t_0$ .

n = number of economic sectors.

The shift analysis of the time period from 1993 to 2003 for the Mexican Republic gives us the following results:

**Table 26: Results of the Shift Analysis**

	RF	SF	LF	Migrate <sup>50</sup>
Aguascalientes	1.265	0.999	1.266	8.2
Quintana Roo	1.236	1.029	1.190	1.2
Querétaro	1.194	1.003	1.200	6.7
Baja California	1.182	1.013	1.167	2.9
Nuevo León	1.117	1.016	1.099	2.8
Tamaulipas	1.115	0.992	1.124	3.7
Puebla	1.107	0.991	1.117	4.8
Coahuila	1.102	0.996	1.107	4.2
Baja Cal. Sur	1.094	0.998	1.097	1.7
Chihuahua	1.084	0.993	1.092	4.8
Yucatán	1.077	0.999	1.077	1.4
Campeche	1.067	0.983	1.086	1.1
Tlaxcala	1.059	0.987	1.072	3.6
Mexico State	1.048	1.009	1.039	3.5
Colima	1.000	0.993	1.007	7.2
Hidalgo	0.979	0.984	0.994	8.8
D.F.	0.976	1.029	0.949	2.7
Durango	0.969	0.954	1.016	9.1
Sonora	0.966	0.969	0.997	2.0
Chiapas	0.950	0.968	0.981	1.0
Tabasco	0.946	0.994	0.951	0.8
San Luis Potosí	0.938	0.977	0.960	8.7
Guanajuato	0.936	0.987	0.948	12.3
Oaxaca	0.928	0.963	0.964	5.3
Jalisco	0.923	0.992	0.935	8.5
Michoacán	0.906	0.961	0.942	13.4
Morelos	0.900	0.979	0.919	9.1
Veracruz	0.886	0.989	0.896	3.8
<b>Zacatecas</b>	<b>0.869</b>	<b>0.930</b>	<b>0.934</b>	<b>20.5</b>
Nayarit	0.864	0.948	0.911	8.9
Guerrero	0.856	0.995	0.860	7.7
Sinaloa	0.820	0.945	0.960	4.4

During the eleven years from 1993 to 2003 the state of Zacatecas lost 13.1% of its importance in the national economy, in 2003 it had only 86.9% of the weight it had had in 1993. The structural factor indicates that the sectoral composition of the Zacatecan economy is below average, while the location factor shows that also the preferences of entrepreneurs regarding the region are below

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<sup>50</sup> Migrate = migration ratio, the percentage of households with at least one migrant member

average. There are only three states in Mexico that experienced a worse development than Zacatecas and lost a higher share of importance to the national economy: Nayarit, Guerrero and Sinaloa.

Calculating a correlation between the regional factor (RF) and the migration ratio (Migrate) estimates a coefficient of  $-0.411$ . The correlation is significant on a 0.05 level. This indicates that high migration ratios are closely linked to an economic development below average during the last 10 years.

**Table 27: Correlation Between Migration Ratio and the Regional Factor**

	RF	Migrate
Correlation	1	-0.411
Significance		0.019
N	32	32

### 7.2.2 Economic Structure of Zacatecas

To determine whether Zacatecas suffers from the Dutch Disease or is likely to be suffering in the future the development and changes in the economic structure of the state during the time from 1993 to 2002 are analyzed. The share of different economic sectors in the gross domestic product serves as the basis for the calculations following in the next chapter. The economic development in Zacatecas will be compared to the development of other labor-exporting states and also to the national average.

The INEGI distinguishes between eight different economic sectors:

1. Agriculture, forestry and fishery;
2. Mining;
3. Industry;
4. Construction;
5. Electricity, water and gas;
6. Commerce, restaurants and hotels;
7. Transport, storage and communication;
8. Financial services, insurance and real estate;
9. Community, social and personal services.
10. Imputed bank services<sup>51</sup>

The following table 27 shows data about the composition of the regional economy in Zacatecas, Aguascalientes and as a comparison also on the national level. Aguascalientes was chosen as a reference state, because on the one hand it also belongs to the traditional region of migration located in the geographical center of Mexico and has a similar climate. On the other hand – as we will see – Aguascalientes has adopted a completely different development path. In order to expand the analysis and to be able to describe long-run developments table 27 displays not only the time range from 1993 to 2002, but also includes historic data from 1970.

In 1970 Zacatecas and Aguascalientes had a share of agriculture in their GDP (29,80% and 19.25% respectively), which in both cases was above the national average (12.18%). Until 2002 this share dropped to 15.88% in Zacatecas and to 3.37% in Aguascalientes, which ranges now slightly under the national average (3.88%). The share of mining activities in the GDP of Zacatecas has decreased strongly since 1970, from 11.79% to 3.37%, which is almost twice as high as the national average (1.35%). During the same time the share of industrial production in regional GDP in Aguascalientes was boosted from 12.02% to 27.52%, while in Zacatecas the share of industrial production almost stayed the same and only displays a slight increase from 5.11% to 5.87%.

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<sup>51</sup> Imputed bank services include import duties, and any statistical discrepancies noted by national compilers as well as discrepancies arising from rescaling.

Foreign Direct Investment (FDI) plays an important role for economic development. Corresponding the findings of Shatz and Venables (2000) most FDI are realized in the center (D.F. and Mexico State) and the Border States (Nuevo León, Baja California, Chihuahua, Tamaulipas). Regarding the attraction of FDI Zacatecas ranges at place 28 among the 32 Mexican states (table 28).

Only four states received less FDI. Neighboring states like Aguascalientes, Durango, San Luis Potosí, Jalisco and Guanajuato attracted a multiple of FDI, as infrastructure and labor supply is superior in these states.

**Table 28: Share of the Economic Sectors in GDP of Zacatecas, Aguascalientes and the National Average, 1970- 2002**

Sector	Year	Zacatecas			Aguascalientes			National Average		
		1970	1993	2002	1970	1993	2002	1970	1993	2002
Agriculture, Fishing, Forestry		29.80	24.70	15.88	19.25	5.72	3.76	12.18	6.29	3.88
Mining		11.79	3.41	2.37	0.83	0.25	0.09	2.52	1.41	1.35
Industry		5.11	4.63	5.87	12.02	24.28	27.52	23.68	19.04	18.52
Construction		4.46	4.80	8.82	5.62	4.48	4.46	5.29	4.79	5.15
Electricity, Water and Gas;		0.37	1.56	2.09	0.74	1.13	0.97	1.16	1.59	1.49
Commerce, Restaurants, Hotels		18.14	15.96	14.89	33.03	19.69	19.79	25.92	21.78	20.04
Transport, Storage Communication		3.48	6.91	7.67	4.76	12.04	13.88	4.81	9.30	10.68
Financial Services, Insurance, Real Estate		17.75	18.44	15.41	11.64	12.45	9.71	11.30	15.86	13.50
Community, Social and Personal Services		9.67	21.10	27.44	13.11	21.48	20.62	14.35	22.85	26.88
Imputed Bank Services		-0.57	-1.51	-0.42	-1.00	-1.53	-0.80	-1.21	-2.92	-1.48

Source: INEGI (accessed 06/21/2003)

## 29: FDI Received by Mexican States from 1994 to 2004

State	Amount of FDI
D.F.	89742.4
Nuevo León	13828.2
Baja California	8091.4
Chihuahua	6941.2
Mexico State	6759.9
Jalisco	3938.2
Tamaulipas	3937.0
Puebla	2786.7
Sonora	2046.6
Coahuila de Zaragoza	1731.0
Querétaro de Arteaga	1126.8
San Luis Potosí	989.5
Baja California Sur	946.4
Guanajuato	892.1
Quintana Roo	678.3
Morelos	653.5
Aguascalientes	491.2
Yucatán	431.7
Sinaloa	387.0
Veracruz	365.7
Durango	320.3
Nayarit	272.3
Tlaxcala	184.0
Guerrero	177.1
Hidalgo	171.9
Colima	157.4
Michoacán de Ocampo	112.7
Tabasco	109.9
<b>Zacatecas</b>	<b>104.3</b>
Campeche	75.8
Chiapas	15.0
Oaxaca	7.3

Source: INEGI (accessed 07/27/2005)

### 7.2.3 Location Characteristics of Zacatecas

In infrastructure Zacatecas ranges below the national average in all aspects considered. With respect to transport, Zacatecan infrastructure is ranked 24<sup>th</sup> for highways and rank 25<sup>th</sup> for railways. Most of the states that have an even lower provision of highways or railways per square km are northern states like Baja California Sur, Chihuahua, Sonora, Coahuila or Durango, which have a lower population density. Regarding the endowment of telephone lines, Zacatecas only reaches about half of the national average.

**Table 30: Infrastructure of Zacatecas**

Concept	National	Zacatecas	Rank
Highways per km <sup>2</sup> (average)	170.4	136.0	24
Railways per km <sup>2</sup> (average)	10.6	7.7	25
Airports (national and international)	85.0	1	22
Telephone lines per 100 inhabitants	12.7	6.4	28

Source: INEGI (accessed 04/15/2005)

### 7.2.4 Economic Disparities in Zacatecas

This section focuses on the differences regarding living conditions, education and income in both regions studied. Data is provided by INEGI and it is possible to compare both regions (north and south) with both the state and national average as reference points. As data is available for different decades it will also be possible to evaluate changes from 1990 to 2000. Living conditions and education are valid indicators for measuring the different aspects of the impact of remittances on development as migrants generally dedicate significant shares of their remittances into these items (see chapter 8.1 and Knerr, 1994 229ff). Income is used as an indirect indicator; higher income indicates higher economic activity. As economic activities in the selected municipalities depend partially on remittances, the wage-level can be taken as an indicator for assessing the impact of remittances on development.

### 7.2.5 Living Conditions

Living conditions in regions with high migration ratios are influenced by remittances and the migrants' activities in the sending regions. In order to assess the differences between north and south regarding the living conditions as well as the changes from 1990 to 2000, data was taken from the general population survey carried out by INEGI in 1990 and 2000.<sup>52</sup>

To measure the quality of living conditions in both regions, the availability of electricity and drinking water were taken as indicators. We find that there are not many differences regarding the availability of electricity. In 1990 almost 90% of the households in the north had electricity, while the rate was 86.2% in the south. These slight differences were further reduced by the year 2000: 96.48% of the households in the north have electricity and the percentage in the south was only slightly lower: 95.85%. These values do not differ significantly from the state and the national averages.

**Table 31: Housing: Electricity**

	1990	2000	
	Households with electricity	Households with electricity	Increase in %
North	89.69%	96.48%	7.56%
South	86.20%	95.85%	11.20%
Zacatecas	86.62%	95.52%	10.27%
Mexico	87.50%	95.40%	9.02%

Source: INEGI (accessed 08/10/2004)

In 1990 only 37.48% of the households in the north had access to drinking water while in the south the number was 51.74%. However, by 2000 the panorama had changed significantly; in the north the percentage of households with water increased by 123% and reached 83.92%, which is even slightly above the state's average of 83.56%. The south, on the other hand, reports an increase of "only" 48.44%, and 76.81% of all households had access to drinking water in 2000. In 1990 access to drinking water was clearly below the national

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<sup>52</sup> INEGI, 08/10/2004

average, but Zacatecas made significant progress, and by 2000, it was only in the four southern municipalities analyzed that the percentage of households with access to drinking water was still clearly below the national average.

**Table 32: Housing: Drinking Water**

	1990	2000	1990- 2000
	Households with water	Households with water	Increase in %
North	37.48%	83.92%	123.88%
South	51.74%	76.81%	48.44%
Zacatecas	50.29%	83.56%	66.14%
Mexico	77.10%	85.20%	10.51%

Source: INEGI (accessed 08/10/2004)

It is likely that some of these improvements were achieved with the help of community investment programs, such as the "Tres por Uno" (see chapter 8.4). Unfortunately, the data for this period is scarce, so it is not possible to carry out a detailed analysis of the impact of this program on the availability of these services. However, it has to be kept in mind, that also those people who benefit from the provision of electricity or drinking water have to contribute economically to the expenditures. This indicates that the inhabitants of those municipalities that make investments must have certain monetary resources available – it is likely that these stem from migration and remittances.

### **7.2.5.1 Education**

There is only a slight difference between north and south, with a little advantage for the north, in the percentage of the total population that has attended secondary education (that is, they have had more than six years of schooling). However, both regions fall below the state's average. Compared to the national average, Zacatecas has a lower share of inhabitants with secondary education and reaches only 73.61% of the national average.

**Table 33: Secondary Education**

	1990	2000	Increase
North	13.93%	21.07%	51.26%
South	13.43%	21.07%	56.89%
Zacatecas	16.47%	24.57%	49.18%
Mexico	25.95%	33.38%	28.86%

Source: INEGI (accessed 08/10/2004)

In the area of upper secondary education (high school) the panorama is different. The percentage of people with upper secondary education in the north is lower than in the south, which is itself behind the state's average. From 1990 to 2000 the gap between north, south and the state's average decreased slightly. Compared to the national average, Zacatecas attains only 59.05%, which depicts a clear disadvantage.

**Table 34: Upper Secondary Education**

	1990	2000	Increase
North	1.69%	4.54%	168.64%
South	2.11%	4.73%	124.17%
Zacatecas	2.77%	5.45%	96.75%
Mexico	5.05%	9.23%	82.77%

Source: INEGI (accessed 08/10/2004)

These results show that there are no significant differences between the various regions regarding education in Zacatecas, but the state's levels of education are far below the national average.

#### **7.2.5.2 Income**

The level of wages represents an interesting indicator for measuring the development of a region, even though it is not directly connected to migration activities. However, if there is migration-induced growth, it will also influence the wage level of a region. Table 34 displays the percentage of people earning at least twice the minimum wage.

First, an overall increase in wage level can be noted. However, it is remarkable that the wage level in the southern municipalities is not only higher than in the north, but also higher than the state's average. The gap between north and

south has increased. In 1990 the percentage of people earning at least twice the minimum wage in the north was at 56% of the south's level. This difference grew to 62% in 2000. There is a tendency of convergence between the southern region and the rest of the state; however, the north does not participate in this tendency and shows divergent development. Compared to the national average, Zacatecas as a whole, and especially the northern region, has clearly fallen behind.

**Table 35: Level of Income, at Least two Minimal Wages**

	1990	2000	Increase
North	3.99%	6.52%	63.52%
South	6.24%	10.58%	69.51%
Zacatecas	5.10%	9.29%	82.04%
Mexico	9.36%	16.96%	81.20%

Source: INEGI (accessed 08/10/2004)

### ***7.3 The Determinants of Economic Development***

While shift analysis provides information about the economic development of a region compared to other regions and explains this development through the regional and the structural factors of that region, it does not include the impact of migration and remittances on regional development. Carrying out a regression can complement the shift analysis to analyze the reasons for the development observed. The regression models economic development of regional GDP as a function of remittances, migration activities and other variables. This procedure is derived from the full analogue regression model of the shift analysis developed by Patterson (1991). Wolf (2002) also used this method to calculate structural effects and the location effect under consideration of certain variables. The goal of the present analysis is not to find alternative ways of calculating both effects, but to estimate the influence of remittances on regional development.

In this case, the regional GDP will be modeled as a dependent variable of Remittances (REM), Foreign Direct Investment (FDI), the share of agricultural production (AGR), and the migration rate (MIGRATE) in each state.

$$[8] \quad \text{GDPSTATE} = \beta_0 + \beta_1 * \text{REM} + \beta_2 * \text{FDISTATE} + \beta_3 * \text{AGR} + \beta_4 * \text{MIGRATE}$$

The variables mentioned above were chosen as the first two represent the most important source of foreign currency for many states, especially for those that have high migration ratios. Therefore it is fair to assume that both have a significant impact on regional development. The share of agriculture in the states' GDP was included as a variable, as agriculture is the least dynamic sector in the Mexican economy and might have a curbing effect on economic development. Many states with high emigration ratios like Zacatecas and Michoacán still have high shares in agricultural production. Finally the migration ratio was included too as an indirect measure for the loss of workforce and to reflect the fact that high migration activities and the inflow of large amounts of remittances are not significantly correlated.

The data available at INEGI (accessed 09/20/2004) covers the time from 1993 to 2003. Relying on the observation period of 11 years and the 32 Mexican states the calculation is based on a total of 352 observations.

The results are displayed in tables 35 and 36:

**Table 36: Regression: ANOVA**

R	R <sup>2</sup>	F	Level of Significance
0.879	0.773	296.095	0.000

**Table 37: Coefficients**

N = 352	$\beta$ Coefficient	Standard Error	Standardized $\beta$ Coefficient	T	Level of Significance
Constant	1.2E + 10	9.6E + 08		12.633	0.000
FDISTATE	8.486	0.320	0.722	26.547	0.000
REM	20.358	2.024	0.296	10.061	0.000
AGR	-5.5E + 08	1.2E + 08	-0.155	-4.779	0.000
MIGRATE	-4.5E + 08	1.5E + 08	-0.107	-3.085	0.002

With:

*Dependent Variable:*

GDPSTATE = GDP of the 32 Mexican states in US\$, time period 1993 to 2003

*Explanatory Variables:*

FDISTATE = FDI in the 32 Mexican states in US\$, time period 1993 to 2003

REM = Remittances in the Mexican states in US\$, time period 1993 to 2003

AGR = Share of agriculture in the GDP of the 32 Mexican states, time period 1993 to 2003

MIGRATE = Average migration ratio of each state

The regression analysis explains 77.3% of the GDP variation in the Mexican states and is highly significant (higher than a 0.001 level). All of the independent variables are highly significant as well (with the exemption of MIGRATE also higher than a 0.001 level).

The coefficients show that the influence of FDI (FDISTATE) and remittances (REM) on GDP development is positive, while a high share of agriculture in the states' GDP (AGR) and the migration rate (MIGRATE) have a negative effect, slowing down GDP growth. The standardization of the coefficients reveals the extent of influence of the variables on GDP growth. The impact of FDI on economic development is about two and a half times higher than the impact caused by remittances. The extent of the impact of AGR and MIGRATE is less compared to FDISTATE and REM. This indicates, that the main determinants on GDP development are FDISTATE and REM.

The regional factor (RF) calculated in chapter 7.2 can be taken as an indicator for development, thus using the results of chapter 7.2 (table 26) and estimating the correlation between the regional factor (RF) and the migration ratio (MIGRATE) gives us valid information about the link between migration and development. The result of this estimation is a correlation-coefficient of  $-0.411$ ,

which is significant on a 0.05 level. This underlines that high migration ratios are closely linked to an economic development below average during the time of observation.

#### ***7.4 Migration and Economic Development in Zacatecas: a First Evaluation***

The weight of Zacatecas in Mexico's national economy has lost importance continuously since 1970. Economic growth has been far below the national average. Zacatecas is still dominated by sectors that are losing importance on a national basis, such as agriculture and, to a lesser extent, mining. Both economic structure and regional characteristics, such as a weak infrastructure, hinder positive development and range below the national average. Regarding the living conditions of its population, there is no large difference between Zacatecas and the national average; however, the level of education falls clearly behind the national average as well as the level of income.

Zacatecas traditionally specializes in the export of primary products from agriculture and mining, the industrial structure is disarticulated and industrial development is little. In recent years migrants' remittances have gained importance for the regional economy. The emigration patterns of Zacatecan people have changed since the 1980s. In the beginning of the 20<sup>th</sup> century Zacatecas practically "expelled" its migrants: migration movements were definite, people did not return and they lost contact with their communities of origin. At present migrants only leave their home communities for a certain period of time to earn money, send remittances and then return, although in recent years there has again been a tendency towards permanent migration (see chapter 6). As Delgado Wise (1994) states: The Zacatecan economy has specialized in the "production" of migrant workers. Thus the export of labor has become an important source of income for Zacatecas.

In spite of being the center of an important mining region, the city of Zacatecas has not managed to become one of the important production or market places in Mexico. Turning back the results of Weber, we see that production sites usually do not develop near the places where minerals are found (in the case of

Zacatecas: silver, copper, etc.). The optimal<sup>53</sup> location of an industry is near those natural resources that tend to disappear during the production process<sup>54</sup> (Krieger-Boden 1995, p. 10).

Dynamic theories explain the movements of production factors from the region where this factor is abundant to a region where the factor is scarce. This would imply on the one hand a movement of labor from Zacatecas to the rest of Mexico and the US and, on the other hand, the movement of capital from other Mexican states and the US towards Zacatecas. Thus we can observe the movement of labor from Zacatecas to the US and the corresponding flow of foreign direct investment from the US to Mexico (71% of all FDI in 2002 directed towards Mexico originated in the US). These monetary flows, however, are mainly directed towards the capital and the border-states and do not reach Zacatecas. Labor costs all over Mexico are far below US levels and infrastructure and agglomeration benefits can be found in Mexico City as well as in the border-states, but not in Zacatecas.

Policies initiated by various governments to attract industries have failed. This indicates that the institutional part of the infrastructure (i.e. governance) did not satisfy potential investors. Even though Zacatecas in the 1950s had similar factor endowments as the neighboring states of Aguascalientes, San Luis Potosí, Guanajuato and Durango (Martín Ornelas 1993a, 1993b), unlike Zacatecas, these states have managed to increase the share of industrial production in GDP and to attract a multiple of the FDI. Following the theoretical approach presented by Krugman (1989) this development is the result of early investments in economic infrastructure undertaken by some states or regions. Enterprises prefer to invest in regions with good factor endowments, hence, superior infrastructure attracts investment, widening the development gap between the lagging region (in this case Zacatecas) and the others. The booming regions (in this case Aguascalientes and other neighboring states) attain benefits from agglomeration, while Zacatecas is excluded from these developments. Each region adopts a different path of development and once this polarization takes place, development opportunities for the regions differ.

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<sup>53</sup> "Optimal" to achieve maximum economic growth

<sup>54</sup> The classic example is the steel industry, which is located near the coal mines and far away from the locations where the ore is found.

The figures presented in table 37 underline this tendency towards divergence between Zacatecas and Aguascalientes.

Regarding the weight of Zacatecas in the national economy compared to the neighboring state Aguascalientes, it can be observed that development since 1970 has been contrary. Aguascalientes more than doubled its share in the national GDP from 0.56% to 1.24%, while Zacatecas (with more than twice the population of Aguascalientes) has lost importance: from 1.02% down to 0.73%, which equals a loss of 28.43% of its national weight.

**Table 38: Share in National GDP, Development 1970 to 2002<sup>55</sup>**

	Aguascalientes	Zacatecas
1970	0.56	1.02
1993	0.98	0.84
2002	1.24	0.73

Source: INEGI (accessed 06/21/2003)

The diagnosis made by Knerr (1990) for India, Pakistan, Bangladesh, and Sri Lanka also holds for Zacatecas. These countries derived short-term growth effects from the remittance inflow, however, only the non-tradeables sector experiences growth in the remittance economy, while the production of tradeables does not participate in the economic growth induced by remittances. These tendencies are symptoms of Dutch Disease; the dependency of the economy on remittances represents a threat to economic development for the post-migration period.

Taking into account the historic development of the economy in Zacatecas it can be argued that the state has always suffered from Dutch Disease. In fact, its specialization in the export of primary products from agriculture and mining, as well as the export of labor, prevented the development of a self-sustaining economic structure relying on endogenous factors. As these factors are still valid, it is not possible to say whether increased migration movements and the consequent inflow of remittances had an important influence on the production

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<sup>55</sup> Data is available for 1970, 1975, 1980, 1985, and for each year from 1993 onwards.

structure of the state. Following the results of Knerr (1989) and Wahba (1998) it can at least be concluded that migration does not help to reduce the dependency on the export of primary products.

The findings of the shift-analysis are supported by the results of the regression analysis in chapter 7.3, which identifies the determinants for development. This analysis shows that FDI can be considered the most important factor for regional economic development. Zacatecas however, ranks 28<sup>th</sup> of the 32 Mexican states. Remittances also have positive effects on economic development. Regarding remittances as share of GDP Zacatecas, is ranked second just after Michoacán (for further details see chapter 8.1). The migration ratio and the share of agriculture in the state's GDP have negative effects on development. The theories of migration and development explain the negative impact of emigration as the consequence of brain drain and the loss of workforce (the migration harm). With a rate of 20.5%, Zacatecas by far has the highest index; Michoacán, which is ranked second, reaches only 13.4%. Regarding the share of agriculture in the states' GDP, Zacatecas reaches 15.86%, which is the highest share of all the Mexican states. Only five other states reach figures higher than 10 percent: Nayarit (13.60%), Sinaloa (13.54%), Durango (12.83%), Michoacán (11.45%) and Oaxaca (10.11%).

Also, high migration ratios indicate that remittances are distributed among a larger number of households. In Zacatecas the average migrant household receives 4.304 US\$ remittances a year. The lion's share is channeled into consumption, which leaves few resources for investment activities (see also chapter 8). These findings are backed by the correlation that was calculated between the migration ratio and the regional factor, which reveals a significant negative connection between the migration ratio and economic development from 1993 to 2003.

Even though Mexico as a country derives large-scale growth and multiplier effects from the inflow of remittances<sup>56</sup>, peripheral regions like Zacatecas do not necessarily benefit from these developments. Large shares of the remittances

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<sup>56</sup> DURAND et al. (1996a) calculate that in 1990 an estimated 2 billion US\$ remittances created 5.8 billion US\$ additional income. As remittances from Mexican migrants to their families and friends in Mexico reached almost 10 billion US\$ in 2001, we can expect that the current impact of multiplier effects on the Mexican economy is now many times the amount estimated by DURAND et al. for 1990.

are spent outside local and regional markets and more imported (i.e. not locally or regionally produced) goods are consumed. Therefore a large part of the monetary resources is channeled out of the rural areas into urban centers without allowing the local economy at the places of the migrants' origin to benefit (Guidi 1992, Durand/ Arias 1997, Jones 1998b). This is why multiplier effects derived from remittances do not necessarily benefit the sending regions like Zacatecas.

Analyzing economic development in Zacatecas ex-post with the help of the location theories explained in section 2.1, we find that production and important market places did surge in cities like Mexico City, Guadalajara, Monterrey and also in second ranked cities like Aguascalientes and San Luis Potosí. In the past, Zacatecas was not able to use its natural resources, its quantitative or its qualitative labor potential to reach an endogenous development. The economic structure in Zacatecas is monopolistic and the concentration on rent-seeking activities, such as mining, farming and animal husbandry, have prevented the development of a market oriented local economy and a sector of small and medium-sized enterprises (Delgado Wise et al 1994). None of these primary products is processed in the state, which reduces multiplier effects to a minimum.

Zacatecas suffers from the same symptoms that Postlep (1999a) and Canarella (2003) diagnose for the former German Democratic Republic and many other former socialist countries:

- a) a low productivity which in the case of Zacatecas reaches only 68% of the national average
- b) a weak export base: exports concentrate on primary products (minerals, labor)
- c) the lack of production chains and innovative clusters, the few Maquiladora plants and the Corona brewery have hardly any linkages to the regional economy.

Other factors limiting economic development and investment in Zacatecas are its peripheral geographic location and the lack of business climate and culture (Martín Ornelas 1993b). The most important activity still is agriculture, but production focuses on staple food for the national markets. Most farmers are Ejidatarios and work on lots of about 8 ha (INEGI accessed 04/15/2005). They have been unable to modernize their production as yet due to the lack of financing. Thus they are unable to compete with the imports from the US, which flood the country since the NAFTA treaty came into effect in 1994. The mining sector is highly concentrated in certain areas and is maintained by three companies. Because of its high level of advanced technology, mining provides little employment (Guzmán 2001, del Pozo 2001).

Under the current circumstances in Mexico, it is not realistic to expect a tendency towards convergence between the different regions resulting from the reduction of transport costs. Zacatecas has no comparative advantages that might motivate entrepreneurs to invest there. The positive effects induced by remittances are overcompensated by their negative impact of the high share of agriculture in GDP and the emigration harm.

## **8 The Impact of Remittances on Economic Development in Zacatecas: The Micro Level**

As pointed out in chapter 3, remittances play an important role in the link between migration and economic development. The previous chapter has shown that migration and remittances have influenced the economic structure and development in Zacatecas in recent years. Little scientific attention has been paid to the microeconomic decisions of economic agents that form the basis of macro developments described in chapter 7. This chapter focuses on the role of remittances in investment in the sending regions. First, the process of sending and receiving remittances is described, as well as the different uses of remittances, including also a view on regional differences. The next section 8.3 presents the results of the semi-structured interviews with re-migrant investors in Zacatecas and reveals information about the characteristics of migrant investors and the kind of businesses established, which gives valuable insights about the impact of investment activities on regional development. Section 8.4 deals with the two political programs, which were established to increase the share of remittances, dedicated to investments. This section includes the FEAZA, designed to support microeconomic investment, and the “Tres por Uno” program, made to improve the migrants’ participation in community investment.

### ***8.1 Remittance Patterns in Zacatecas***

This section presents evidence from the survey regarding the sending, receiving, and spending of remittances. First, a global panorama of remittances is given, then results from previous studies are presented and compared to the results of the survey carried out in Zacatecas in summer 2001.

### **8.1.1 Amount of Monetary Transfers**

For the year 1990 Martin (1993) estimated a total of 67 billion US\$ remitted worldwide, which made labor “second only to oil in world trade”. In 2000, worldwide remittances were estimated to be about 100 billion US\$ (Nyberg Sørensen et al. 2002). This equals an increase of more than 4% annually.

Remittances may reach important shares of the GDP in some countries, such as Jordan (22%) or Jamaica (12%, see table 38). In Mexico remittances “only” reach a share of about 2.00% of the GDP. In the Mexican states with high emigration, however, remittances represent up to 13% of GDP. Therefore the importance of the migrants’ monetary transfers cannot be denied (Delgado Wise/ Rodríguez Ramírez 2001). Also, the amount of remittances per capita varies between the countries. In 2001 it was highest in Jordan with 371 US\$/year, followed by Jamaica (334 US\$) and El Salvador (301 US\$). In Mexico per capita remittances “only” reach 100 US\$ (see table 38). However, it is the country receiving the highest amount of remittances in absolute terms. Another calculation by Delgado Wise and Rodríguez Ramírez (2005) estimates Mexico to be second behind India. As large shares of remittances are sent through unofficial channels it is difficult to give exact figures regarding the amount of money remitted to each country (García y Griego 1995, Durand et al 1996a). Freund and Spatafora (2005) estimate that between 35- 70% of the official amount of remittances enter the countries via informal ways.

**Table 39: Share of Remittances in GNP, 2001**

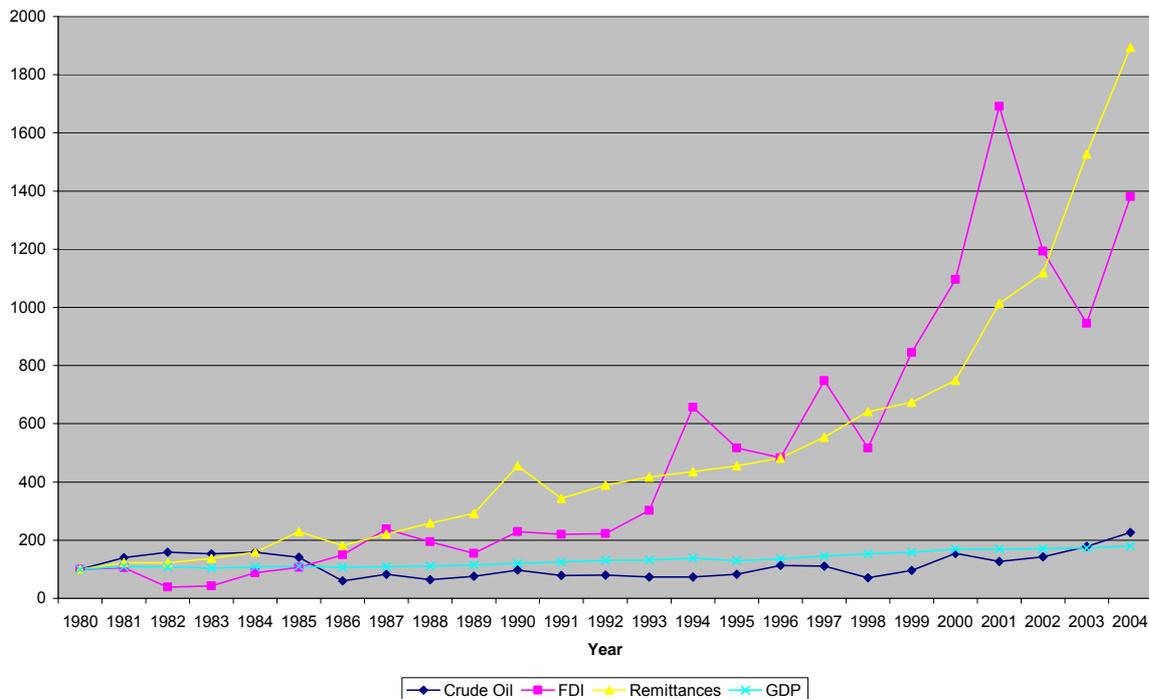
	Country	US\$ (thousands)	% of GDP	US\$ per capita
1.	Mexico	9,920	2%	100
2.	India	9,119	2%	9
3.	Philippines	6,325	8%	84
4.	Morocco	3,234	10%	108
5.	Egypt	2,876	3%	42
6.	Turkey	2,786	1%	42
7.	Bangladesh	2,100	4%	15
8.	Dominican Republic	1,960	10%	233
9.	El Salvador	1,899	14%	301
10.	Jordan	1,818	22%	371
11.	Colombia	1,576	2%	37
12.	Pakistan	1,458	2%	10
13.	Ecuador	1,414	10%	112
14.	Yemen	1,277	15%	70
15.	Thailand	1,252	1%	20
16.	Sri Lanka	1,122	7%	59
17.	Brazil	1,105	0%	6
18.	Indonesia	1,046	1%	5
19.	Tunisia	906	5%	95
20.	Jamaica	868	12%	334

Source: Stalker (2003)

For Mexico, the US dominates as the source of remittances. Canada, which is second, accounts for less than 3% of the total amount (López Castro/ Zendejas Romero 1995). Figure 7 shows the performance of migrants' remittances since 1980 from the US to Mexico compared to FDI, the revenues from the export of crude oil and the development of GDP (the values of 1980 are standardized at 100). The amount increased from 1.2 billion US\$ in 1980 to almost 10 billion US\$ by 2002. This equals an average increase of almost 10% annually. This is significantly higher than Mexico's GDP growth, which had been stagnating during the 1980s and grew by an average of about 3.3% during the 1990s. (Banco de México accessed 10/20/2005). Since the 1980s, remittances have become the second most important net source of foreign exchange for Mexico, just after the export of crude oil (Delgado Wise/ Rodríguez Ramírez 2001). By 2004, the amount of remittances reached a new peak of 13 billion US\$. Remittance transfers not only represent an important source of foreign exchange for the country on a macro level, but also very significant shares of

income for many households on a micro level, which might be used either for consumption or productive investment (Lowell et al. 2000).

**Figure 7: Increase of FDI, Remittances, Revenues from Oil, and GDP:  
1980- 2004**



Source: Banco de México (visited 11/20/2005), INEGI (visited 11/09/2005)

There is a strong tendency to underestimate the amount of money transferred, as a high percentage of remittances is not channeled through the official banking system, but brought to Mexico by returning or visiting migrants. This money can only be very roughly estimated (Durand et al 1996a, Freund and Spatafora 2005), which is why this research relies exclusively on official data provided by the bank of Mexico.

Table 39 shows the distribution of remittances throughout the Mexican Republic. Remittances constitute a high share of the GDP in some states, which in the case of Michoacán they reach even higher than 10% (Zacatecas is ranked second with a share of 6.34%). While in the national average remittances represent 1.61% of GDP, in industrialized states such as Nuevo Leon, Chihuahua and Campeche they only reach 0.24% and 0.27% of the state's GDP respectively.

Additionally, the share of remittances captured by each state and the remittances per capita vary widely. Just two states, Michoacán and Jalisco, which host 10.6% of the population, receive more than 25% of the monetary transfers sent to Mexico. The average remittances received per capita vary between US\$ 343 in Michoacán and only US\$ 15 in Tabasco, while the national average is US\$ 96 per capita and year (table 39).

The migration ratio<sup>57</sup> also differs largely between the states. While in Zacatecas more than 20% of all households have at least one family member who is an active migrant (that means lives in the US or travels to the US to work there temporarily), in Tabasco this ratio only reaches 0.8% (table 39).

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<sup>57</sup> Definition by CONAPO: Percentage of households that have at least one migrant member in the total number of households.

**Table 40: Remittances and GDP in Mexican States, Ranked by Remittances as Share of GDP (2001)**

	Rem. as share of GDP	Share of rem. (rank)	Rem. per capita (US\$)	Migration ratio	Rem. per household (US\$)	GDP per capita (US\$)
Michoacán	10.74	14.66 (01)	343	13.4	11,495	3,196
Zacatecas	6.34	2.91 (11)	201	20.5	4,304	3,162
Guerrero	5.22	5.71 (05)	173	7.7	10,262	3,314
Guanajuato	4.99	9.73 (03)	195	12.3	7,454	3,902
Oaxaca	4.83	4.61 (08)	125	5.3	10,632	2,588
Colima	4.45	0.75 (27)	254	7.2	7,575	5,717
Nayarit	4.29	1.53 (19)	155	8.9	7,194	3,616
Hidalgo	3.55	2.86 (12)	119	8.8	6,026	3,365
Morelos	3.45	3.12 (10)	187	9.1	8,769	5,431
Aguascalientes	3.05	2.31 (15)	228	8.2	12,626	7,495
Jalisco	2.77	11.25 (02)	166	8.5	8,569	5,998
San Luis Potosí	2.74	2.81 (13)	114	8.7	5,967	4,163
Durango	2.38	1.86 (16)	120	9.1	5,786	5,034
Tlaxcala	2.36	0.82 (24)	79	3.6	10,446	3,361
Puebla	2.28	5.43 (07)	100	4.8	9,874	4,380
Sinaloa	2.12	2.49 (14)	91	4.4	9,011	4,323
Querétaro	1.70	1.82 (17)	121	6.7	8,173	7,112
<b>National Average</b>	<b>1.61</b>	<b>100</b>	<b>96</b>	<b>5.3</b>	<b>7,905.6</b>	<b>5,931</b>
Veracruz	1.61	3.98 (09)	54	3.8	5,974	3,339
Chiapas	1.29	1.57 (18)	31	1.0	18,125	2,438
Mexico State	0.96	6.03 (04)	43	3.5	5,642	4,483
Coahuila	0.85	1.32 (22)	64	4.2	5,312	7,472
Tamaulipas	0.72	1.36 (21)	46	3.7	4,971	6,430
Sonora	0.46	0.78 (26)	33	2.0	6,792	7,105
D.F.	0.41	5.69 (06)	62	2.7	9,018	15,145
Tabasco	0.41	0.32 (29)	15	0.8	8,789	3,806
Yucatán	0.40	0.36 (28)	20	1.4	6,190	5,039
Baja California	0.38	0.82 (24)	31	2.9	4,644	8,159
Baja Cal. Sur	0.31	0.11 (32)	24	1.7	5,641	7,923
Quintana Roo	0.30	0.29 (30)	31	1.2	10,415	10,152
Campeche	0.27	0.20 (31)	27	1.1	10,569	9,885
Chihuahua	0.27	1.48 (20)	23	4.8	3,866	8,407
Nuevo León	0.24	1.03 (23)	25	2.8	3,749	10,527

Source: own calculation with data from INEGI (accessed 04/15/2005), CONAPO (accessed 04/15/2005), Merlos/ Márquez Covarrubias (2005)

Another interesting figure is the amount of remittances received by each household. Not all households that report one or more family members being migrants receive remittances; on the other hand it is not very probable that households that did not report to have migrant family members receive remittances on a regular basis. Therefore as a rough estimation it is assumed that the amount of remittances directed to a specific state is distributed evenly among the households that reported having migrant family members. The

highest amount of remittances per household was calculated for Chiapas, a state that reports only a few migrant households. On the contrary, Zacatecas, the state with the highest migration ratio ranges among those states that receive the least US\$ per household. The state with the lowest amount of remittances received by the migrant households is Nuevo Leon. A factor not taken into consideration in this calculation is the average number of household members and the average number of migrants per household (both are considerably higher in Chiapas than in Nuevo Leon). The amount of remittances compared to the average GDP of the states gives information about their relative weight compared to income without migration. According to the national average, each migrant household receives an amount that is about 33% higher than the GDP per capita. In Chiapas this ratio is 7.4 times higher. The amount of money received by the households also indicates the possibility of saving money out of the remittances for future investment. A household that receives an amount of 4.000 or 6.000 US\$ would not be able to dedicate large shares to productive means in the way that a household that receives more than 10.000 US\$ could.

### **8.1.2 Sending and Receiving Monetary Transfers**

Two issues have strained the process of sending remittances. First, the high charges for wiring money from the US to Mexican villages, and second, the arbitrary holdups of returning migrants by the Mexican police.

The lion share of remittances sent to Mexico does not flow through the banking system, but through international courier agencies such as Western Union and Money Gram, which offer "Dinero en Minutos" (money in minutes), that is, the immediate transfer from the US to any of their branch offices. Many migrants depend on these services for two reasons: undocumented migrants do not have access to commercial banks and therefore have to turn to one of these agencies; and these institutions are a good alternative to the poor network of banks in Mexico. In many villages and towns there are no branches of Banamex or Bancomer, but you can always find a little office which works together with Western Union or Money Gram. While the official fee charged in the US for sending an amount of US\$ 300 lies between US\$ 10 or 12, the real charges are

higher, because the offices in Mexico hand over the money with a less favorable exchange rate.

In some peripheral communities alternative systems of transferring money were developed; for example, most inhabitants of Quila El Grande, Jalisco do not have access to the Mexican banking system. A prominent member of that community with a bank account in Guadalajara installed a fax in his house and now migrants in the US transfer their money to this account. After that they send a copy to Quila, so the owner of the fax can hand out the amount transferred in Quila. This system works faster and charges are less expensive than the official money orders (Lanly/ Hamann 2004).

The second problem was the growing abuse by Mexican police officers of the judicial police. Barricades originally installed to prevent drug and weapon smuggling were abused by police officers to trouble migrants on their way from the US to their home communities in central Mexico. Migrants travel in their cars, fully-loaded with gifts for their families (TVs, VCRs, etc.) and huge amounts of cash. Officers would only let them pass if they agreed to pay a certain amount of money or leave behind one of the gifts carried. As complaints grew in the mid 1990s, the Mexican federal government initiated the "Programa Paisano" (countrymen program) in order to make the journey safer. When crossing the border towards Mexico, migrants were informed of their rights and asked to report any violation of those rights in the newly installed offices of the Programa Paisano (Programa Paisano 1999).

As most migrants originate from the five traditional states of outmigration in central Mexico (Guanajuato, Jalisco, Zacatecas, Durango, and Michoacán), remittances are not distributed equally all over the country but rather concentrate in this region. Furthermore, the migration ratios of the municipalities inside these states differ widely. This indicates that the response towards economic pressures is different in each region and as a consequence, the impact of migration and remittances is not the same. The total amount of money sent by migrants is not spread out equally over the whole country or inside each

state, but rather a large proportion reaches only certain regions: 13<sup>58</sup> of the 32 Mexican states receive approximately 65% of all remittances.

The traditional states of outmigration concentrate 47% of the remittances while only covering 23% of the national population and 18% of national GDP. The northern border states receive only 9% of national remittances and produce 26% of national GDP while hosting 20% of the population. The center region gets about 25% of the transfers, with a share of 40% of national GDP and 33% of the population. The south receives 17% of the total remittances, produces 14% of national GDP and hosts 23% of the population (CONAPO accessed 03/23/2004, INEGI accessed 07/28/2005).

**Table 41: Distribution of Remittances in Mexico**

Region	Share of population	Share in GDP	Share in Remittances
Traditional Region <sup>59</sup>	23.06	18.03	47.81
North <sup>60</sup>	20.11	26.58	9.39
Center <sup>61</sup>	33.79	40.81	25.77
South <sup>62</sup>	23.04	14.55	17.04

Source: CONAPO (accessed 03/23/2004), INEGI (accessed 07/28/2005)

About 5.3% of all Mexican households receive remittances, which represent a average 65.4% of the monetary income of these households. Nearly 10% of rural households receive remittances. This quota is almost three times higher than in urban households (3.8%) (Castro/ Tuirán 2000). However, as migration movements are concentrated in certain regions, remittances also concentrate in these regions. In the states with high emigration (Zacatecas, Michoacán, San Luis Potosí, Guanajuato) more than 9% of all households receive remittances,

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<sup>58</sup> Michoacán, D.F., Estado de Mexico, Jalisco, Guanajuato, Guerrero, Zacatecas, Chihuahua, Baja California, Sonora, Sinaloa, San Luis Potosí, Durango

<sup>59</sup> Aguascalientes, Colima, Durango, Guanajuato, Jalisco, Michoacán, Nayarit, San Luis Potosí, Zacatecas

<sup>60</sup> Baja California, Baja California Sur, Coahuila, Chihuahua, Nuevo León, Sinaloa, Sonora, Tamaulipas

<sup>61</sup> D.F., Hidalgo, México, Morelos, Puebla, Querétaro, Tlaxcala

<sup>62</sup> Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz, Yucatán

often<sup>63</sup> representing the only source of income (Delgado Wise/ Rodríguez Ramírez 2005).

Although not forming a homogeneous group, households receiving remittances from international migratory activities can be distinguished from the average households in Mexico by a number of variables. In one out of four households that receive remittances, the household head is absent, while this figure reaches only 1.5% for those households which do not receive monetary transfers from migrant household members. This indicates that in many cases the person who sends the money is the household head. About 70% of the people who receive remittances are women, in most cases the spouses of the migrant household member. The masculinity index in households that do not receive remittances is about the national average (96 male members for 100 females), while in those households who receive remittances the index is 75. This underlines the fact that migration movements are highly selective for males. The number of household members who are not of a working age (this means under 12 and over 65 years old) set in relation to those who are of a working age is considerably higher in households that receive remittances (67% against 50%). This relation of economic dependency reflects the fact that the percentage of people who are not economically active is higher in households that receive remittances than in those that do not benefit from monetary transfers by migrants. For every 100 economically active household members in the first group there are 108 inactive members, while the latter group has only 75 inactive members (Castro/ Tuirán 2000).

### **8.1.3 The Propensity to Remit**

At the end of the 1990s the state of Zacatecas received more than 500 million US\$ remittances p.a. (Moctezuma 1999). As explained in section 3.2 remittances play a crucial role in the migration-development link. Important issues are the amount of money remitted and the use given to the monetary transfers. The importance of remittances for family income and the participation in community investment with the help of remittances can also be considered an

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<sup>63</sup> Zacatecas: 50.0%; Guanajuato: 60.2%; Michoacán: 52.3%; San Luis Potosí: 34.4%

indicator of existing social networks. We tried to capture the migrants' behavior regarding remittances through the following questions:

- Does the migrant send remittances?
- Do sending patterns differ between male and female migrants?
- Do remittances mean a significant change for the household members' living conditions?
- Has the amount changed?
- Is there a correlation between migration patterns and the sending of remittances?
- Is there an influence of legal and marital status, age and the ownership of any real estate property in the US?<sup>64</sup>

Surveys by the Mexican Migration Project have revealed that 47% of the migrants both remit and save money, 22% only send remittances, 13% only save money, and 18% do neither. This means that 82% of the migrants provide their families in Mexico with some kind of financial support. The probability of remitting is significantly higher when migrants originate from economically prosperous regions (Durand et al. 1996b). In our sample 75.1% (964) of all migrants are reported as sending remittances in any of the forms mentioned above (question 6.1). Regarding the importance of remittances, 65.9% of the interviewees answered that the remittances formed an important part of the household's income and meant an important change in the living conditions of the family (question 6.7)<sup>65</sup>.

The changing patterns of migration described in chapter 6 also influence the amount of money remitted. More and more migrants find their home in the US and thus loosen their emotional ties with their sending region. As a consequence, the amount of money remitted is decreasing. Although Mexicans who are permanent residents have higher incomes, this group remits less money, as they have to support their families in the US. On a macroeconomic level this downward movement is still compensated by the growing number of migrants (Lozano 1997, Santibañez 1999). In the future, however, the total amount might decrease, with negative results for the sending regions. As

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<sup>64</sup> Answered by a correlation between remittance sending and the variables marital status, age and ownership

<sup>65</sup> It is necessary to point out that "important" represents the qualitative valuation by the interviewee.

female migrants have a lower propensity to remit, their increasing share (see chapter 8.1.3) will also lead to a reduction of monetary transfers.

More than half (63.0%) of the migrants in the sample remit approximately the same amount of money per year during the years reported. Only 5.6% of the migrants are reported to have increased their amount of remittances. On the other hand, 24.4% of the respondents declared that the amount of money decreased, while 7.1% mentioned that the migrant had sent remittances before but stopped sending. In total this makes about 31.5% of all migrants who reduced the remittances sent back home to Mexico (table 41).

**Table 42: Changes in the Amount of Money remitted during the Time of Migration (Question 6.2)**

	N	Percentage
Did send money, but stopped	68	7.1%
Decreased	235	24.4%
About the same	607	63.0%
Increased	54	5.6%
Total	964	100.0%

Source: Own survey

The reduced amount of money remitted supports the assumption that the migrants' social ties to their family and home communities tend to decrease after some time. To go further into that matter, the potential relationship between the change of sending patterns and migration patterns was examined. 20.9% of the temporary migrants either stopped sending remittances or reduced the amount, while for those migrants who changed from temporary migration to permanent migration this percentage is 36.2%. The survey reports that sending patterns for migrants who went to the US permanently includes a percentage of 29.9% who either stopped sending or reduced the amount (table 42). The  $\chi^2$ -Test shows a significant dependence of remittance patterns on migration patterns at a level of significance which is higher than 0.001. Corresponding with the findings of Cornelius/ Marcelli (2000) and Durand et al. (2001), this indicates that permanent migrants have a significantly higher propensity to reduce their remittances than temporary ones.

**Table 43: Remittance-Sending and Migration Patterns  
(Questions 6.2 and 5.5)**

	Migration Patterns							
	Temporary		Temporary to permanent		Permanent		Retired	
Did send money, but stopped	17	10.8%	32	5.4%	12	9.0%	7	8.6%
Decreased	16	10.1%	182	30.8%	28	20.9%	9	11.1%
About the same	116	73.4%	343	58.0%	85	63.4%	63	77.8%
Increased	9	5.7%	34	5.8%	9	6.7%	2	2.5%
Total	158	100.0%	591	100%	134	100.0%	81	100.0%

Source: Own survey

The percentage of male migrants that send remittances reaches 81.3%, while only 58.1% of the female migrants do so. The  $\chi^2$ -Test shows a difference between the sending patterns of male and female migrants at a level of significance, which is higher than 0.001 (Table 43).

**Table 44: Gender and Remittances (Questions 4.2 and 6.1)**

	Does send remittances		Does not send remittances	
	Male	766	81.3%	176
Female	198	58.1%	143	41.9%

Source: Own survey

This difference can be explained by the different motives for migration; while 87.1% of the migrants who went to the US for labor reasons are reported to send remittances only 58.0% of those migrants who went there for family reasons do so. Section 6.4.3 depicted that the share of female migrants who went to the US for family reasons (39.0%) is significantly higher than the share of male migrants (4.0%) (see also CONAPO: 2000, p. 149). As was shown in chapter 6.4.3, more than 80% of the male migrants and about half of female migrants are single. These findings raise the question as to whether marital status has a significant influence on remittance sending. The following table shows the influence of marital status on remittance sending. While 73.9% of the

single migrants send (or did send) remittances, 75.5% of those who have a partner do so. It seems that marital status does not influence the sending of remittances (table 44).

**Table 45: Marital Status and Remittances (Questions 5.3 and 6.1)**

	Single		Married/ cohabiting couples		Separated	
Does send Remittances	224	73.9%	726	75.5%	13	86.7%
Does not send Remittances	79	26.1%	236	24.5%	2	13.3%

Source: Own survey

Migrants with legal documents and real estate property in the US are supposed to have fewer links to their home communities and therefore send less remittances (Moctezuma 1999). However, neither legal status nor the ownership of real estate property in the US significantly influences the propensity to remit (see table 45).

**Table 46: Legal Status, Property in the US and Remittances (Questions 4.8, 5.12 and 6.1)**

	Documented		Undocumented	
Does send Remittances	502	74.3%	462	76.1%
Does not send Remittances	174	25.7%	145	23.9%
	Owns Property		Does not Own Property	
Does send Remittances	229	74.6%	676	75.9%
Does not send Remittances	78	25.4%	210	23.7%

Source: Own survey

In order to assess the influence of age on remittance sending, we take the age cohorts presented in chapter 6 and compare them regarding the sending of monetary transfers. The results show that there are no significant differences, except for the last two cohorts, which were clearly below the average. This might be explained by the fact that the share of retired individuals in these age cohorts, who returned to Mexico and currently do not send remittances, is higher than among younger ones.

**Table 47: Age and Remittance-Sending (Questions 6.1 and 4.3)**

Age	Sends Remittances		Does not send Remittances		Total	
15-24	173	73.3%	63	26.7%	236	100%
25-34	415	79.2%	109	20.8%	524	100%
35-44	235	77.8%	67	22.2%	302	100%
45-54	76	76.0%	24	24.0%	100	100%
55-64	36	64.3%	20	35.7%	56	100%
64-90	10	66.3%	5	33.3%	15	100%

Source: Own survey

#### **8.1.4 Spending Patterns and Impact on Entrepreneurial Activities**

Economic development in the sending regions is more likely if the share of remittances dedicated to investments is high. The probability of productive investment increases with the availability of productive resources in Mexico, such as education, family members' ability to work, land tenure, private housing or an already existing business. Another reason for investing transfer payments is well-remunerated and secure employment in the US (Durand et al. 1996b), which enables the migrant to make plans for the future and does not imply the need for immediate consumption of the gained resources. The survey tries to assess the impact of remittances on development through the following questions:

- Which is the main use of the monetary transfers?
- Who decides on the use of the money received?
- Investments realized with the help of remittances?
- How does migration influence the entrepreneurial activities of the household?

Analyzing the relation between migration, remittances and economic development, the focus must be on the amount, and on the use of remittances. The economic development of a region depends to a great extent on spending patterns, because investment of the money remitted has other implications than consumption; and the consumption of regionally produced goods has a different impact on regional development than the consumption of goods imported from other regions. One of the first empirical studies regarding how migrants and their families use the money sent from the US was carried out in the years 1978 and 1979 by the Mexican government. Mexican officials surveyed national households and returning migrants at the northern border. According to the NEFNEU<sup>66</sup>, 70.4% of the remittances were channeled to basic consumption, 8.6% used for improved housing and 7.3% are dedicated to productive investment. The EMIF<sup>67</sup> study conducted by the “Colegio de la Frontera Norte” from 1993 to 1997 at 10 ports of entry, interviewing migrants moving in both directions, found that 78.5% of the remittances were used for basic consumption, 16.5% for housing and 1.7% for productive investment. A survey by the Mexican Migration Project covering 22 communities in four states (Jalisco, Guanajuato, Michoacán and Nayarit) indicates that 6.5% of the money remitted is channeled into productive investment, while 48% is used for family maintenance<sup>68</sup> (Durand et al., 1996b). Interviewing 721 households in 9 villages of Zacatecas during 1998, Moctezuma and Rodriguez Ramírez found out that 94% of the remittances received were spent on consumption (food, medicine, housing) and only 3.0% channeled into investment (Rodriguez Ramírez 1999). In our survey the interviewees were asked about the most important use of remittances in their household. Similar to the other studies, the lion share of the money remitted was found to be dedicated to family subsistence (66.4%). The second most important issue is health, as 12.7% of the respondents stated. By far smaller shares of the remittances are channeled into savings (6.1%), housing (5.3%), productive means (5.5%), and education (2.4%) (table 47).

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<sup>66</sup> ENEFNEU = Encuesta Nacional de Emigración a la Frontera Norte del País y a los Estados Unidos = National survey on the emigration towards the northern border and the US; 1978/79

<sup>67</sup> EMIF = Encuesta sobre Migración en la Frontera Norte de México = Survey on migration at Mexico's northern border, 1993- 1997

<sup>68</sup> Rest: 10% housing, 14% unknown, 14% not fitting any category

As explained in chapter 3, the concept of investment includes issues as savings (as they can be used for productive investment later) and investment in real estate (as it influences future possibilities of production). Education (as it improves the expected wages), health (as it improves the individuals' abilities) and investment in community support systems (as they improve the economic infrastructure) also have implications on the possibilities of production in the region. Summing up the percentages for productive investment (5.6%), education (2.4%), health (12.7%), savings (6.1%) and real estate (5.3%) the panorama looks different. From this perspective 32.1% of the amount transferred to Mexico is used for investment purposes.

**Table 48: Most Important Use of Remittances<sup>69</sup> (Question 6.5)**

	<b>Zacatecas 2001</b>	Moctezuma/ Rodríguez Ramírez	Massey/ Parrado	EMIF	ENEFNEU
Family Subsistence	<b>66.4%</b>	94.0%	52.6%	78.5%	70.4%
Housing	<b>5.3%</b>		10.2%	16.6%	8.6%
Health	<b>12.7%</b>		2.5%	*	*
Savings	<b>6.1%</b>	*	1.6%	*	*
Education	<b>2.4%</b>	*	*	*	*
Productive Investment <sup>70</sup>	<b>5.6%</b>	3.0%	4.9%	1.7%	7.3%
Others	<b>1.4%</b>	3.0%	28.2%	3.3%	13.7%
Total	<b>100%</b>	100%	100%	100%	100%

Source: Moctezuma/ Rodríguez Ramírez (1999), Massey/ Parrado (1994), CONAPO (2000, for EMIF and ENEFNEU)

\* Category not included in this survey.

As mentioned in chapter 8.1.2, 65.9% of all households report that remittances have meant an important improvement regarding living conditions. Out of these households 34.1% realized some kind of productive investment (business, inputs for agriculture, livestock, land, etc.), while only 15.7% of the households that consider remittances to be unimportant report some kind of investment

<sup>69</sup> The percentages of the Zacatecas survey add up to more than 100% as the respondents could choose more than one item.

<sup>70</sup> "Productive" is understood as investment in the means of production, including machinery, any kind of inputs, livestock, the purchase, extension or establishment of a business.

activity. This indicates that investment is more likely if remittances form an important part of the household's income.

**Table 49: Investment and Importance of Remittances (Question 6.1)**

	No investment		Any kind of investment		Responding households	
	N	%	N	%	N	%
Remittances are important	228	65.9%	118	34.1%	346	100%
Remittances are not important	118	84.3%	22	15.7%	140	100%

Source: Own survey

Regarding the decision-making process as to how to use the money received from the US, we found that only in 7.7% of all cases does the migrant decide on his own how to use the money. In the majority of the cases the person who stayed in charge of the house has the power to decide about the use (51.1%) and in almost 40% of the cases the migrant and the household head make the decision (table 49). This indicates that remittances are mainly used according to the needs of the household. As most of the heads of household in families with migrants abroad are women – namely the wife of the migrant – this fact also demonstrates the changing gender relations and the empowerment of women. On the other side, female household heads often do not have experiences with investment, a fact that might reduce the share of remittances dedicated to productive means (Waller Meyers 2000).

**Table 50: Who Decides about the Use? (Question 6.8)**

Individual or group that decides	N	%
The migrant	33	7.7%
The one who is in charge of the house	218	51.1%
Both	170	39.8%
Both and others	3	0.7%
Depends on the use	1	0.2%
Other	2	0.5%
Total	427	100.0%
Missing (no answer)	56	

Source: Own survey

Using data from the Mexican Migration Project, Massey and Parrado (1998) found that 2% of all migrants in their sample established a small business, and 21% of all businesses in the region surveyed were established with the help of US earnings. Compared to rural migrants, the odds of business formation were significantly higher for skilled urban migrants. Most business activities can be classified as retail (49%) or wholesale (13%), while manufacturing only reaches about 15%, and no businesses were initiated in the agricultural sector. These findings show that investment in rural communities and the agricultural sector is low. Most migrants however originate from rural communities and are more likely to invest in expanding or supporting already existing agricultural activities rather than founding a new business. Massey and Parrado, however, do not include these investment activities in already existing farms or businesses. Another shortcoming in the Massey and Parrado study is revealed by the fact, that many return-migrants reported to have started their current business without any “billetes verdes” (greenbacks = US\$), even if they had used US earnings to start their initial entrepreneurial activities in Mexico.

Juan Barraza<sup>71</sup>, for example, who now owns a supermarket, a warehouse, and a lodge in Sain Alto, reports that he started these businesses without savings from his time as a migrant in California. However, Juan Barraza has been involved in several business activities since his return from Los Angeles in 1985, and it turns out that he started his first business (the cultivation of chili) with US\$ he had saved working in a supermarket in the US.

140 (28%) of the 486 households covered by the survey answered that they had carried out some kind of productive investment with the help of remittances during the last 5 years. Considering that only 5.4% of all households named investment as the most important use of remittances this indicates that the percentage of households that undertakes investment with the help of remittances is higher; however, in most cases investment is not the most important use.

32 or 7% of the interviewees report that remittances were used to establish or expand a business in the areas of commerce or service during the last five years. The percentage of households which purchased agricultural inputs such

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<sup>71</sup> Interview 07/24/2001, Sain Alto

as a tractor, a plow, fertilizers or herbicides is higher and reaches 12.3% (56 households). 11.9% (54 households) report having purchased some kind of livestock (cattle, sheep, goats, etc.) and 14.1% (64 households) report having bought land – either for stock-breeding, farming or construction. 1.5% report to having carried out some other kind of productive investment not covered by the items above.

As a total of 213 investment projects are reported, it is obvious that some households carried out more than one project during the last 5 years. On the other hand, 97 investment activities are reported which were realized without the help of remittances, adding up to a total of 310 productive investments realized by the 140 households. The share of investments made using money sent by family members from the US is 68.7% (213 projects). This shows that, at least for households receiving remittances, these monetary transfers play an important role when realizing investment activities.

**Table 51: Productive Investment Using Remittances  
(Questions 7.1 to 7.5)**

<b>Sector of investment</b>	<b>With or without remittances</b>	<b>N</b>	<b>Percentage</b>
Business (commerce/ service)	Using remittances	32	7.0%
	Without remittances	47	10.3%
	No	376	82.6%
Any input for agriculture	Using remittances	56	12.3%
	Without remittances	12	2.6%
	No	386	85.0%
Any kind of livestock	Using remittances	54	11.9%
	Without remittances	16	3.5%
	No	385	84.6%
Land for cultivation	Using remittances	64	14.1%
	Without remittances	10	2.2%
	No	380	83.7%
Any other Investment	Using remittances	7	1.5%
	Without remittances	12	2.6%
	No	435	95.8%

Source: Own survey

Of all the 213 investment activities realized with the support of remittances, only 15% (32 projects) were aimed at business activities – either service or commerce. 26% (56 projects) were dedicated to purchasing input for agriculture

and in 25% (54 projects) of the cases the money sent from the US was used to buy livestock. Of the remaining 33% (71 projects), the lion's share of 30% (64 projects) included the purchase of land, independently of the final use. Therefore we cannot be sure about the percentage of land dedicated to productive use, such as farming or livestock or for building a house or just as a financial asset.

While 37.1% of the households surveyed do not realize any entrepreneurial activity, the rest is engaged in farming, livestock production or other kinds of businesses. Regarding the impact of the emigration of one or more family members to the US, 33.5% of the households report that entrepreneurial activities were not affected.

A high number of the households (132 = 29.4%), however, reports that their entrepreneurial activities have suffered from emigration movements. In 25.9% of the cases emigration had negative effects on the cultivation of land, in 8.3% of the cases the number of cattle decreased due to emigration and 5.1% of the households report that migration and the loss of family labor had negative effects on their business activities<sup>72</sup>. On the other hand, the number of households reporting positive impacts of emigration on entrepreneurial activities is very low. Only 0.7% of the households report improvements regarding the cultivation of land, 0.4% report an increase of the number of cattle and another 0.9% state that the business runs better after the migrants left.

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<sup>72</sup> These percentages sum up to more than 29.4%; however, some households reported that migration affected more than one area of entrepreneurial activity.

**Table 52: Influence of Migration on Previously Existing Entrepreneurial Activities (Questions 5.13 to 5.17)**

<b>Evolution of activities</b>	<b>N</b>	<b>Percentage</b>
No entrepreneurial activity in this household	166	37.1%
Cultivation of land decreased	116	25.9%
The number of cattle decreased	37	8.3%
Business was affected negatively	23	5.1%
Cultivation of land improved	3	0.7%
The number of cattle increased	2	0.4%
Business improved	4	0.9%
Nothing changed	150	33.5%

Source: Own survey<sup>73</sup>

### **8.1.5 Participation in Community Investment Activities**

As explained above, collective or community investment represents an option for regional development and can also be considered a manifestation of the existing solidarity and social ties between the migrants' families and between the migrant communities and their places of origin. In the survey we asked the following questions to assess the propensity of migrants to participate in collective actions to improve living conditions or solve problems in their hometowns:

- Did the migrants of this family collect money to solve a problem once or more often?
- Of which kind?
- Do you know if any of the migrants in this family supported a HTA economically in order to carry out any community or productive investment?

Four out of five households (389 of 486) report that migrants from this family have participated in some kind of collective incentive to improve the living conditions of their hometowns, to help with a family problem, or to carry out productive investment together with other family members or friends (question 6.9). Of the households that participated in collective action, 24.1% collected money to help with a family problem, 7.6% took part in community investment activities to improve the living conditions and infrastructure of their hometowns, and the majority of the 65.3% of those households reported that migrants took

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<sup>73</sup> The sum is more than 100%, as some households report to be affected in more than one area.

part in collective investment both to solve a family problem and to realize community investment. Only 2.9% of those migrants who collected money participated in projects of productive investment (Table 52).

**Table 53: Categories of Collective Investment (Question 6.10)**

	N	Percentage
Family problems	94	24.1%
Social or community investment	30	7.6%
Productive investment	11	2.9%
Family problem and social/ community investment	254	65.3%
Total of households participating in collective investments	389	100.0%

Source: Own survey

Regarding the participation in collective investment by HTAs, 21.7% of the households report that at least one migrant from this household took part in an investment project initiated and organized by an HTA (table 53).

**Table 54: Participation in HTA Community Investment (Question 6.12)**

	N	Percentage
Don't know	149	30.7%
Yes	86	17.7%
No	251	51.6%
Total	486	100.0%

Source: Own survey

The results of this section show that a majority of the migrants is willing and able to participate in collective investment to solve family problems and to improve living conditions in their home communities.

## 8.2 Regional Disparities in Zacatecas

This section analyzes the sub-regional differences between north and south using data collected in the survey. The first part deals with migration patterns, legal status, the existence of social networks, remittance patterns and the investment activities of migrants, return-migrants or their families. The data necessary to describe these patterns is drawn from the survey. These three sections describe the differences regarding the selected variables that occur inside the same state under the same political regime.

### 8.2.1 Migration Patterns

In this section the attention is focused on the average number of migrants per household surveyed, the migrants' place of residence, the migrants' sex, the ownership of any real estate property in the US, and the frequency of return.

Table 54 shows that the average number of migrants per household in the south (3.16) is significantly higher than in the north (2.09). This fact represents a contrast to the average household size in both regions, which lies at 4.5 individuals in the north and 4.1 in the south. In both regions similar shares of migrants are reported to have their residence in Mexico (18.8% in the north, 16.4% in the south).

**Table 55: Household Size (Questions 4.9 and 4.1)**

Municipality	Households interviewed	Migrants	Av. number of migrants per household	Av. household size (residents in Mexico)
Sain Alto	69	149	2.16	4.8
Río Grande	106	195	1.84	4.5
Sombrerete	62	152	2.25	4.5
<b>Sum:</b>	<b>237</b>	<b>496</b>	<b>2.09</b>	<b>4.5</b>
Huanusco	49	144	2.94	4.2
Juchipila	47	142	3.02	3.8
Tlaltenango	93	252	2.71	4.3
Atolinga	60	249	4.14	3.6
<b>Total:</b>	<b>249</b>	<b>787</b>	<b>3.16</b>	<b>4.1</b>

Source: own calculation with data from INEGI (accessed 12/07/2004), own survey

Regarding migration patterns, the southern municipalities display a higher share of temporal migrants than the northern ones (23.0% against 8.7%). The share of permanent migrants, then, is higher in the north than in the south (17.9% against 12.3%). Applying the U-test according to Mann and Whitney, these differences are highly significant with a probability of error lower than 0.001.

**Table 56 Regional Differences Regarding Migration Patterns (Questions 2.2 and 5.5)**

	North		South	
Temporary	43	8.7%	181	23.0%
Temporary to Permanent	298	60.1%	475	60.4%
Permanent	89	17.9%	97	12.3%
Retired	66	13.3%	34	4.3%
Total	496	100.0%	787	100.0%

Source: Own survey

It was not possible to find any significant differences regarding the migrants' sex and the year of the first migration. In the north, 21.4% of all migrants are female, while in the south this figure reaches 29.9% (question 4.2). In the north the average migrant undertook his first trip to the US in 1989; in the south it was 1988 (question 4.4). One important indicator for the change in migration patterns is the ownership of real estate property in the US. Only someone who plans to stay in the US for a longer period will buy a house, an apartment or any property there. In the three northern municipalities, 20% of all migrants are reported to own property in the US, while in the Canyons this figure reaches 26.4% (question 5.12). This difference, however, is not significant. Migrants from the three northern municipalities have a slightly higher propensity to own legal papers than migrants from the south: 55.8% against 50.7%.

**Table 57: Legal Status (Question 4.8)**

	North		South	
With documents	277	55.8%	399	50.7%
Without documents	219	44.2%	388	49.3%
Total	496	100.0%	787	100.0%

Source: Own survey

Another important variable to measure migration patterns is the frequency of return. Table 57 does not give a clear answer concerning the differences in the frequency of return. Therefore, the median of the survey data was collected. The result is 3.264 for the north and 2.816 for the south, which indicates a higher frequency of return for the south. In the south 37.2% of all migrants tend to return at least once a year, in the north this share reaches 28.3%.

**Table 58: Frequency of Return (Question 5.10)**

	North		South	
More than once a year	32	6.5%	56	7.1%
Once a year	108	21.8%	237	30.1%
Every two years or less	122	25.6%	300	38.1%
Has never returned	234	47.2%	194	24.7%
Total	496	100.0%	787	100.0%

Source: Own survey

Migration patterns show a significant difference between the two regions: migration patterns tend to be more permanent in the north than in the south. The higher percentage of documented migrants and the lower frequency of return in the north support this fact. However, the higher percentage of migrants from the south that own property in the US indicates the opposite.

### **8.2.2 Social Networks**

In this section attention is drawn to the existence and the strength of social ties between the community of origin and the migrants' destination in the US. To assess the strength of social networks and transnational communities we focus on the variables of family members or friends living close to the migrant in the US, and ask if he or she meets them regularly. Whether the migrant has

motivated or helped any other member of the community in Mexico to cross the border northbound and whether the migrant belongs to a social club (Home Town Association, HTA) in the US is also considered.

In the northern municipalities 85.6% of all migrants live near other family members or close friends of the same community and 74.4% do meet with their paisanos (countrymen) on regular basis. In the southern municipalities only 70.4% of the migrants live near family members or friends and only 59.7% are reported to meet them regularly (questions 5.19 and 5.20). Nevertheless, only 44.7% of the migrants in north have motivated or helped another person to cross the border, while this figure reaches 55.6% in the south (question 5.18). Regarding the membership in a social club we observe significant differences between the two regions: 14.5% of the northern migrants are reported to belong to a HTA and in the south only 1.9% do so (question 6.11).

These results seem to be contradictory. The migrants from the northern municipalities seem to be closer to their families and friends, while migrants from the canyons seem to be more engaged in actively supporting other persons to migrate. Migrants from the municipalities of Río Grande, Sombrerete and Sain Alto, however, seem to have a higher degree of organization.

### **8.2.3 Remittances and Investment**

The share of migrants who send remittances to support their families and friends differs significantly between the two regions. In the north 85.7% of all migrants covered by the survey are reported to send remittances, while in the south this figure only reaches 68.5%. This difference is also reflected by the fact that in the north 74.7% consider remittances to represent a substantial improvement in living conditions, while in the south only 67.9% think so. Of those migrants who send remittances to the northern municipalities, 46.7% stopped sending remittances or reduced the amount of money sent; in the southern ones, the corresponding figure is similar: 47.3% (see table 58).

**Table 59: Changes in the Amount of Money Remitted (Question 6.2)**

	North	South	Average
Did send but stopped	17.9%	35.5%	28.7%
Decreased	28.8%	11.8%	18.4%
About the same	50.4%	47.5%	48.6%
Increased	2.8%	5.2%	4.3%
Total	100.0%	100.0%	100.0%

Source: Own survey

Regarding the use of remittances, the most significant differences between north and south are the shares used for investment and savings. In the north 10.63% of the remittances are used as savings and only 1.59% is dedicated to productive investment. In the south the relation is vice versa: only 2.86% of the remittances received are dedicated to savings and 8.39% are used for investment purposes.

**Table 60: Main Use of Remittances (Question 6.5)**

	North	South	Average
Family subsistence	67.28%	65.83%	66.44%
Housing	4.78%	5.72%	5.33%
Savings	10.63%	2.86%	6.11%
Education	1.59%	3.05%	2.44%
Productive investment	1.59%	8.39%	5.55%
Health	13.82%	11.83%	12.66%
Others	0.26%	2.29%	1.44%

Source: Own survey

The expenditure for education reaches 1.59% in the north and 3.05% in the south. However, this variation does not cause significant difference in the education levels (see chapter 7.2.4.2).

Table 60 shows the impact of the loss of labor force through emigration movements to the US on entrepreneurial activity in the home communities. In the north 13.8% of the households do not realize any entrepreneurial activity; in the south this figure is 55.2%.

Of the households that realize entrepreneurial activities in the north, 53.7% report a negative impact of emigration, while in the south only 30.1% do so. In

the south, 3.6% even consider that moving to the US contributed positively to entrepreneurial activities. In the north 46.3% of the households that carry out entrepreneurial activities report that migration did not affect these activities; in the south this figure reaches 66.1%.

**Table 61: Impact of Migration on Entrepreneurial Activity  
(Questions 5.13 to 5.17)**

	North	South
No entrepreneurial activity realized	13.8%	55.2%
<b>Households with entrepreneurial activities</b>	<b>86.2%</b>	<b>44.8%</b>
Total	100.0%	100.0%
<i>Out of the households with entrepreneurial activities</i>		
Farming was affected negatively	38.5%	16.5%
Animal husbandry was affected negatively	9.7%	10.5%
Business was affected negatively	5.5%	3.1%
Farming was affected positively	0.0%	0.9%
Animal husbandry was affected positively	0.0%	0.7%
Business was affected positively	0.0%	2.0%
Nothing changed	46.6%	66.1%
Total	100.0%	100.0%

Source: Own survey

An important share of the migrants' investment is realized through community investment, for example, the projects promoted by the "Tres por Uno" program (Márquez Covarrubias 2005). In the north 14.3% of the households reported that at least one migrant did participate in community investment; however only 1.9% did so in the south.

### **8.3 Investors' Experiences in Zacatecas**

Self-employment or employment in small businesses is considered to be the best way to stop international migration in the affected areas and implies self-supported and sustainable economic development. Independent economic development is most likely when investments play an important role in the use of remittances and create employment opportunities (Escobar Latapí/ Martínez Castellanos 1991, Durand et al. 1996a/ 1996b, Nyberg Sörensen 2002).

The foundation of a small-scale business by a re-migrant alone does not secure a sustainable regional economic development. Usually many people in the region receive remittances, hence it is likely that the success of the enterprise highly depends on the amount of remittances received by the other members of the town. Therefore, a new business does not necessarily reduce the dependence on the monetary transfers by the migrants and does not contribute to a self-sustaining economic development. On the other hand, from the viewpoint of regional economics it does not matter whether a migrant or a non-migrant establishes the business. A non-migrant taking advantage of the increased purchasing power of the people receiving remittances contributes to development as well as a migrant doing the same. Possibly the investment of a migrant has even less impact, as he returns to his home community and, as a consequence, the amount of remittances reaching the region decreases.

To analyze the impact of investments made by migrants on regional development semi-structured interviews were carried out among return-migrants and family members who have invested a part of their US\$ earnings or the remittances received in a small or medium-sized enterprise in their community of origin. Interviews were held with 44 migrant investors and two non-migrants, who invested money sent by their relatives. Questions were asked about the personal migration history (first migration, destinations, and duration of the stays, kind of work done), and how the decision to return and to invest was made. Another set of questions covers the obstacles and problems the investor was confronted with (for further details see annex II). The author is aware that the sample of investors is not representative, as successful entrepreneurs are more likely to be willing to answer questions than unsuccessful ones.

### **8.3.1 Destinations**

As could be expected from previous studies (see chapter 6), the most important destination of the migrants was California (61.4%), including the most attractive destination Los Angeles, which alone accounts for 22.7%. Second is Texas, which was mentioned eight times, closely followed by Illinois (7). In the latter state, however, all but one of the migrants moved to Chicago, which makes this city the destination of 13.6% of the migrants interviewed and thus second as a single destination, after Los Angeles. Only two migrants stayed exclusively in

Chicago, the others had been in California before moving to Chicago, or in two cases vice versa. Number four is the state of Colorado, which accounts for five or 11.4% of the migrants, next is Florida with only two migrants (4.5%). Eight other states only served as a destination for one migrant (table 61).

Movements between California and Chicago seem to be very common, indicating an intense communication between the migrant communities in both locations and thus strong social networks between California and Chicago. Another migration network can be identified by the fact that all migrants but one who went to the state of Colorado were from the municipality of Chalchihuites.

**Table 62: The Migrants' Destinations**

Location	N	Percentage <sup>74</sup>
California	27	61.4%
Los Angeles	10	22.7%
Texas	8	18.2%
Illinois	7	15.9%
Chicago	6	13.6%
Colorado	5	11.4%
Florida	2	4.5%
Other states <sup>75</sup>	8	18.2%

Source: Semi-structured Interviews

### 8.3.2 Migration Patterns

43% of the individuals interviewed already had legal papers at the time of migration and thus were able to move and work in the US without any problems. In all of these cases the father of the interviewee had already worked in the US as a bracero and had obtained legal documents for himself and his sons. One of the return-migrants was even born in the US and returned to Mexico with his migrant wife, who comes from the town of Vicente Guerrero, Durango.

The remaining 57% of the migrants crossed Mexico's northern border without legal documents, however, of these another 20% managed to obtain legal

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<sup>74</sup> The percentages add up to more than 100%, as many migrants report more than one destination.

<sup>75</sup> Mississippi, Michigan, New York, Oklahoma, Idaho, Oregon, Montana, Arizona.

documents, in less than three years on average. Only 37% of the migrant investors in Mexico remained undocumented during their whole stay in the US.

The year of the first migration varies between 1944 and 1993. The first migrants crossed the border still under the regime of the “Programa Bracero”. The duration of the migratory stays varies between two and 25 years. At the time of the first migration 32 (72.7%) of the 44 interviewees were around 17 years old. 38 (86%) of the interviewees reported to have moved back and forth between Mexico and the US several times, 5 (11.3%) still have their main residency in the US.

### **8.3.3 Education**

More than 50% of the migrants had only primary education, five had a high school diploma from Mexico (Preparatoria), three had a US high school diploma, and four had a college education. The age of the migrant seems to play an important role in this issue. While elder migrants had usually only spent a few years at primary school, the younger ones have spent more years in education. All of those who finished high school and three of the four migrants who went to college crossed the border after 1986, when the IRCA became effective.

Migrant parents of children who are still of a school age expect their children to finish at least secondary education (Secundaria) if not high school (Preparatoria). This indicates a high awareness of the migrants of the importance of education.

### **8.3.4 The Migrants' Occupation in the US**

The migrant's occupation in the US is considered to be an important factor for his or her investment activities after returning to Mexico, for skills and abilities acquired in the US might be decisive for a successful investment. We obtained information from the 44 return-migrants regarding their occupation during their migratory stays. Twelve – or 27% – of them worked in more than one area. The other migrants always worked in the same sector; however, in many cases not in the same company.

More than one third of the migrants worked in the industrial sector, and of these, again, a third in meat packing. 18 or 40% of the migrants worked in the agricultural sector, 19 (43%) in industrial production, 9 (20%) in the construction

sector and 9 in the service sector. Only 1 (2%) was occupied in commerce (table 62).

**Table 63: The Migrant's Occupation**

<b>Occupation</b>	<b>N</b>	<b>Percentage</b>
Industry	19	43.2%
Here: Meat Packing	6	13.6%
Agriculture	18	40.1%
Construction	9	20.5%
Service	9	20,5%
Commerce	1	2.3%

Source: Semi-structured Interviews

The vast majority of more than four fifths of the migrants had unskilled blue-collar jobs; only three of those migrants who had been working in the industrial sector did not work directly on the production line, but had administrative positions. All of these three white-collar workers had college degrees from Mexico; only one of the migrants with college education did not get a corresponding job in the US.

Social networks also play an important role in the migrants' occupation. All migrants who worked in the landscaping sector were from Juchipila. More than half of the migrants said that they first came to see a family member or friend, who received them in his house and helped them to get a job, often in the same company where the family member or friend was already working.

### 8.3.5 Types of Businesses Established

Most of the return-migrants did not have detailed plans for their return to Mexico. After the return to their home communities they waited for some time until they found an investment opportunity. Many migrants invested in other entrepreneurial activities before opening their current business.

The types of businesses established range from mobile stalls selling juice and fruit cocktails, hardware shops to a Maquiladora and a factory that produces steel tubes, with 50 employees each. Most businesses were started in the commercial sector. There are few examples of investment in industrial production or agriculture. In total about 190 jobs were generated through the investment of remittances. However, 52.6% of these jobs were created by the two enterprises mentioned above.

Some migrants own more than one business; the 46 investors interviewed reported having invested in a total of 67 projects. Three of the businesses were started by non-migrants with the help of remittances sent by migrant sons or brothers.<sup>76</sup> Three migrants even reported owning businesses on both sides of the border: one migrant from Juchipila owns a travel agency, which has offices in Juchipila and also in Los Angeles; another migrant from Juchipila runs a gardening business in Los Angeles; a migrant from Valparaíso reported renting some apartments in Chicago and owning a business that renovates apartments and houses. Finally, one migrant said he owned a gardening business in the Los Angeles area, but had left the business to return to Mexico. A special case is “Transportes Mares” a travel and transport agency, which is based in San Antonio, Texas, but operates in Río Grande, Zacatecas. The other migrants, however, are fully established in Zacatecas and only travel to the US to visit their family. All but two investors returned to their villages of origin: the owner of a clothes-shop in Valparaíso is originally from Tlaltenango; a couple who runs a tortillería in Sain Alto, the woman being a native of Vicente Guerrero, Durango, while her husband was born in Los Angeles, California.

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<sup>76</sup> A hardware shop in Valparaíso, a pizza restaurant in Jerez, and a mobile stall selling fruit cocktails in Río Grande.

Even though most interviewees state they are of “campesino” (smallholder) origin, only 14.9% of the return-migrants invested their savings and remittances in agriculture. Even less investment (6.0%) is reported in the industrial sector. More than a fifth of all investments were made in the service sector and the lion’s share of 52% was realized in the area of commerce, including retail and wholesale (table 63). The findings of this sample are thus consistent with those of Massey and Parrado (1998).

**Table 64: Business Investment by Return-Migrants in Zacatecas**

<b>Sector</b>	<b>Number</b>	<b>Percentage</b>
Agriculture	10	14.9%
Industry/production	4	6.0%
Commerce	35	52.2%
Food stores	10	14.9%
Hardware shops	7	10.4%
Clothes/shoes	5	7.5%
Agricultural input	4	6.0%
Automotive parts	3	4.5%
Other commerce	6	9.0%
Service	15	22.4%
Restaurants	8	11.9%
Hotels	3	4.5%
Gas stations	2	3.0%
Other services	2	3.0%
Other	3	4.5%
<b>Total</b>	<b>67</b>	<b>100.0%</b>

Source: Semi-structured Interviews

Investment in agriculture includes the building of irrigation systems, the drilling of wells, windmills to pump water, the planting of peach trees and sometimes the additional purchase of seeds, fertilizers, herbicides or land. In six of the ten cases the investment only consisted of the purchase of agricultural inputs. In most cases the investments served to improve the already existing agricultural production of the migrants’ families. There were no jobs created in agriculture because family members do the work.

Although investments in production only account for 6% of the total number of investments realized, these projects generated most employment and the most visible impact on regional development. *Tubos de Jalpa* ('Pipes of Jalpa'), for example, has 30 employees in Jalpa and another 20 in Calera, delivering their steel pipes as far as Chihuahua and Durango. A Maquiladora in Jerez producing special clothing for hospitals employs about 50 people, serving the US market. One migrant works as a stonemason in Atolinga employing only one assistant. The fourth investment in non-agricultural production is a metal processing plant near Jerez, which now only employs three people, but in the past had up to 30 employees. This plant has clients throughout in the whole Mexican Republic.

With the exception of the stonemason, no other industry serves the regional markets or purchases its intermediate products in the region. As already noted in chapter 7.2 the few existing industries in Zacatecas are not integrated into the regional economic structure, there are no production chains. One attempt to establish production chains and to further process agricultural products was frustrated at the beginning of the 1990s in Los Haro, a village in the municipality of Jerez. This region is famous for the production of peaches and the World Bank gave a credit to establish a processing plant for peaches, to which all producers were supposed to bring their harvest. The plan was to prevent the local producers – most of them temporary migrants – from being “victims” of the special market conditions they are facing, to increase local added value and to create some job opportunities. But this plant never really started working because of internal quarrels between the local producers (Nichols 2000).

Restaurants usually employ family members and only two or three waiters. The gas station employs between five and eight unskilled laborers. Two of the hotels established with the help of remittances are of minor size; only the hotel in Jerez meets international standards and employs about 10 people.

The investments in commerce account for more than 50% of all investment projects including hardware shops, supermarkets, “tiendas de abarrotes” (food stores), shops selling cloths and shoes to satisfy the local demand in these basic areas. “Bodegas” (warehouses) do not only sell agricultural inputs like seeds, fertilizers and herbicides, but also purchase the staples produced by

small farmers. The shops selling automotive parts serve businesses as well as individuals.

In the cases where migrants' children are no longer in education, none work in the business established. Most of them (as well as brothers and sisters of the investors) work and live in the US. The investments do not allow for the maintenance of the whole family, but only the migrant and his wife and cannot substitute migration movements.

### **8.3.6 Skill Transfer**

The transfer of know-how and technology from the USA into rural areas in Mexico has not been important in the past. Most of the migrants are employed in low-skilled jobs and do not acquire knowledge which can be used productively. Zahniser and Greenwood (1998) state a trade-off between education in Mexico and work experience in the US for returning migrants: "The returns to US experience are about twice as high as the returns to twelve years of Mexican schooling"; this is certainly a powerful incentive for migrating. This, however, requires that returning migrants find adequate jobs in Mexico, which is unlikely in rural communities. Hence migrants stay in the US or move to urban areas in Mexico, but they do not carry out any investment in their rural community of origin (Zahniser/ Greenwood 1998).

An interesting case of technology transfer has occurred in the municipality of Jerez. Through their social networks migrants from Jerez mainly went to Napa, Ca., to work on grape and peach plantations. The first peach trees were planted in Jerez around 1968 and since then the region has developed into one of the largest peach producers in Mexico. The lack of capital, however, has prevented the modernization of agriculture and thus migration movements could not be stopped. As a consequence of various years of drought, the surface covered with peach plantations was considerably reduced. In 1978 there were 1.790 ha dedicated to the production of peaches; in 1993 the peak was reached with 13.000 ha, a figure which declined drastically till 2000, with only 5.500 ha of peaches in the municipality (Nichols: 2000).

In Napa Valley migrants from Jerez have got used to working with advanced technology regarding irrigation systems, fertilizers, and herbicides. Although all four peach farmers interviewed in Los Haro are familiar with these technologies,

only one of them applied advanced irrigation systems. With respect to the latter there are few examples of technology transfer. As many migrants work in agriculture in the US, they become familiar with technological innovations and sometimes take them to Mexico to improve the productivity of their land by introducing new irrigation systems, fertilizers, herbicides or seeds (Nichols 2000).

In contrast to the assumptions made by Domingues Dos Santos and Postel-Vinay (2003), in the sample of 44 re-migrant investors there were few examples of technology transfer. Those migrants who worked in restaurants in the US did not open restaurants in Mexico, and those who opened restaurants in Mexico did not work in this sector in the US. They did not make use of the skills acquired while working in the US.

Most of the investors, however, answered that they had learned to work hard in the US. Employers in the US ask for 100% dedication to the job, which is not the case in Mexico, where, for example, showing up late for work is not immediately punished. In only one case the migrant received training in business administration in the US that helped him to establish himself after returning, and in the case of the Maquiladora, the owner had worked in the same branch in the US and then applied his acquired knowledge to establish his garment production endeavor in Jerez<sup>77</sup>.

Even though most migrants who realized investment activities in Mexico performed low-skilled work in the US and did not acquire formal skills that enable them to run a business, they become successful entrepreneurs in Mexico. When asked about the most important thing they had learned in the US most of the migrants replied “to work for real”. As employers in the US require punctuality, dedication to the job, and compliance, migrants need to adjust their “Mexican work attitude” to North American standards. The interviewees agreed that this quality has been decisive for their success as entrepreneurs in Mexico<sup>78</sup>.

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<sup>77</sup> Interview with Laura Pineda (05/23/2000)

<sup>78</sup> Interviews with Antonio Javier Campos (01/28/2000), Hernán Mercado Lara (01/31/2000), Armando Gonzales (04/08/2000)

### 8.3.7 Problems Perceived by Investors

Some investors complained about local authorities not being able or willing to support Mexican investors, while foreigners get lots of incentives, such as free training of employees, reduced prices for land, and exceptions from taxes for the first few years. Also official channels at the tax office are not clearly defined and people get the impression that officers there even try to hinder the investment process. In fact, only one<sup>79</sup> of 46 investors received some kind of governmental support. Most of the investors are not familiar with the existing programs designed to support investment activities in Zacatecas. This finding is also supported by data from our survey: only 16.8% of the households reported to have knowledge of at least one of the more than 20 programs to foster investment in Zacatecas. The best-known program is the “Tres Por Uno”, which targets community investment. Furthermore, the procedures which have to be followed in order to obtain some support appear to be very complicated and the impression prevails, according to five investors, that the bureaucrats sometimes hinder the investment process instead of supporting it<sup>80</sup>.

When asked about obstacles they faced with investment all those with employees complained about the high wages in the region. While the official minimum wage is about 30 Pesos (3,2 US\$) a day, almost no one is willing to work for less than 120 Pesos (12,75 US\$). This is a result of the absence of large shares of the male population between the age of 17 and 36. Because of easy access of the North American labor market and a huge remittance inflow many people are not willing to work a whole day for the equivalent of 3 US\$.

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<sup>79</sup> This person wrote a letter directly to president Carlos Salinas de Gortari and received two credits from NAFIN (Nacional Financiera = National Financing Institution) with low interest rates.

<sup>80</sup> Interviews with Antonio Javier Campos (01/28/2000), Hernán Mercado Lara (01/31/2000), Reynaldo Guzmán (05/23/2000), Edgardo León Romero Jiménez (06/23/2000) and Eberardo Macías (06/23/2000)

## **8.4 Political Programs Supporting Migrants' Investment**

In order to increase the share of remittances used for investment purposes, the state government of Zacatecas has implemented two programs, the first one – FEAZA – to support productive investment and the second – “Tres por Uno” – to foster community investment.

### **8.4.1 FEAZA**

The low share of remittances reaching Zacatecas used for investment purposes (see chapter 8.1) led to the implementation of the FEAZA-program<sup>81</sup> in 1999 to foster productive investment by returning migrants in Zacatecas. The objective was to promote and support the development of productive activities by return-migrants or the relatives of the absent migrants in order to improve their income and to strengthen their roots in the region. Support is only given to return-migrants or family members of migrants from Zacatecas.

Besides granting loans, the FEAZA-program also includes training in administration, consultation and technical assistance. In order to be eligible, the projects must cover certain prerequisites: they should have positive social impact, generate employment opportunities and be technically, commercially, and financially viable. The applicant must be related to the program for absent Zacatecanos (Folleto FEAZA 2000) and the directors' board of the Federation of Clubs from Zacatecas evaluates the investment proposals. The technical committee of the FEAZA, which consists of two state representatives, the representative of SEDESOL<sup>82</sup>, one representative of the Federation and one representative from FONAES<sup>83</sup>, makes the final decision.

FONAES and the state government of Zacatecas provide financial resources for the FEAZA, participating with 50% each. Credits range from 10.000 Pesos (1,062 US\$) to 100.000 Pesos (10,620 US\$), the interest rate is between 1% and 1.5% a month and the repayment period is a maximum of 36 months. The investor's contribution to the project has to be at least 40% of the total amount;

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<sup>81</sup> Fondo Estatal de Apoyo de los Zacatecanos Ausentes = Governmental Fund of Support for Absent Zacatecanos.

<sup>82</sup> Secretaría de Desarrollo Social = Ministry for Social Development.

<sup>83</sup> Fondo Nacional de Empresas en Solidaridad = National Fund for Enterprises in Solidarity.

the FEAZA fund gives a credit, which covers a maximum of 60%. The program was started in 1998; however, it did not operate until the year 2000. The initial capital was 2 million Pesos (212,539 US\$).

During the first three years the FEAZA program approved 15 projects with a total credit volume of 1,383,000 Pesos (146,971 US\$) and a participation of migrants of 3,183,175.30 Pesos (338,275 US\$). This adds up to a total investment of 4,566,175.30 Pesos (485,247 US\$), which averages an amount of 304,411.69 Pesos (32,384.22 US\$) per investment project (Folleto FEAZA 2000). Out of the estimated 500 million US\$ remittances which reach Zacatecas each year, only about 338,635.67 US\$ could be redirected towards productive investment by this program. This represents a share of only 0.068%. Nevertheless, we cannot be sure whether we are dealing with a real increase in investment, because some of the investors simply took advantage of the program and we have to deal with profit-taking effects. Those people would also have realized their investment without any governmental support. One third of the investment projects were realized in the municipality of Fresnillo, and the rest is distributed over another eight municipalities. About 110 jobs were generated (World Bank 2002).

As a preliminary result the impact of FEAZA has been very poor due to its limited resources, the absence of promotion, and due to being unknown to most migrants and their families<sup>84</sup>, as well as the complicated application process. Many migrants willing to invest chose the *Fondo Plata* instead, which is a program to foster investment in the state of Zacatecas. The participation in this program is highly correlated with receiving remittances from migratory activities. *Fondo Plata* offers almost the same benefits but it is easier to access, as migrants need to be members in an HTA to apply for FEAZA support. This excludes a large – if not the largest – share of the migrant community in the US (Delgado Wise/ Rodríguez Ramírez 2001, Delgado et al. 2000). As a consequence of these problems the program was discontinued in 2002 and joined with *Fondo Plata*. Due to its short operation period and the limited number of projects, the impact of FEAZA on regional economic development cannot be assessed. Regarding *Fondo Plata* it is no longer possible to estimate

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<sup>84</sup> Only 6% of the households mentioned having used the help of one of the governmental support funds.

its impact on migrants' investment, as it does not distinguish between migrant and non-migrant investors.

#### **8.4.2 The “Tres por Uno” Program**

This section deals with the influence of Mexican HTAs on development in their home communities. Chapter 3.1 argues that a large share of remittances is not transferred to the migrants' families for consumption purposes or private investment but rather in order to improve the infrastructure and the quality of life in the home community. Chapter 8.1 presented results from the survey showing that a majority of the migrants is willing to support community investment in their home communities.

The migrants' social clubs or HTAs were also established with the aim of doing something for the village of origin, thus constituting a manifestation of the close ties between the hometowns and the migrants' communities in the US. The clubs represent transnational communities and facilitate communication, interchange and political and social contact between sending and receiving regions.

In Zacatecas the first infrastructure investments by migrants' clubs were realized in 1983 (Flores Olague et. al 1996). By 1992, however, there were only a few isolated and sporadic attempts of migrants' initiatives to improve the conditions in their home communities through common investment in infrastructure. During that year Governor Romo Gutiérrez established the “Dos por Uno” (Two for One) program: for every US\$ given by the clubs, the state and the municipal government each give another US\$. In 1998 Ricardo Monreal Ávila succeeded Romo Gutiérrez as Governor of Zacatecas and restructured the “Dos Por Uno”. It became “Tres por Uno” (Three for One) and from that year on also included the participation of the federal government. The main objective of the program is to improve the living conditions in the home communities of the migrants and to generate employment. To achieve this goal, monetary resources collected by the clubs are complemented by contributions of distinct governmental institutions and levels, and are channeled into community investment projects (Gobierno del Estado de Zacatecas 1999).

All public investment projects carried out with support of this program – such as the paving of roads or the sinking of wells – have to be proposed by a club and

approved by local authorities and the federation of social clubs from Zacatecas before they can be carried out.<sup>85</sup> The proposal must include basic information and technical plans for the project, a cost estimate and the proof of the club's participation. The municipality in Zacatecas sets up a technical committee consisting of the representative of SEDESOL (Secretary of Social Development), the secretary of planning and finance of the state government, the "Tres por Uno" coordinator, the President of the municipality and a social club representative. Each year SEDESOL and the government of Zacatecas decide to dedicate a certain amount of money to the "Tres por Uno" program, setting an upper limit to total investment. The secretary of planning and finance in Zacatecas administers resources (Gobierno del Estado de Zacatecas 1999).

In 1993, the first year of operation of the "Dos por Uno" program, seven projects were implemented in six municipalities. The growing acceptance and diffusion of the program, however, led to an increase in the number of projects and participating municipalities, hence in the last year of its operation (1997) 77 projects were realized in 22 municipalities (Table 64). From 1993 to 1997 more than 33 million Pesos (ca. 4,810,427 US\$) were invested in 211 projects. As a consequence of the change in the state's government in 1998 the program worked on a low level in that year, only implementing eight projects in seven municipalities. In 1999 the program worked again as it had done previously, and in 27 municipalities a total of 93 projects were supported through the "Tres por Uno" program, with an overall amount of 48 million Pesos (5,100,956 US\$). These figures grew as far as 309 projects and an amount of investment of 180 million Pesos (17,458,777 US\$) in 2002, with the participation of 41 municipalities.

Deflated to 1994 prices, the amount of investment increased from 2,018,740 Pesos in 1993 (in the "Dos por Uno" program) to 48,757,304 Pesos in 2003, growing by the factor of 24, or by an average growth rate of 37.4% per year. The number of projects grew from seven in 1993 to 309 in 2002; this is a growth by factor 44. In 2002, 41 of the 57 municipalities in Zacatecas participated in the program.

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<sup>85</sup> In the case of Juchipila, the communities analyze which projects are of high priority to them, send the proposals to the corresponding HTA in the US, who then hand them in to the federation of clubs.

**Table 65: Investment Project of the “Dos por Uno” and “Tres por Uno” Programs, 1993-2003**

Year	Amount of investment	Calculated in 1994 prices	Number of projects	Average amount invested in 1994 prices	Calculated in US\$	Number of participating municipalities
1993	1.877.428	2.018.740	7	288.391	604,471	6
1994	3.772.651	3.772.651	30	125.755	708,479	13
1995	3.905.354	2.789.539	34	82.045	511,004	10
1996	7.066.386	3.850.892	63	61.125	904,902	14
1997	16.825.949	7.648.159	77	99.326	2,081,569	22
1998	772.581	30.477	8	3.809	78,315	7
1999	48.179.000	16.238.288	93	174.605	5,119,978	27
2000	60.000.000	18.532.818	108	171.600	6,268,151	28
2001	72.000.000	21.003.500	130	161.565	7,875,479	30
2002	180.000.000	48.757.304	309	157.790	17,454,545	41
2003	200.000.000*	47.562.424*	426*	111.648	17,799,929	

Source: Government of Zacatecas (2000/2001), Márquez Covarrubias (2005), Imagen (10/28/2003) \* preliminary data

The regional distribution, however, is very uneven. A share of 42% of all investment projects is concentrated in the region of the western valleys with an outstanding participation of the municipalities of Jerez, Valparaíso, and Monte Escobedo, with 70, 68, and 34 projects respectively<sup>86</sup>. Another 38% of the projects concentrate in the region of the Canyons with Jalpa (40), Nochistlán (33), and Juchipila (30) as the most important municipalities. The agricultural strip only accounts for 18% of all investment projects with only Fresnillo gathering a large number – 30. In the northeastern semi-desert only two municipalities participated in the “Dos” and “Tres por Uno” programs, accounting for less than two percent of the projects.

The character of the projects can roughly be divided into three categories: infrastructure, education and recreation. More than one fourth of all projects

<sup>86</sup> This data refers to 1993 to 2001, as detailed information for 2002 was not available.

(26%) were dedicated to the construction and improvement of roads, highways and bridges, facilitating transport and communication in the villages as well as between the villages and the municipal capital or interstate highways. Another 14% of the projects involved the improvement of the drinking-water supply and drainage as well as electrification of parts of the villages which had had no access to electricity before. Other projects aimed at the sinking of wells and building of dams for irrigation purposes (7%) and the construction of installations to process agricultural products and to market cattle (2%).

In total about 49% of the investment projects were dedicated to the construction or improvement of basic economic infrastructure, providing the villages with better access to markets and conditions for local agricultural and industrial production, or the establishment of businesses in the areas of service or commerce. Investments in irrigation systems as well as in installations for processing and marketing agricultural products have a communitarian character but can be considered as microeconomic investment, because they have the same structure as investments undertaken by single investors.

In the area of social investment and investment in recreation facilities the most important clusters are the renovation of churches or related construction projects, with a share of 12% of the projects. The embellishment of the town plaza (8%), the building of bull fighting arenas (4%) and halls for social events (*salón de usos multiples* – 3%) also improve living conditions in the villages. Another 2% of the projects were dedicated to improving health care, for example, the purchase of ambulances, the equipment of health stations (*casa de salud*) and the construction of three homes for the aged. In total investment in recreation, social and health facilities accounts for 29% of the projects.

The third category – education – covers 19% of the investment projects, including 10% of projects regarding investment in the renovation or construction of school buildings, purchase of computer equipment or establishment of libraries. Scholarships for students account for about 2% of the projects and 7% are investment projects for building sports facilities (table 65).

**Table 66: “Dos por Uno” and “Tres por Uno” Investments by Category  
over the period 1993 - 2002**

<b>Category</b>	<b>N</b>	<b>Percentage</b>
Road construction	131	26%
Drinking water/drainage	54	10%
Electrification	19	4%
Irrigation systems	32	6%
Production supporting systems	11	2%
<b>Total infrastructure</b>	<b>247</b>	<b>49%</b>
Town plaza	40	7%
Bull fighting arenas	21	4%
Church reconstruction	62	12%
Social/health	12	2%
Halls	13	2%
<b>Total recreation</b>	<b>148</b>	<b>29%</b>
Sports facilities	34	7%
School facilities	53	10%
Scholarships	9	2%
<b>Total education</b>	<b>96</b>	<b>19%</b>
<b>Others</b>	<b>16</b>	<b>3%</b>
<b>Total</b>	<b>507</b>	<b>100%</b>

Source: Government of Zacatecas (2000/2001: Folleto “Tres por Uno”) Márquez Covarrubias (2005)

Most projects during the first years of the “Dos por Uno” or “Tres por Uno” program dealt with the improvement of the appearance of the villages. This could be, for example, the renovation of the church and the central square or the construction of a bull-fighting arena. Since the initiation of the program the investments shifted towards the construction of infrastructure, from the paving of roads, the construction of barrages, the sinking of wells, and electrification, to the purchase of computer equipment for schools.

Case Studies: Two examples were chosen as case studies in order to assess the impact of the “Tres por Uno” projects on regional development. Both examples were taken from the category “infrastructure” as these projects have the highest impact on economic development. The first project is the construction of a road, which connects the village of Emiliano Zapata in the northern municipality of Sain Alto with the Zacatecas – Durango highway. The second example is located in the region of the Canyons: the construction of a dam in the community of El Remolino in the municipality of Juchipila.

The first project was chosen because road construction represents the most important category of investment projects, as a basic part of the infrastructure which is also directly linked to economic development and has immediate impact. The lack of roads is part of the missing infrastructure mentioned by Yúnes (2000) which hinders economic development in Zacatecas. The second project was chosen because of its clear economic nature, as the lack of water and irrigation represent an important restriction for agricultural development in Zacatecas. Both projects are examples for others of the same kind.

Interviews and visits to the projects at both locations were carried out between May and July 2001. Contact with key informants was established through the municipal government. Interviews with representatives of the municipal government were held in the town hall, interviews with key informants and opinion leaders in their homes.

After the construction of the road, access to the village is a lot easier and traffic has increased. Rafa Macías from the municipal government even calls the road the “highway that feeds Emiliano Zapata”. After the road was built traveling salesmen, who had not accessed previously because they had been afraid that something might happen to their vehicles, started entering the village. Local merchants in Emiliano Zapata had had to get their supplies from large warehouses in Leon or Monterrey before and now goods are delivered directly to the village. This has even brought access to new brands in the village. The sale of agricultural products has become easier, as buyers now enter the village, and producers do not have to take their products to the nearest wholesale warehouse. This, however, has caused conflicts with the owners of warehouses in Sain Alto, because they no longer participate in the business.<sup>87</sup>

The expenses for fuel and wear-out of wheels, shock absorbers and other automotive parts have decreased. Since the road has been built there is a newly established bus service from Emiliano Zapata to the municipal seat Sain Alto three times a day and during school season there is a special bus to take the children to secondary school<sup>88</sup>.

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<sup>87</sup> Interview with Rafa Macias (07/24/2001)

<sup>88</sup> Interview with María Cebchi (07/24/2001)

The owner of a “tienda de abarrotes”, the only clothes store in Emiliano Zapata, Señor Castrejon Reyes, relates that his sales have gone down due to the mobile salesmen who now enter the village. He has always acquired his merchandise from wholesalers that entered the village and delivered it directly to his shop<sup>89</sup>.

The dam will collect up to 175,000 cubic meters water to irrigate an agricultural surface of 70 hectares. Each of the 40 members of the club had to buy shares to acquire the right to irrigate his land. Several members own more than one share and have the right to irrigate more than one hectare. As all club members besides Chano Luna live in the US, they will be able to take advantage of their investment only after they return to Mexico or they can lease their land to local farmers. Without irrigation the most important seeds are maize, sorghum, beans and pumpkin; with irrigation the members of the club could plant alfalfa, peach-, mango- or guava trees and vegetables. Chano Luna relates that with half a hectare of alfalfa he could feed his cattle all year long while he currently needs to buy fodder during the winter<sup>90</sup>.

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<sup>89</sup> Interview with Castrejón Reyes (07/24/2001)

<sup>90</sup> Interview with Chano Luna (05/17/2000)

## 9 Summary and Conclusions

The aim of this study is to analyze the impact of migration and remittances on regional development. The Bank of Mexico has reported an inflow of remittances of around 10 billion US\$ per annum over the last few years, which concentrates on the migrants' sending communities and has influence on the households' investment and spending activities in these regions. The question is whether these changes promote or hinder regional development. The focus is drawn especially to the following aspects:

- the impact of remittances on economic growth in the sending regions;
- the influence of migration on the structure of the economy (Dutch Disease);
- the impact of changing migration patterns on the development potential and future remittances;
- regional differences regarding migration patterns, remittances and development

This study provides answers to the complex problems by applying a two-level analysis. First economic development is analyzed by a shift analysis on the macro level. These developments are explained by a regression analysis, which identifies determinants for development. Then decisions on the individual and household level are analyzed on the micro level, which lead to the developments observed on the macro level.

This final chapter gives a summary of the results, beginning in section 9.1 with the future of migration movements between Mexico and the US and then analyzing the structural changes in Zacatecas. Section 9.2 focuses on the impact of migration and remittances on the potential economic development on the micro-economic level, while section 9.3 sums up the findings and draws conclusions. The last section (9.4) presents policy implications and some tasks for future research.

## **9.1 Macroeconomic Effects**

It was hypothesized that remittances might have a negative effect on economic development and that migration might cause effects similar to Dutch Disease. The shift-analysis in chapter 7.2 shows that since colonial times Zacatecas has had an economy dependent on primary production. This has not changed during the last 30 years, while other states have reduced the share of agricultural production and have increased industrial production. Zacatecas' GDP still has a high share of agricultural production. During the last 30 years Zacatecas lost 28% of its importance to the national economy, while other states, such as neighbouring Aguascalientes and Querétaro, have managed to significantly increase their participation in the national GDP.

Regression analysis reveals that remittances and FDI have a positive impact on economic development. However, high migration activities and a high share of agricultural production in the GDP are proved to have a negative impact on GDP development. This means that positive effects caused by remittances can be outweighed by the negative impacts of migration. These findings are backed by the correlation between the regional factors and the migration ratio of the 32 Mexican states, which shows that positive development and low migration are correlated.

These macroeconomic effects are supported by the findings on the micro level. 28% of the households interviewed report to have used remittances for investment; however, microeconomic investment is the most important use of remittances in only 5.4% of the households. More than half the investment projects were realized in the agricultural sector, supporting the already existing production systems and stabilizing the economic structure of Zacatecas. The necessary structural changes are not promoted.

Of those investors who established new businesses after returning to Mexico, only 14.9% report to have invested in agricultural production. Most businesses established by the migrants and their families are undertaken in the areas of retail and wholesale or service, which form part of the non-traded-goods sector, and therefore can be considered an indicator for Dutch Disease (see results of section 8.3).

On the one hand remittances are proven to have a positive impact on investment and development; on the other hand 29.4% of the households interviewed state that the emigration of at least one family member has had a negative impact on their entrepreneurial activities. These findings are consistent with the approaches of Hatzipanayotou (1991) and Quibria (1997), who argue that the negative effects of emigration may be overcompensated by positive effects through the inflow of remittances. The individual development of a region then depends on the domination of one of these effects.

Migration and remittances have a positive impact on business activities on a local and regional level. The few investments in industrial production (migrant investment in the production of steel tubes and a Maquiladora), however, are poorly linked with the local economies and thus do not promote an innovative milieu and multiplier effects through regional production chains.

Turning back to the theories of development, we have seen that Zacatecas lacks infrastructure, public goods and an export base, as well as innovative milieu and regional production chains. Krugman (1989, 1991) stresses the importance of path dependency for development. Zacatecas did not attract investment and industries in the past in the way that, for example Aguascalientes did, and its economy was always concentrated on primary production (see chapter 7.2). Now investors prefer Aguascalientes because of its agglomeration benefits and economies of scale. Therefore Zacatecas has adopted a different path of development and it is unlikely to catch up with the already industrialized regions.

## **9.2 *Microeconomic Effects***

This section analyzes the microeconomic impacts of migration and remittances on development, starting with the connection between remittances and economic activity. The following sections cover regional differences and the potential of community investments for development.

### **9.2.1 Remittances and Economic Activity**

Mexico is the country that receives most remittances world-wide, however, inside the country these monetary flows are distributed unevenly: the nine traditional migration states receive more than 47% of total remittances.

Chapter 7.3 has shown that the link between migration and development is highly dependent on remittances, therefore it is important to analyze the future of remittance inflows, which depend highly on migration patterns.

Recent years have shown a shift from temporary migration towards permanent emigration; this tendency implies an increasing depopulation in rural Zacatecas, leaving behind children, women and aged people. The most important effect of the changing migration patterns, however, consists of the fact that permanent migrants are less likely to remit money and are more likely to reduce the amount remitted than temporary ones. 75% of all migrants are reported to send remittances, but among females this figure is only 58%, and bearing in mind that the share of female migrants has risen significantly during recent years, the amount of money which will reach Zacatecas in form of migrants' remittances is likely to decrease. As remittances represent more than 6% of the state's GDP this represents a serious threat to the economic stability of Zacatecan society.

Zacatecas belongs to the three poorest states in Mexico (together with Oaxaca and Chiapas, which are located in southern Mexico) in terms of its GNP per capita, however according to CONAPO and INEGI, human development (standard of living, health, education) in Zacatecas is on a par with the national average. This fact underlines the importance of remittances in the economy of Zacatecas, as remittances allow a higher standard of living than the income generated locally in Zacatecas would. Migration secures the subsistence of the migrants' families, but the survey reveals that migration at the same time has a negative effect on entrepreneurial activities of the migrant households (about 30% of the households report that business activities were reduced after the migrant left). Due to remittances, households do not rely on local economic activity and no longer depend on local labor markets, and are able to reduce their entrepreneurial activities without reducing their standard of living.

Only 5.4% of the households consider microeconomic investment as the most important use for remittances, however, applying a broader notion of investment

(that is, including subjects as housing, education etc.) 32.1% of the households report that the most important use for remittances is investment. Up to 28% of the households report having used remittances for microeconomic investment at least once, but the majority does not cite investment purposes as the most important use. Most of these investments consisted of the purchase of agricultural inputs (51%), and only 15% of investment projects were dedicated to supporting businesses in the service sector or in commerce. The use of remittances for investment purposes does not necessarily mean the establishment of a new enterprise; it is mainly investment in already existing ones. There is no structural change induced by remittances.

Regional development and multiplier effects depend on the share of remittances used for investment and the consumption of locally produced consumer goods. This money implies multiplier effects within the regional economy, because it is in this way that local businesses participate in the increased purchasing power of migrant families. As microeconomic investment is low, the only positive impact on development can be expected from consumption derived from remittances.

The migrant investors presented in chapter 8.3 show different migration patterns. During their time in the US they always maintained a close relationship with their home community and can be considered transnational migrants. Five of them even consider the US as their main place of residency.

Only a few investments are undertaken in the industrial sector; the lion's share of the investors channel their money into the establishment of retail or wholesale businesses (52%), or to the service sector (22%). However, the few investments undertaken in the industrial sector account for more than half of the employment generated, but they have few linkages with the local economy and do not foster the establishment of production chains.

Investment in service, retail and wholesale activities are bound to the region and do not form part of the export base. The latter however, might attract new monetary flows. Previously, much of the local population's expenditures took place in urban centers such as Aguascalientes or Guadalajara, because the desired goods were not available in the villages of Zacatecas. Newly established businesses can attract these monetary flows and the total trade volume in these villages increase. However these businesses depend to a high

extent on the consumption activities realized by the migrants' families with monetary transfers originating from the US and do not present a source of endogenous development.

According to the export-base theory, multiplier effects resulting from investments in the areas of service and commerce are lower than those stemming from investment in industrial activities. These limited multiplier effects of service and commercial enterprises as well as the lack of investment in industrial production give few impulses for an endogenous economic development. Nevertheless, the attraction of monetary flows induced by the establishment of service and commercial enterprises creates employment and improves the overall economic situation in the towns. In the future this improvement might attract further investment in industrial production, as commerce and service are part of the necessary infrastructure for larger business units.

### **9.2.2 Regional Disparities: Different Opportunities for Development?**

As chapter 7.2.4 shows, there are few differences regarding the level of development between the northern and the southern region. There is no difference worth mentioning in living conditions between the two regions, and the state's and the national average. Regarding the level of education, both regions achieve the same levels, although they remain behind the state's average, which itself is below the national average. There are only clear differences regarding the level of wages between the two regions: here the south displays a clear advantage compared to the north, even overtaking the state's average. Nonetheless, the national average is still higher.

One area where differences can be found between the two regions surveyed is the amount of remittances and investment. The percentage of migrants sending remittances is higher for those originating from the municipalities in the north of Zacatecas; in this region remittances also represent a more important share of household income. When analyzing the main use of remittances we find that investment accounts for 8.39% in the south and for only 1.59% in the north. Participation in community investments and in political programs is also higher in the north. However, in the north 55% of the households with any kind of entrepreneurial activity report that emigration has negatively influenced their business, in the south only 30% do.

These findings seem to indicate that the impact of remittances in both ways – positive and negative – is much higher in the north than in the south. Thus, the economy of the southern municipalities Atolinga, Huanusco, Juchipila and Tlaltenango seems to be more stable and less dependent on remittances. The economy of the north, on the other hand, seems to react very sensitively to emigration movements and the inflow of remittances. Even under the same political circumstances the patterns of migration and remittances differ significantly between the two regions. These regional and sub-regional differences reveal that a macro-analysis on the national level is not sufficient to properly understand the impact of migration and remittances on economic development.

These findings indicate that economic development is higher in the southern municipalities, income is higher and the dependency on remittances is lower. Following the approaches of New Economic Geography it can be affirmed that both regions have adopted different paths of development. Because of significant sub-regional differences inside the state of Zacatecas it is not possible to deduce results from local research, which are valid for a larger scope, such as a national perspective.

### **9.2.3 The Development Potential of Community Investments**

The “Tres por Uno” program in Zacatecas aims at philanthropic and community investment, namely a large number of projects that have clear orientation towards economic purposes. Almost 50% of the investment projects are realized in the area of economic infrastructure, such as the paving of roads, streets and highways, as they facilitate access to markets. The construction of water supply and drainage systems as well as the electrification of barrios (quarter) also improves the framework for economic activities. On the other hand, the expansion of markets and the construction of installations for cattle auction improve the opportunities for commerce. Although the sinking of wells and the building of dams for irrigation can be considered community investment, as the whole village or at least a large number of inhabitants participate, these investments have a direct positive impact on agricultural productivity.

These investment projects help to improve the conditions for productive investment and trade in the communities, as access to markets is facilitated and

agricultural productivity increases. Community investments help to overcome bottlenecks, which represent a major obstacle for development in rural Mexico and therefore represent an essential element for improving the situation in marginal rural villages with high emigration ratios.

In addition there are several indirect effects. The “Tres por Uno” program includes the involvement of local businesses when realizing the projects. This causes positive multiplier effects for the local economy as entrepreneurial and salaried income is generated. Other indirect and long-term effects are caused by investment in education. These effects are not immediately visible as it takes some time for children to leave school and become able to utilize their skills. The migrants’ hometowns do not provide adequate employment opportunities for skilled workers and thus these individuals might also be forced to migrate. Nonetheless, they will have good chances of getting a well-paid job in a Mexican city, such as Guadalajara or Monterrey, as well as in the US. They can also rely on the social networks, which were built by their parents, other family members and friends.

Some economic effects are even more difficult to measure. Both case studies presented in chapter 8.4 give an idea of the complexity of the impact caused by community investments. Investments such as the renovation of the church, the reconstruction of the town garden, or the construction of a bull-fighting arena do not have a direct effect on entrepreneurial activities but can also positively influence the economic performance of the migrant’s home community. First, migrants living in the US will be prouder of their home community and it will be more likely that they will return during their holidays and spend money on consumption, donate money for further investment projects, or invest. Second, it has to be considered that bullfights or *charreadas* (horse-riding competition) might attract tourists from other parts of the state or even the country. For example, the town of Jerez started a so-called *pamplonada*<sup>91</sup> some years ago, which now is one of the major tourist attractions in the state.

It was estimated that Zacatecas received about 500 million US\$ as remittances for the year 2000. The investment in the “Tres por Uno” program was only 60 million Pesos with one fourth originating from the migrants. These 15 million

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<sup>91</sup> Bulls run through the city center, analogous to the old tradition in Pamplona, Spain.

Pesos in 2000 equal about 1.60 million US\$, or 0.32% of the total amount of remittances which reached Zacatecas in that year. Despite its undeniable success regarding the improvement of economic infrastructure, the “Tres por Uno” program was not able to channel larger parts of remittances into community investments.

Investment under the regime of the “Tres por Uno” program targets the bottlenecks for development and improves the local infrastructure and the opportunities for economic growth. The question remains as to whether this is enough to trigger a self-sustained development.

### **9.3 Conclusion**

Table 66 gives an overview of the hypothesis established at the beginning of the research, the results of the analysis and the explanations for these results.

**Table 67: Hypothesis, Status, Explanation**

<b>Hypotheses</b>	<b>Status</b>	<b>Explanation</b>
Remittances have a negative influence on economic development.	Rejected	Regression analysis shows that remittances have a positive effect on development; however, it might be overcompensated by the negative impact of migration.
Remittances cause effects similar to Dutch Disease (deindustrialization).	Approved	Investment of remittances takes place in commerce, service or in existing agricultural production. The spillover effects of the few investments in industrial production are marginal.
Due to changing migration patterns the amount of money remitted per migrant is expected to decrease.	Approved	According to data gathered in the survey the amount of money remitted is very likely to decrease. For many households this would mean a loss of a significant part of their income.
Migration and development patterns vary significantly between the municipalities inside the same state.	Approved	Comparing the three northern municipalities with the four in the south it can be stated that the latter have achieved positive economic development compared to the northern ones.

Remittances have a positive effect on the households' income and on investment activities. However, the latter concentrate on agriculture, commerce and service, and therefore do not represent a stable economic base. The economic structure shifts towards the production of non-tradeables (the so-called Dutch Disease).

The increasing number of permanent migrants and the growing participation of females point towards a reduction of remittances in the future. This will threaten economic and social stability in the future. However, effects will not be same all over Zacatecas, as the southern municipalities depend less on remittances and show higher rates of investment, and therefore will not be struck as hard as the northern ones.

#### **9.4 Policy Implications and Subjects for Future Research**

The analysis of economic development in Zacatecas shows no signs of conversion as suggested by some development theories, on the contrary Zacatecas has lost importance regarding national GDP in Mexico.

Therefore policy makers should look for alternatives to change the development path. In order to overcome the dependency on remittances, Zacatecas needs a change in the economic structure in order to become more competitive with other regions in Mexico. The theories of regional economic development presented in chapter two give implications for policies to achieve this goal. The lack of development in Zacatecas can be explained by various theories, which give different hints for policies. While dynamic theories identify the factor endowments and regional innovation as crucial for development, Export Base Etheory explains development by the export of products and Public Goods Theory by the existence of economic infrastructure. Innovative milieu or theories of endogenous development name labor potential (education) and also infrastructure as starting points for growth oriented policies. Summing up these approaches we can identify the following areas for policy action:

- adjustment of factor endowments, in this case improved access to capital
- improvement of economic infrastructure
- better access to education
- promotion of export activities/ access to markets.

It is not surprising that this list is very similar to the aspects mentioned by Heidhues (1998, 2000), Calva (2000) and Postlep (1999b). Regarding the inflow of remittances, which obviously is not considered in the theoretical approaches the aim should be to increase multiplier and triple down effects.

An improved access to financial resources in the region is partly provided by remittances; however this does not lead to an adjustment of factor endowments as Zacatecas lacks Foreign Direct Investment and only part of the monetary transfers are channelled into investment.

An option for migrants who do not have plans to invest for themselves, but who wish to support economic development in their home communities, could be to put some of their savings into a fund. This fund could be used to finance business activities of entrepreneurs, providing loans with low interest rates; on the other hand, they would pay interest to those who deposit. The fund could be established in the “Cajas de Ahorro” (Saving Banks), which are non-profit banks and have offices in almost all municipalities. Payments would be voluntary and money would be given only to return-migrants from the same municipality and would not be managed by the federal government. This way the savings would directly benefit the migrants’ municipality of origin.

Measures should be taken to increase multiplier effects derived from remittances and to secure a larger share of the monetary transfers to be consumed inside the regions instead of flowing directly to larger urban centers. This could be done by attracting industries that produce consumer goods, which are currently imported from other regions. Through this measure, benefits from multiplier effects resulting from remittances would stay in Zacatecas and not go directly to metropolitan areas like Mexico City, Monterrey or Guadalajara. Middle and lower order places like Fresnillo, Zacatecas, Río Grande and Juchipila would benefit the most, as they already function as market places and in the future could increase their importance.

Households are better off with migration than without, as remittances definitively exceed the value produced by migrants in their home community, and the purchasing power of individuals, households and villages increases. Multiplier and trickle down effects caused by remittances may be small, but they are definitively positive. However, as migration movements tend to become more

permanent and thus remittances might decrease in the future, this cannot be considered a long-term strategy. The state government as well as the federal government should develop policies to strengthen the ties between the towns of origin and the places of destination in the US in order to secure the continuous flow of remittances. This could be achieved through regular consultations with migrant groups. Efficient cooperation between the HTAs and the state government is needed, so that migrants see their interests reflected in policy measures taken by the government in Zacatecas.

Another crucial factor for development is economic infrastructure and human capital, i.e. education. Here programs such as the “Tres por Uno” are a good starting point not only for keeping monetary resources inside the region and even generating positive direct impact on employment and income, but also in order to improve infrastructure and access to education facilities.

However, “Tres por Uno” projects have been too dispersed in the past; a better coordination and a clear orientation towards upgrading the economic infrastructure (irrigation systems, roads, water supply dams, etc.) could increase the positive effects of this program. Until now political programs were not coordinated and only provided support for isolated projects. It is necessary to create an integrated development strategy for the region, considering municipal, regional, state and federal levels and politics.

Migration and remittance patterns vary significantly throughout the country, but also between the municipalities within the states. This fact should be considered when designing political programs to incorporate migrants and to support development in rural areas. Municipalities that do not have HTAs in the US are currently excluded from these programs. Access to political programs should be opened for those municipalities such as the northeastern municipalities of Zacatecas which do not have HTAs and do not participate in international migration movements, but rather in national ones.

It would be interesting to realize a detailed cost-benefit-analysis in the future regarding the “Tres por Uno”. Investment projects such as the dam built in El Remolino or the highway paved in Emiliano Zapata have complex positive and negative effects on the local economy. In order to optimize the program it is important to gain information about the long term effects of community investment projects on economic activity.

Most of the investments carried out by migrants concentrate on regional markets; opportunities provided by free trade and open markets due to the NAFTA treaty are not considered. Guarnizo (2003) describes a growing demand for Mexican goods by the migrant communities in the US, therefore investment in transnational businesses in order to promote regional economic development. Migrants in the US create a demand for Mexican handicrafts and traditional food. Return-migrants could produce goods and food, make use of the Free Trade Agreement between the two countries and sell them to their *paisanos* (countrymen) abroad. In the sample, however, only three enterprises operate transnationally: the travel agency in Juchipila, Transportes Mares in Río Grande and the Maquiladora plant in Jerez. The first two enterprises neither sell goods nor products to the US, Transportes Mares even has its headquarters in the US thus no surplus will be transferred to Mexico. The only enterprise with a clear export orientation is the Maquiladora which, however, has little impact on the regional economy, as explained in chapter 7.2. Most enterprises established by return-migrants serve the local markets, and only a few produce goods for (regional) export. Taking into account the bi-national or transnational perspective, thus producing goods for the paisanos living abroad or the North American markets in general would considerably improve the economic potential of future investments. However, many migrants are not yet aware of the economic potential of NAFTA and do not make use of their specific knowledge acquired in the US. The state of Zacatecas should offer assistance and information for return-migrants willing to invest and inform them about possibility of producing goods in Mexico, which can be sold in the US. A promising step towards increasing the access to information in Zacatecas would be the implementation of round tables together with migrant entrepreneurs from the US. Common initiatives or even a transnational chamber of commerce would increase the access to information regarding US markets in Mexico and thus improve investment opportunities.

Another subject that has not yet been targeted is possible crowding-out effects by migrant entrepreneurs. The investment of remittances definitely has a positive impact on the local economy; however, it is possible that these businesses displace already existing ones of the same branch. If this is the case, the positive impact and employment generated would be significantly

lower than that estimated by counting only the investment activities originating from remittances.

During the lapse of the last century, economic policy in Zacatecas has maintained the patterns established in colonial times and there have been no initiatives for a more contemporary economic policy. In the past the region has gained its wealth from silver mines, however revenues have decreased and the state did not adjust according to the changes in the economic framework. It would be a clear misconception of this current situation to expect migrants to compensate for these failures with their remittances and to initiate the necessary changes in the economic structure of Zacatecas. This would make them responsible for the errors committed in the past, without recognizing that migration movements are at least partly a result of these errors. In the past, migrants have shown their willingness to contribute to regional development by investments in the infrastructure of the municipalities. However they are not responsible for setting the political framework that promotes sustainable economic growth.

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## Annex

### ***Annex I: Survey on the Changes of Migration Patterns and their Socioeconomic Impact on Zacatecas***

**Presentation:** (for the interviewers)

Explain clearly that this is a study carried out by the Universidad Autónoma de Zacatecas and the University of Kassel, Germany, with the main objective of investigating the most important socioeconomic changes regarding families, communities and the region as a consequence of the recent changes in migration patterns.

The information given by the interviewees will be completely confidential, anonymous and only used for the aims of this investigation.

Explain that this research is carried out in seven municipalities of the state where significant cases of international migration have been observed.

**NOTE: The following questionnaire is to be answered only by an adult person who has broad knowledge about the different aspects of the home and family. Furthermore, the questionnaire is only to be applied when the household meets with the following prerequisite:**

**From 1980 to the present day, did one family member who lives or used to live with you move to the United States either temporarily or permanently, for labor, family or educational motives, etc.?**

Yes

**If the answer is yes, then apply the questionnaire.**

**1 Identification of the person responsible for the interview:**

1.1	Interviewer	_____
		_____
1.2	Supervisor	_____
		_____
1.3	Date	_____

**2 Geographic Identification**

2.1	State	_____	_ _
2.2	municipality	_____	_ _
2.3	Locality	_____	_ _
2.4	District code	_____	_ _
2.5	Block	_____	_ _

**1 Identification of the household**

\_\_\_\_\_.

Street, avenue, etc.

\_\_\_\_\_.

Number                  quarter

#### 4. General Information

Could you give me the following information about the people who went to the United States (temporarily or permanently), preferably beginning with the first person who went to the US.

Register	4.1 Name of the Migrant	4.2 Sex	4.3 Age	4.4 Year of first migration	4.5 Kinship	4.6 Where does he/she live at the moment (place of residence)	4.7 Condition of residence	4.8 Legal status in the US
1								
2								
3								
4								
5								
6								
7								
8								

1.1 How many members does this family have in total (parents, brothers, children, etc.)? \_\_\_\_\_

4.10 How many male members? \_\_\_\_\_

4.11 How many female members \_\_\_\_\_

4.12 Take down the total number of migrants \_\_\_\_\_

#### Codification of the questions:

Sex	Kinship	Place of residence	Condition of residence	Legal Condition
1 Male	1 Household head	1 Mexico	1 Lives elsewhere outside the community, because he/she studies there	1 With documents
2 Female	2 Wife/Husband	2 United States	2 Lives elsewhere, because he/she works there	2 Without documents
	3 Son/Daughter		3 Lives elsewhere, because his/her family lives there	
	4 Parents/Parents-in-law		4 Usually lives here	
	5 Brother/Sister		5 Lives elsewhere for another reason	
	6 Other			
	7 No kin relation			

### 5. Migration Pattern (Now I am going to ask you some questions related to the migrants)

Register	5.1 In which year did he/she go to the US for the first time? (mention name of the migrant)	5.2 Which was his/her marital status?	5.3 Which is his/her current marital status	5.4 Why did he/she migrate?	5.5 Since the first time ... (Name of the migrant) went to the US, how have the movements been?	Whether the migration pattern has changed from temporary to permanent or has been permanent from the beginning (Only in case 5.5 was answered with 2 or 3)	5.9 In which year did the change from temporary to permanent migration happen? (This question is only relevant in case the migration pattern changed)
1						5.6 which was the most important motive?	5.8 Which was the third motive?
2							
3							
4							
5							
6							
7							
8							
Marital status (5.2, 5.3)		Motive for migration (5.4)			Type of Migration (5.5)		Motives for the change of migration patterns (5.6, 5.7, 5.8)
0	Under 15 years of age	1	Labor	1	Comes and goes (temporary)	1 Labor expectations	
1	Single	2	Family	2	Normally lives in the US (permanent)	2 Family reasons	
2	Married	3	Holiday	3	Migration was temporary and is now permanent.	3 Scarce development possibilities in the locality	
3	Once married	4	Other motives	4	Migration was permanent and is temporal now.	4 Costs and risks of migration and border crossing	
				5	Retired migrant.	5 Legal condition	
						6 Other motives	

	5.10 How often does he/she visit the community?	5.11 Before: how often did he/she visit the community?	5.12 Does (Name) own any property in the US? 1 yes 2 no 3 don't know	How were land use, livestock production, business activities or other economic activities affected by the fact that (name) went to the US? 5.13 Temp-orary 5.14 Perma-nent 5.15 Temporary permanent 5.16 Permanent-temporary 5.17 Retired migrant				5.18 Since (name) went to the US, did he/ she helped any other family member or friend to move to the US? 1 yes 2 no 3 don't know	5.19 Do you know if (name) lives with or near family members, friends? 1 yes 2 no 3 don't know	5.20 Do you know if he/she frequently meets with friends or neighbors from this village in the US? 1 yes 2 no 3 don't know
Register										
1										
2										
3										
4										
5										
6										
7										
8										
<b>Frequency (5.10, 5.11)</b>				<b>Evolution of economic activities (5.13-5.17)</b>				<b>Social networks to the US (5.18)</b>		
1 More than once a year			0 No economic activity realized					1 No one		
2 Once a year			1 Land cultivation decreased					2 Family members		
3 Every two years			2 The number of cattle decreased					3 Friends		
4 Less than every two years			3 Business was affected negatively							
			4 Land use increased							
			5 The number of cattle increased.							
			6 Business improved							
			7 Nothing changed							

## 6. Remittances

Now I am going to ask you some questions related to the money sent by the migrants.

	6.1 The person (name) who went to the US or lives there, has he/ she sent money?	6.2 In general: does the amount vary?	6.3 How do you explain this change?	6.4 Approximately when did this change happen?	Which is the most important use for the remittances?
Register					6.5 Now
1					6.6 Before
2					
3					
4					
5					
6					
7					
8					
6.2 Remittances	6.3 Changes of money remitted	6.5, 6.6 Use of remittances			
0 Never sent money.	1 Work situation	1 Subsistence			
1 Did send money, but stopped.	2 Change of marital status	2 Purchase of a house, land, construction or improvement of housing			
2 Amount increased	3 Number of children	3 Purchase of livestock			
3 Amount was reduced	4 Debts	4 Agricultural production			
4 About the same	5 Took his/ her family to the US	5 Investment in business activities			
		6 Payment of debts			
		7 Savings			
		8 Education			
		9 Health			
		10 Others			

6.7. Do you think the sending of remittances has meant a significant change for the living conditions of this family? (Would the family suffer significant deficiencies without remittances?)

- Yes                      2. No

6.8 Who decides about the use of the remittances received?

1. The migrant himself/herself
2. The one who is in charge of the house in the community
3. Both
4. Both of the above, and others
5. Depends on the final use
6. Other \_\_\_\_\_

6.9 Have two or more migrants of this family collected money to solve a family problem, invest in a social, communitary or productive project, once or more times?

- 1 No
- 2 Yes
- 3 Don't know

6.10 Of What kind?

- 1 Family related
- 2 Social or communitary
- 3 Productive

6.11 Do you know if any of the migrant members of this family belongs to a social club in the US?

- 1 Don't know
- 2 Yes      Of which kind ? \_\_\_\_\_
- 3 No

Do you know if any of the migrant family members has cooperated economically through a social club to carry out any productive or social project in this community?

- 1 Don't know
- 2 Yes      Which kind of?? \_\_\_\_\_
- 3 No

## 7. INVESTMENT

7.1 During the last 5 years, has any member of this family started a commercial or service business?

1. Yes, using remittances
2. Yes, without remittances
3. No

7.2 During the last 5 years, has any member of this family purchased machinery or any other agricultural input?

1. Yes, using remittances
2. Yes, without remittances
3. No

7.3 During the last 5 years, has any member of this family bought any type of livestock?

1. Yes, using remittances
2. Yes, without remittances
3. No

7.4 During the last 5 years, has any member of this family bought land either for construction or agricultural purposes?

1. Yes, using remittances
2. Yes, without remittances
3. No

7.5 During the last 5 years, has any migrant member of this family sent money for a specific project?

- Yes                      2. No

7.6 If yes, of which kind?

---

7.7 In the specific case of investment of remittances in any productive project or official support program, who took the final decision?

1. The migrant alone, giving instructions what to do
2. The people who stayed in Mexico informed the migrant and the decision was made together
3. The people/family members left behind in Mexico took the decision
4. Others \_\_\_\_\_

During the last 5 years, have remittances served as an additional source for participation in investment programs? (Procampo, Alianza para el Campo, Tres por Uno, Fondo Plata, FEAZA, etc.)

1. YES
2. NO

7.9 Which one and how often?

Program	Frequency
0 No	
TRES POR UNO PROGRAM	
feaza	
fondo plata	
alianza para el campo	
PROGRAMA KILO POR KILO	
PROGRAMA DE MUJERES EN DESARROLLO RURAL	
PROGRAMA DE APOYO AL DESARROLLO RURAL	
PROGRAMA DE CAPACITACIÓN Y EXTENSIÓN	
PROGRAMA DE CULTIVOS ESTRATÉGICOS	
PROGRAMA DE MECANIZACIÓN AGRÍCOLA	
PROGRAMA DE FERTI-IRRIGACIÓN	
PROGRAMA DE SANIDAD ANIMAL	
PROGRAMA DE HORTICULTURA ANIMAL	
PROGRAMA DE TRASFERENCIA DE TECNOLOGÍA	
PROGRAMA DE DESARROLLO PRODUCTIVO EN ZONAS RURALES MARGINADAS	
PROGRAMA APÍCOLA Y PORCÍCOLA	
PROGRAMA DE DESARROLLO DE PROYECTOS RURALES INTEGRALES	
PROGRAMA GANADO MEJOR	
PROGRAMA DE FOMENTO LECHERO	
PROGRAM MEJORAMIENTO GENÉTICO	
PROGRAMA ESTABLECIMIENTO DE PRADERAS	
PROGRAMA ELEMeNTAL DE ASISTENCIA TECNICA	
PROGRAMA DE PROMOCIÓN A LAS EXPORTACIONES AGROPECUARIAS	
PROGRAMA DE SANIDAD VEGETAL	
Other (please explain)	

1. Very frequently
2. Frequently
3. Sometimes
4. Seldom
5. Only once
6. Never

7.10 From your perspective, how could the programs be modified to attract more funds from the migrants to projects of productive investments.

1. Less requirements
2. Offering more resources
3. Lower interest rates
4. Other \_\_\_\_\_

**Questions not considered in the analysis:**

Parts 1 to 3 of the questionnaire cover general information about the interviewee and the location. The only piece of information that was of interest is question 2.2, which was needed to identify the municipality.

Question 4.1 was only asked to be more comfortable during the interviews; it is better to ask, "When did Pedro first move to the US" instead of "When did migrant one first move the US?"

Question 4.5 was not included in the analysis, because the kinship of the interviewee has no relevance for regional development.

4.6 was omitted, because this information is covered by 5.5 (migration patterns)

Questions 4.10 to 4.12 were not used, because the answers were calculated by the interviewers and do not reveal further information.

Question 5.1 was not used, because question 4.4 already provides this information.

Questions 5.6 to 5.9, 5.11, 6.3, 6.4, and 6.6 were not used in the analysis, because most interviewees did not remember well or could not tell at all.

Questions 7.6 and 7.10 were not considered, because the answers were too heterogeneous.

Questions 7.7 to 7.9 were not considered, because almost no interviewee reported that official programs had been used to support investment activities.

## ***Annex II: Interview Guide***

### **Interview Guide “Migration and Productive Investment in Zacatecas”**

#### 1. Migration Experiences

- a) When was the first time of migration?
- b) Why did you move to the US?
- c) Where did you move to?
- d) In which jobs did you work?
- e) Do you have close family members living in the US? Did you have family members or friends living in the US before migrating?
- f) What education did you receive in Mexico?

#### 2. Investment

- a) How did the plan to invest occur?
- b) Are you the only owner of the business or do you have partners?
- c) Did you have any difficulties establishing the business? (market limitations, excessive bureaucracy, lack of consulting, others)
- d) Is the business profitable?
- e) Do you still invest remittances (that you receive from your family members abroad) in your business?
- f) Did you receive any governmental support (any level)?
- g) Would you like to invest in the same business?
- h) Do you think that other migrants of this community would like to invest here?

#### 3. Influence of migration experiences on the investment.

- a) Do you have experience with productive investment in the US?
- b) Did you work in the same branch in the US?
- c) Did you participate in any qualification programs in the US?

## **Deutsche Zusammenfassung:**

### **Die Auswirkungen internationaler Arbeitskräftemigration auf Regionale Entwicklung: Das Beispiel von Zacatecas, Mexiko**

In den letzten Jahrzehnten konnte eine stetige Zunahme der internationalen Arbeitskräftemigration beobachtet werden und kann als eine der dringendsten Fragen des neuen Jahrtausends angesehen werden.

Migrationsbewegungen stehen in engem Zusammenhang mit Fragen der wirtschaftlichen Entwicklung. Entsprechend der neoklassischen Theorie sollten Globalisierung, freier Handel und freie Kapitalmobilität zu einer Verringerung der Migrationsbewegungen führen. Empirisch kann jedoch das Gegenteil beobachtet werden. Der Zusammenhang zwischen Migration und wirtschaftlicher Entwicklung ist daher zunehmend in den Fokus wissenschaftlicher Betrachtungen geraten; die Rücküberweisungen der Migranten an ihre Familien in die Herkunftsländer spielen hierbei eine entscheidende Rolle. In der Wissenschaft kann zwischen zwei Schulen unterschieden werden: Während die „Optimisten“ davon ausgehen, dass die Rücküberweisungen Entwicklungsimpulse induzieren, nehmen die „Pessimisten“ an, dass durch die monetären Transfers zunehmende Abhängigkeiten entstehen und die zukünftige wirtschaftliche Entwicklung gefährden.

Mexiko ist weltweit der größte Exporteur von Arbeitskraft. Das Ziel von 97% der mexikanischen Arbeitsmigranten sind die USA. Es wird geschätzt, dass dort mehr als 10 Millionen legale und illegale Mexikaner leben. Dazu kommen weitere 15 Millionen mexikanischstämmige US-Bürger. Aufgrund ihrer historischen Wurzeln konzentrieren sich die Migrationsbewegungen auf einige Staaten Mexikos und unterscheiden sich in ihren Ausprägungen zwischen den einzelnen Regionen. Um dieser Tatsache Rechnung zu tragen wurde für die vorliegende Arbeit ein regionaler Fokus gewählt. Sie konzentriert auf den Staat Zacatecas, da dieser zur traditionellen Region mit hoher Migrationsaktivität gehört und in den letzten Jahren die höchsten Migrationsraten aufwies. Die grundlegenden Fragestellungen dieser Arbeit sind:

1. Wie beeinflussen Migration und Rücküberweisungen die wirtschaftliche Entwicklung in den Herkunftsregionen?
2. Wie beeinflussen Migration und Rücküberweisungen die Wirtschaftsstruktur der betroffenen Regionen?
3. Wie wirken sich veränderte Migrationsmuster auf die Höhe der Rücküberweisungen und das Entwicklungspotenzial aus?
4. Gibt es sub-regionale Unterschiede bezüglich der Migrationsmuster, Rücküberweisungen und des Entwicklungspotenzials?

Eine der wichtigsten Ursachen von Migration sind die Lohnunterschiede zwischen zwei Ländern oder Regionen. Nachdem die erste Generation von Migranten in das Ausnahmeland gewandert ist, erwerben diese ein spezifisches Sozial- und Humankapital, das künftigen Migranten die Wanderung erleichtert. Aufgrund der hohen Migrationsrate weisen 32 der 57 Municipios (Landkreise) des Staates Zacatecas für die Zeit von 1990 bis 2000 ein negatives Bevölkerungswachstum auf. Durch eine Änderung der Immigrationsgesetzgebung der USA ist der Anteil der legalen Migranten kontinuierlich gestiegen, was seit den 1990 Jahren zu einer Verschiebung der Migrationsmuster von temporärer hin zu dauerhafter Migration und einer stärkeren Beteiligung weiblicher Migranten geführt hat. Die sozialen Netzwerke der Migranten sind ausgeprägt. Ein großer Teil wohnt nahe zusammen und trifft sich regelmäßig mit Familienmitgliedern und anderen Migranten gleicher Herkunft. Ihre physische Ausprägung erfahren diese Netzwerke in den Sozialen Clubs der Migranten, auch Home Town Associations – HTA – genannt.

Als Determinanten für Regionalentwicklung können (1) der Zugang zu Krediten, (2) die physische und institutionelle Infrastruktur, (3) relevantes Sozial- und Humankapital, sowie (4) die Existenz regionaler Produktionsketten und eines innovativen Milieus identifiziert werden. Die Auswirkungen von Migrationsbewegungen auf diese Determinanten bestehen vor allem in den Rücküberweisungen, durch die Investitionen der Migranten ermöglicht werden, und den im Ausland erworbenen Fähigkeiten und Kenntnissen. Der Zusammenhang zwischen Migrationsbewegungen und wirtschaftlicher Entwicklung ist ein komplexes Phänomen, das in dieser Arbeit auf verschiedenen Ebenen analysiert wird.

Diese Studie hat zum Ziel die Auswirkungen von Migration und Rücküberweisungen auf der Makro- und der Mikro-Ebene zu analysieren. Zur Analyse der Entwicklungen auf der Makro-Ebene wurde Daten des Statistischen Amtes von Mexiko (INEGI), der Bank von Mexiko und vom Nationalen Rat für Bevölkerungsfragen (CONAPO) genutzt. Für die Mikroanalyse wurden von Januar 2000 bis September 2001 61 Interviews mit Investoren und Entscheidungsträgern geführt und im Sommer 2001 eine Umfrage in sieben Municipios durchgeführt, die zu verschiedenen Regionen des Staates Zacatecas gezählt werden. Ergänzt werden diese Stichproben durch statistisches Datenmaterial aus dem Statistischen Amt Mexikos (INEGI). Mit Hilfe des letzteren wird die wirtschaftliche Entwicklung des Staates Zacatecas dargestellt. Die Umfrage unter 486 Haushalten mit 1283 Migranten in sieben Municipios erfasst Informationen über Migrationsmuster, Rücküberweisungen und Investitionen. In den 55 Interviews mit Investoren wurde nach den Migrationsmustern und Erfahrungen in den USA sowie nach der Art des initiierten Unternehmens und den Problemen bei der Durchführung der Investition gefragt. Interviews und Umfrage wurden mit Hilfe der Maestría en Ciencia Política der Universität Zacatecas durchgeführt.

Mit dem Ölpreisschock von 1982 wurde Mexiko zu einem Paradigmenwechsel seiner Wirtschaftspolitik, von der importsubstituierenden Industrialisierung hin zu einer markt- und exportorientierten Wirtschaft, gezwungen. Konsequenterweise trat Mexiko 1986 dem GATT (aus dem später die WTO wurde) und 1994 der NAFTA bei. Die wirtschaftlichen Aktivitäten konzentrieren sich stark im Raum um Mexiko-Stadt und entlang der 3000 km langen Grenze zu den USA. Das Wachstum des Exportsektors ist vor allem auf die deutliche Steigerung der Maquiladora Industrien zurückzuführen. In diesem Sektor werden unter Nutzung der geringen Arbeitskosten zollfrei importierte Vorprodukte manuell veredelt und zollfrei wieder exportiert. In Mexiko verbleiben nur die geringen Arbeitslöhne, dadurch erfährt die nationale Wirtschaft kaum Wachstumsimpulse.

Zacatecas hat an der landesweiten Industrialisierung nicht teilnehmen können, der Anteil des Staates an der gesamten Wirtschaftsleistung Mexikos fiel in 30 Jahren von 1,02% (1970) auf 0,75% (2003). Die Wirtschaftsstruktur wird weiterhin von der Landwirtschaft dominiert, die im Vergleich zum nationalen

Durchschnitt mit 15,88% das vierfache Gewicht hat. Der industrielle Sektor kommt auf nur 5,87% des BIP gegenüber 18,52% auf Bundesebene. Auch bezüglich der wirtschaftsnahen Infrastruktur weist Zacatecas Defizite im Vergleich zu anderen Staaten auf. Aufgrund des Wegfalls vieler Subventionen, als Folge des NAFTA-Beitritts, hat sich die Situation für Kleinbauern verschlechtert, da sie nicht mit den geringen Preisen der US-Importe konkurrieren können. Im Bereich der Tierzucht beschränken sich die Aktivitäten auf die Kälberaufzucht, die zur Mast weiterverkauft werden. Dadurch sind die Gewinnmargen in diesem Bereich beschränkt. Der ehemals bedeutende Bergbausektor hat durch zunehmende Technisierung seit 1970 über die Hälfte seiner Arbeitsplätze eingebüßt und beschränkt sich auf die Extraktion der Rohstoffe ohne diese weiterzuverarbeiten. Trotz der Bemühungen seitens der Regierung des Staates stagniert der industrielle Sektor seit 1970 bei knapp über 5% des BIP. Zacatecas hat nur einen Bruchteil der ausländischen Direktinvestitionen anziehen können, die in einige der Nachbarstaaten geflossen sind. Die Wirtschaft von Zacatecas hat sich auf die Primärproduktion spezialisiert. Es hat sich keine eigenständige Herstellung von Exportprodukten etablieren können, eine Veredelung findet weder in der Landwirtschaft noch im Bergbau statt.

Eine Regressionsanalyse zeigt, dass Migration einen signifikant negativen Einfluss auf die wirtschaftliche Entwicklung von Regionen hat. Der Zufluss von Devisen durch die Rücküberweisungen der Migranten an ihre zurückgeblieben Familienmitglieder und Freunde haben jedoch positive Auswirkungen auf die Entwicklung.

In der Stichprobe schicken 75% der Migranten Rücküberweisungen nach Mexiko, dabei schicken 81% der männlichen, aber nur 58% der weiblichen Migranten Geld. Allerdings wird berichtet, dass 32% ihre Transfers verringern oder ganz eingestellt haben. Fast 66% der interviewten Personen gaben an, dass die Rücküberweisungen einen wichtigen Teil des Haushaltseinkommens ausmachen. Dies lässt sich durch die veränderten Migrationsmuster von temporärer hin zu permanenter Migration erklären. Individuen, die ihren Lebensmittelpunkt in die USA verlagern, schicken weniger Geld nach Mexiko, da sie ihre Familie zu versorgen haben. Über 66% der Rücküberweisungen werden für die Subsistenz der Familie ausgegeben, nur 5,6% werden direkt in

mikroökonomische Investitionen gelenkt. Wird der Begriff Investitionen jedoch weiter gefasst und werden Ausgaben für Wohnungsbau, Ausbildung, Gesundheit und Ersparnisse ebenfalls darunter subsummiert, dann erhöht sich der Anteil der produktiv verwendeten Rücküberweisungen auf 32,2%.

28% der befragten Haushalte gaben an, in den letzten fünf Jahren eine Investition mit Hilfe von Transfers aus den USA durchgeführt zu haben. Am häufigsten genannt wurde der Kauf von Ackerland, Vieh und landwirtschaftlichen Inputs. Andererseits gaben fast 30% der Haushalte an, dass die Migration eines oder mehrere Mitglieder sich negativ auf die unternehmerischen Aktivitäten ausgewirkt hat.

Der Zufluss von Rücküberweisungen wirkt sich positiv auf die regionale Wirtschaft aus, da neben den direkten Investitionen durch Konsum auch Multiplikatoreffekte entstehen. Dem gegenüber stehen die negativen Auswirkungen der Migration auf die lokale Wirtschaft durch die Abwanderung von Arbeitskräften. Ebenfalls ist zu berücksichtigen, dass die Höhe der Rücküberweisungen aufgrund der veränderten Migrationsmuster in Zukunft sinken wird und diese ihre Funktion als Grundlage der Existenzsicherung für viele Familien nicht mehr ausfüllen können.

Bezüglich der 55 Interviews mit Investoren sind keine gemeinsamen Muster feststellbar. Weder Migrationsmuster, noch Ausbildung oder die Art der Beschäftigung weisen bestimmte Besonderheiten auf. Die gegründeten Unternehmen haben zwischen einem und 50 Arbeitsplätze geschaffen. Die Investitionen konzentrieren sich zu 52% im Bereich Handel, 22% gehören zum Dienstleistungssektor, 14% zum Bereich Landwirtschaft und nur 6% können zum Bereich Industrie gezählt werden. Durch den Schwerpunkt der Investitionen auf Handel und Dienstleistung sind die Impulse für die regionale Entwicklung gering, sie bestehen aus den Einkommen der wenigen neu entstandenen Arbeitsplätze. Obwohl viele Migranten in den USA mit hochwertigen Produktionstechnologien arbeiten, gibt es fast keine Fälle von Technologietransfer. Als ein großes Problem wird in den Interviews die unflexible Bürokratie dargestellt. Investitionshilfeprogramme sind nicht bekannt und wurden daher von den Investoren auch nicht genutzt. Daran hat auch das von 1998 bis 2000 speziell zur Unterstützung investitionswilliger Migranten entworfene laufende FEAZA Programm nichts geändert. Die Antragstellung

wurde als zu umständlich und der Nutzen als zu gering eingeschätzt, so dass es nach zwei Jahren wieder eingestellt wurde.

Aufgrund der sozialen Netzwerke sind viele Migranten bereit Geld zu geben, um familiäre Probleme zu lösen oder soziale Investitionen in den Gemeinden zu unterstützen. Vier Fünftel der interviewten Personen gaben an, dass die Migranten in diesem Haushalt bereits Geld gesammelt hätten, um größere Ausgaben gemeinsam zu finanzieren. Das „Tres por Uno“ Programm hat zum Ziel, den Anteil der Rücküberweisungen zu erhöhen, die in Gemeinschaftsinvestitionen gelenkt werden. Für jeden US\$ der von den HTAs in den USA bereitgestellt wird, geben Municipio, Bundesstaat und Bundesregierung einen weiteren US\$ dazu. Auf diese Art und Weise wurden von 1993 bis 2003, 1285 Investitionsprojekte in den Bereichen Infrastruktur, Erholung, Gesundheit und Ausbildung gefördert. Zwei Fallstudien (Bau eines Staudamms zur Bewässerung landwirtschaftlicher Flächen und einer Verbindungsstraße) zeigen, dass Investitionen in die wirtschaftsnahe Infrastruktur die Rahmenbedingungen für eine nachhaltige Regionalentwicklung stark verbessern können.

Bei der Betrachtung der Unterschiede zwischen den Regionen Nord und Süd im Staat Zacatecas fällt auf, dass die durchschnittliche Anzahl an Personen in den Haushalten des Südens größer ist, aber auch die durchschnittliche Anzahl der Migranten pro Haushalt. Auch liegt der Anteil der weiblichen Migranten im Süden mit fast 30% deutlich über dem des Nordens (21%). Die sozialen Netzwerke der Migranten und der Organisationsgrad in HTAs sind im Norden deutlich höher. Die Bedeutung der Rücküberweisungen für die Subsistenz der Familien, wie auch für die Durchführung von Investitionen ist im Norden signifikant höher als im Süden. Obwohl die Migrationsrate im Süden höher ist als im Norden, ist letztere Region wirtschaftlich stärker von den Rücküberweisungen abhängig. Einkommen, Bildungsniveau und Lebensstandard unterscheiden sich signifikant zwischen beiden Regionen. Dies zeigt, dass Migrationsmuster und die Auswirkungen von Migration sich auch innerhalb eines Bundesstaats stark differieren können. Die Migrationspolitik sollte dem Rechnung tragen.

Die vorliegende Untersuchung hat gezeigt, dass die Wirtschaft in Zacatecas in den letzten 30 Jahren ihre Fokussierung auf Primärprodukte beibehalten hat.

Sie beruht noch immer auf der landwirtschaftlichen Produktion, zu einem geringen Anteil auf Bergbau und zunehmend auf dem Export von Arbeitskraft. Migration und Rücküberweisungen haben sowohl auf der Makro- als auch auf der Mikro-Ebene positive und negative Auswirkungen. Einerseits zeigt die Markoanalyse, dass Migration einen negativen Effekt auf das BIP hat und viele Haushalte ihre unternehmerischen Aktivitäten nach der Abwanderung eines oder mehrerer Familienmitglieder reduziert haben. Andererseits haben die Rücküberweisungen positive Auswirkungen auf das Wirtschaftswachstum und tragen in großem Maße zur Investitionstätigkeit bei.

Die Rücküberweisungen der Arbeitsmigranten tragen signifikant zur Investitionstätigkeit im ländlichen Raum des Staates Zacatecas bei. Da sich diese jedoch auf die Bereiche Handel und Service konzentriert kommt es nicht zu nachhaltigen Impulsen für eine wirtschaftliche Entwicklung. Aufgrund der veränderten Migrationsmuster ist anzunehmen, dass die Rücküberweisungen in naher Zukunft an Bedeutung verlieren werden. Gemeinschaftsinvestitionen in wirtschaftsnahe Infrastruktur, Gesundheits- und Bildungseinrichtungen können die Rahmenbedingungen für Investitionen und regionale Entwicklung verbessern.

Zur Verbesserung der Grundlagen für Investitionen und Entwicklung kann eine verstärkte Kooperation der Regierung des Bundesstaates mit den HTAs beitragen. Eine Möglichkeit wäre die Einrichtung einer gemeinsamen Handelskammer, um das Potenzial für Exporte besser nutzen zu können. Ausgehend von der Landwirtschaft ist der Aufbau von integrierten Produktionsketten zu empfehlen. Um den Impuls für die regionale Wirtschaftsentwicklung zu erhöhen, könnte in diesem Zusammenhang auch über eine Koordinierung der bisher unabhängig von einander durchgeführten „Tres por Uno“ Projekte nachgedacht werden. Damit die Multiplikatoreffekte der Rücküberweisungen nicht direkt in benachbarte urbane Zentren abfließen, könnte die Landesregierung die Ansiedlung einer Konsumgüterindustrie fördern. Für Migranten, die Interesse an Investitionen in ihren Heimatgemeinden haben, aber nicht die finanziellen Ressourcen für eigene Investitionen besitzen könnte die Möglichkeit geschaffen werden, sich durch Einlagen an Investitionsfonds zu beteiligen, die zur Unterstützung von Investitionen durch Migranten genutzt werden.

Weiterer Forschungsbedarf besteht in den Bereichen einer Langzeitanalyse bestimmter Investitionen des „Tres por Uno“ Programms, sowie einer Betrachtung der Ursachen für die festgestellten regionalen Unterschiede um die politischen Strategien anpassen zu können.

Aufgrund der positiven und negativen Auswirkungen der Rücküberweisungen auf die regionale Wirtschaft, sowie der fehlenden Konkurrenzfähigkeit der Kleinbauern, ist nicht davon auszugehen, dass die Wanderungsbewegungen mittelfristig durch Investitionen in den Herkunftsgemeinden gestoppt werden können.

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