#### THE ROLE OF WEALTH AND CULTURAL HETEROGENEITY IN THE EMERGENCE OF SOCIAL

#### NETWORKS AND AGRICULTURAL COOPERATIVES IN AN ECUADORIAN COLONIZATION ZONE

by

#### ERIC CONLAN JONES

#### Under the direction of Dr. Robert E. Rhoades

#### ABSTRACT

Agricultural cooperatives in Ecuador have experienced varied levels of success as well as increased difficulty staying together in the past 20 years. In addition, a trend towards greater concentration of landholdings and corresponding increases in inequality erodes land reform's positive impact on the equitable distribution of land, albeit limited. For example, migrant laborers seek work with the new, large palmito and African palm plantations. These in-migrants are becoming more numerous than the original land-seeking pioneers who colonized northwest Ecuador' s Las Golondrinas area 200 years ago.

Research linking the areas of migration and social structure has neglected the implications of migration for the design and effectiveness of cooperative social relations, including the development of agricultural cooperatives. Drawing on quantitative and qualitative data about migration streams, villages' social networks and the social networks of agricultural cooperatives in the Las Golondrinas colonization zone of northwest Ecuador, this research demonstrates the dynamics of three processes. First, migration affects the social relations involved in colonists' economic activities, with high mobility nurturing the tendency to trust fellow villagers based on similarity of their socioeconomic status, especially in the more central town of a regional economic system. Second, cultural similarities and the cohort effects of inmigration dampen this tendency, thus altering the conditions under which capital accumulation detracts from or improves formal and informal cooperatives may be held together by wealth differences because wealthy members take on disproportionate costs (and benefits). To succeed in the long term, however, the cooperatives must rely on in-group mechanisms for creating trust or a sense of shared fate.

INDEX WORDS: Anthropology, Agriculture, Collective Action, Colonization, Cooperatives, Cooperation, Culture, Diversity, Economic Anthropology, Frontier, Heterogeneity, Inequality, Instability, Migration, Natural Resource Management, Pioneers, Social Networks, Social Organization, Social Structure

# THE ROLE OF WEALTH AND CULTURAL HETEROGENEITY IN THE EMERGENCE OF SOCIAL NETWORKS AND AGRICULTURAL COOPERATIVES IN AN ECUADORIAN COLONIZATION ZONE

by

ERIC CONLAN JONES

B.A., Hamline University 1992

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial

Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

© 2002

Eric Conlan Jones

All Rights Reserved

# THE ROLE OF WEALTH AND CULTURAL HETEROGENEITY IN THE EMERGENCE OF SOCIAL

# $Networks \ \text{and} \ Agricultural \ Cooperatives \ in \ an \ Ecuadorian \ Colonization \ Zone$

by

ERIC CONLAN JONES

Approved:

Committee:

Major Professor:

Kavita Pandit Stephen A. Kowalewski Theodore L. Gragson Fausto O. Sarmiento

Robert E. Rhoades

Electronic Version Approved:

Gordhan L. Patel Dean of the Graduate School The University of Georgia May 2002

# DEDICATION

To small farmers and cooperativists everywhere, for creating alternative forms of socially organized production, and to Stephen Thompson, whose study of colonists inspired this work.

#### **ACKNOWLEDGEMENTS**

My Ph.D. committee at the University of Georgia was wonderfully supportive of this project, and gave important feedback to help me convey my research and ideas to others; for both of these forms of help, I am very grateful to Robert Rhoades, Kavita Pandit, Steve Kowalewski, Fausto Sarmiento and Ted Gragson. Particular thanks to my advisor Bob Rhoades for constantly reminding me that my subject matter was people, not just migration systems, social networks, economic inequality or cultural homogeneity. I also appreciate the generous staff of the Department of Anthropology at the University of Anthropology and their assistance along the way. Charlotte Blume offered support above and beyond her role as graduate secretary—I am humbled and thankful.

The insights and experiences I gained through my dissertation fieldwork resulted in part from financial and logistical support from SANREM (Sustainable Agriculture and Natural Resource Management project, funded by the United States Agency for International Development) and logistical support from partner institutions in Ecuador, including Ecociencia, La Universidad Tecnológica Ecuatoriana, and La Pontificia Universidad Católica del Ecuador. Bob Rhoades made sure I had whatever I needed, and Hector Ballesteros helped me navigate Quito's labyrinth of government and non-government informational resources.

My intellectual debts for this specific project span the length of my graduate career. In 1996, it was my reading of Frank Salomon's chapter "Killing the Yumbo" (1981) that stirred the anthropological instantiation of my long-held interest in migration and social structure. My reading of Mika Cohen's M.S. thesis (1999) led me to think of instability and predictability in information transmission as integral to any framework that would help me address my questions. Steve Kowalewski encouraged me to consider central place theory as a way to deal with my

v

questions concerning geographic variation in the relationship between migration and social networks. All other intellectual debts are noted in the form of citations in the body of this work.

The people of the area of Las Golondrinas deserve my gratitude for their patience and generosity. They deserve my admiration for their sincerity and honesty. What made this project most enjoyable were these people I met in the course of fieldwork. What made it most doable was the support of graduate colleagues, my parents and, especially, my wife.

# TABLE OF CONTENTS

PAGE

ACKNOWLEDGMENTS				
CHAPTER				
1 INTRODUCTION				
Theoretical Outline: Colonization, Heterogeneity and Cooperation				
Objectives and Methodological Rationale				
Justification of the Field Site of Las Golondrinas				
Outline of this Work 12				
2 ETHNOGRAPHIC SETTING 13				
2 Entitoticatine Seriation: Las Colondrinas, Foundar 13				
Stellowert and Develotion Change				
Settlement and Population Change				
Sample Sending Areas				
Land Tenure and Land Use Change25				
A Town without a Provincial Home				
Regional Agroecology				
3 MIGRATION SYSTEMS IN A PIONEER COLONIZATION ZONE				
Problem Statement				
Studies in Migration and Rural Development42				
History of Migration and Rural Development on Ecuador's Coastal Plain51				
Methodology				
Results and Discussion				
Conclusion: Migrant Foundations for the Development of Social Organization74				

4	PEASANT SOCIAL NETWORKS ON THE FRONTIER	76	
	Problem Statement	76	
	Literature Review: Rural Social Networks	77	
	Social Relations on the Frontier in Ecuador	85	
	Ethnographic Background of Villages	87	
	Methodology	90	
	Results and Discussion	92	
	Conclusion	101	
5	SOCIAL NETWORKS OF AGRICULTURAL COOPERATIVES ON THE FRONTIER	104	
	Problem Statement	104	
	Previous Studies on Inequality and Heterogeneity	105	
	The Context for Ecuadorian Cooperativism	110	
	Las Golondrinas Cooperatives	112	
	Methodology	117	
	Results and Discussion	121	
	Conclusion	139	
6	CONCLUSION: THE DEVELOPMENT OF SOCIAL NETWORKS	134	
	Introduction	134	
	Summary	134	
	Practical Implications	137	
	Directions for Future Research	139	
REFERENCES CITED			
APPENDICES			

#### CHAPTER 1

#### INTRODUCTION

#### **Theoretical Outline: Colonization, Heterogeneity and Cooperation**

Research on pioneer communities and agrarian colonization has answered many, if not most, of the questions about the process of settlement and the hardships that pioneers face, as well as the effect of mixing different ethnic groups. Nonetheless, the literature focuses much less on various aspects of social structure<sup>1</sup> (exceptions include Schmink and Wood 1992; Farmer 1957; Redclift 2000; Nyerges 1992; Haenn 1999). Research on pioneer colonization continues because of the interest in ameliorating colonization's effects on the biophysical world—particularly, deforestation of tropical lands (e.g., Schmink and Wood 1984; Moran 1993; Pichon 1996a). The frontier has proved theoretically alluring to social scientists, at least since the formulation of Frederick Jackson Turner's 'Frontier Thesis' concerned with the democratizing force of the North American wild west (Turner 1961 [1893]). But virtually unnoticed are calls to study socio-cultural change in pioneer communities in order "...to specify precisely what is changing, from what and to what" (Thompson 1973:3).

Thompson (1973:3) saw that the study of pioneer colonization presents the opportunity to investigate how migration and differences among migrants influence the development of a community's social and cultural institutions. On the frontier, with its constant in- and out-migration, these institutions unfold in stark relief since they are rapidly forming anew.

<sup>&</sup>lt;sup>1</sup> Social structure includes class formation, class-consciousness, kinship, fictive kinship, social networks, cooperation, status, etc. Appendix 1 also provides a glossary of terms used.

Specifically, it is now clear that migration is an important mediating factor in determining the nature of social networks. For example, Grieco (1998) showed that when individuals arrive in a place on their own they develop primarily weak ties in their social network, while those who arrive as part of a group develop strong ties.

I hypothesize that colonists' economic and cultural differences also will be important in the evolution of their social networks. In the past decade there has been an upsurge of interest in ecological anthropology in the complex effects of economic and cultural differences in determining the effectiveness of cooperation. This interest has been directed particularly at the prospects for common pool resource management and conservation efforts in traditional or smallscale societies. That is, in situations where property is held in common, a major question has been to determine how resources are managed.

In terms of economic differences, researchers argue that the rich and poor might act differently in collective action situations (e.g., Ruttan and Borgerhoff-Mulder 1999; Olson 1965). Also, cultural similarities can cause individuals to identify with a common future, and similarities also may help spur the development of strong interpersonal relationships. Identifying with a common future has been identified as improving the likelihood of cooperation (Ostrom 1992), as can strong interpersonal relationships (Portes and Landolt 2000). Lastly, central place theory suggests that social networks should vary according to place in a regional economic system (cf. Smith 1976). The frontier is a dendritic regional economic system where consumer goods are imported through a succession of intermediaries from the center to the hinterland and vice versa for the export of agricultural goods. My hypothesis is that place in a regional system dictates the kinds of economic differences that will be important to people as they develop relationships.

In this thesis, I place the confirmed generalizations above and my hypotheses into a theoretical framework. This framework shows how demographic instability (e.g., migration) and agro-ecological instability (e.g., the frontier) alter the basic human tendency of basing in-group formation on access to resources and cultural similarity. I expect these tendencies to influence

social network development in both formal and informal settings. One model for putting economic inequality and cultural similarities into the same model with cooperation, would be that these dynamics are filtered by social capital to produce success/failure (See Figure 1).



Figure 1. Graphic Conceptualization of the Relationship between the Study Variables.

What is social capital? Social capital includes individual and group attributes that provide a basis for cohesion and group activity. For this study, I have operationalized social capital as social networks based on interpersonal trust. The effect of place in a regional economic system I propose acts through wealth differences, rather than cultural differences.

The study of social networks pioneered by Barnes (1954) was an attempt to deal with new ideas about 'community' in anthropology at the time. It allows for an understanding of structure of the group and relations between individuals, as well as how individual characteristics relate to these two features. As shown in Figure 1, I chose three fundamental variables for the development of social relations aimed at cooperation on the frontier: 1) geographical location of a village in a regional economic system, 2) individual differences in wealth, and 3) differences in beliefs and cultural traditions.

#### Regional Systems and Rural Social Networks

Central place theory holds that some of the variation in economic activity can be observed along a gradient, radiating out from a larger more influential central town. The theory is based originally on von Thunen' s (1966 [1826]) idea that intensity of land use around an urban center will vary directly with proximity to the urban center. Smith (1976:15) concluded in a review of regional analyses that presence or absence of goods is predicted very reliably by location in a regional system. Additionally, Blanton et al. (1996) proposed that as communities develop, distinct political economic formations allow for different modes of social relations and cooperation. Thus, taken in concert with central place theory, this idea suggests that social activities should also be beholden to place in a regional economic system.

Central place theory allows for several types of regional economic systems. One system is that of a regional focus on export monoculture—like Las Golondrinas' early focus on coffee and cacao, and its current focus on palm—which tends to create a dendritic system characterized by external demand, foreign capital, interregional transport, hierarchy of commercial centers, and local organization of productive sectors (Appleby 1976:292). The more rural producers typically have access to less information about prices, plus have less access to transportation, putting them at the vagaries of unstable markets. Although there has been no work done on social networks in and central place theory, there are some indications that social networks vary with place in a regional economic system. For example, peasants are more likely to trust others interpersonally, but less politically, while urbanites are the opposite (Seligson and Salazar 1979).

#### Wealth Heterogeneity

The impact of wealth differences within social networks is quite complex. Although wealthy individuals (and institutions) often attempt to maintain their wealth at the expense of others, agricultural cooperatives might actually be held together by inequalities under certain conditions (Pandey and Patthak 1997; cf. Phillips 1993). Others also have suggested that high

wealth heterogeneity may create a particular condition under which wealthier members take on a disproportionate economic responsibility in order to ensure the success of collective action (e.g., Olson 1965:33-4; Ruttan and Borgerhoff Mulder 1999; Ruttan 1998) or even the survival of fellow rural producers under ecological stress (Bollig 1998:147). This tendency of the wealthy is especially acute under certain resource extraction technologies (Baland and Platteau 1998). Cooperation also suffers if extreme homogeneity discourages anyone from taking the initial lead to invest time and money (Molinas 1998), or if the wealthy opt to exit—which creates greater homogeneity.

On the other hand, similarities in risk perception (thus, potentially similar access to resources) also encourage success of collective action (Ostrom 1992:299). Also, high wealth differences between individuals might discourage cooperation if poorer members lose their incentive to participate because of lack of benefits (Ruttan and Borgerhoff Molder 1999; cf. Baland and Platteau 1999).

In addition, at least a couple of social processes can be implicated by variation in wealth, although the exact nature of these implications is unclear. For example, when individuals identify with a common future (Ostrom 1992) and develop strong (trusting) interpersonal relationships (Portes and Landolt 2000), collective action efforts are likely to be more successful. If cooperatives vary regarding the extent to which members are seen as *compañeros*, or trusted by fellow members, the question arises: What exactly are individuals taking into account when deciding whom to trust? More specifically, how does wealth heterogeneity affect trust between villagers or cooperative members?

#### Cultural Homogeneity

Given that there are many conditions limiting the benefits and potential success of cooperation, cooperation by groups of any size is difficult and relatively rare. As just mentioned, one of the strongest constraints is the difficulty in creating conditions of 'shared fate' or common

future among members of a group. Cooperatives on the frontier have had a difficult time because settler members are usually from different parts of a country or the world, or belong to different religions (e.g., Smith 1982:91; Farmer 1957:299-303). It might be useful to reinterpret Ostrom's (1990, 1992; Becker and Ostrom 1995) work on factors in the success of collective action as factors in the development of certain kinds of trust. For interpersonal trust, two categories of factors appear to be important: 1) factors influencing the degree of cultural homogeneity, and 2) factors influencing the availability of information about the behavior of others. I hypothesize the second category to include the use of both wealth and cultural statuses as proxies.

Carneiro's (1967:238, in Hallpike 1988:248) point that multi-community societies elaborate social structure more slowly than single community societies suggests that even in small groups, such as small farmer cooperatives, social networks will tend to be more dense where a single culture is more dominant because of the lack of sub-groups and sub-group interactions. Thus, I would expect cultural diversity in a cooperative to make social networks (for the management of sub-group relations/information flow) a more important variable than in the case of less diverse cooperatives.

#### **Objectives and Methodological Rationale**

Understanding how social networks form under conditions of changing group membership is an important problem, since both informal and formal networks serve numerous social and economic functions. Often, social networks are critical determinants of local land use patterns and economic sustainability. Also, formal institutions and informal social networks help organize economic production and the related functions of households in rural places that are ever more tightly connected to the vagaries of world markets and economic cycles. Changing groups and economic instability present a problem for effective cooperation among rural producers, whether pooling capital or managing collective goods. Questions capturing the essence of this problem include: What are the factors that influence the development of group dynamics? What

determines the patterning of such interactions under conditions of instability like the frontier? Clearly, demographic change is important, but a clear understanding of the effects of migration on individual and group level cooperation remains absent. The study of pioneer colonization presents the opportunity to investigate the influence of migration on the development of a community's social and cultural institutions (Thompson 1973:3; see also Farmer 1957).

Three questions came to guide my investigation, and I used three separate data sets to attempt to answer these questions:

- 1. What economic and cultural variation in migration streams might create a basis for the structure of social networks?
- 2. Does spatial/geographical variation matter for how migrants interact on the frontier? And, are the social networks that develop out of these interactions different for different villages?
- 3. Do differences of wealth inequality and cultural diversity affect the success of agricultural cooperatives?

In total, I spent over a year in Las Golondrinas and made systematic observations that were recorded in a diary and later transcribed for analysis. Investigating the change in social networks is a complex problem requiring either 1) diachronic data, or 2) comparative data that represents instantiations of social networks representing potential states over time. For migratory behavior and work histories I was able to collect both. For social networks, I was able to collect comparative synchronic data for several villages and several cooperatives.

My data analysis required descriptive statistics, as well as some statistical tests of significance for nominal, ordinal and interval data. For most of these analyses, I used SPSS 9.0 (SPSS Inc. 1999), and for a few I used SYSTAT 8.0 (SPSS Science 1999). For social network analysis I relied on UCINET 5 (Borgatti, Everett and Freeman 1999) for structural characteristics. I analyzed other variables by hand with the help of a networks graphics program called Payek

0.69 (Batagelj and Mrvar 1996) in order to produce descriptive statistics. Each of the data chapters (4-6) contains a detailed methodology section explaining data collection and analysis.

As with most anthropological investigations, both quantitative and qualitative data were important to address the question of how people related to one another on the frontier. Looking back now, qualitative data makes sense in light of what I found quantitatively. However, qualitative data would not have allowed me to develop conclusions about the questions that guided this thesis. As such, I needed to collect data on patterns of migration, work histories, wealth and social networks. In total, I used a mixed methodology approach consisting of the following strategies: comprehensive migration survey, informal interviews with farmers, semistructured interviews with long time residents, co-op member questionnaires, and network questionnaires. The data collection techniques are replicable, and my observations and informal interviews gave me a perspective from which to evaluate and crosscheck data acquired through these formal methods.

#### Comprehensive Migration Survey

Before I undertook any serious analysis of social structure, it was useful to understand patterns of migrant arrival and departure from the frontier. Frontier areas characterized by rural to rural migration are tied to a larger capitalist economy through their agrarian economic bases and extractive potential. Migration in and out of such areas often responds to the booms and busts of export crops, but also depends on friends and family. Variation within the Las Golondrinas area reflects these dynamics in various provinces from which migrants arrived in the past three decades.

I conducted with assistants in 1997 a migration survey for SANREM-Ecuador with 326 individuals. We sampled every third household in urban areas and every second household in rural areas and tried to get representative numbers of households from each of 20 villages/rural areas. The data I used for the purposes of this included migration histories, work histories,

household size, wealth, land tenure, and expectations for the future. Data were entered into Excel and later SPSS for analysis.

An understanding of land tenure change required access to surveys and plans drawn up by the government for parceling out the benefits of land reform. With permission from the National Institute for Agricultural Development (INDA), I reviewed a number of plans and photocopied the ones for Las Golondrinas, Buenos Aires and El Progreso, the three landowner organizations surrounding the frontier town of Las Golondinas. The local Recorder's office in Chone allowed me to review their books in order to create a random sample of land sales over the past 30 years, thus providing a context for the migration of people from Chone to Las Golondrinas.<sup>2</sup>

#### Community Network Survey

Social network analysis is useful for understanding the kinds of relationships forged by individuals as well as for analyzing the structural characteristics of groups. The roles of cultural and wealth heterogeneity in developing trust within four villages were examined through this data set, which also helped determine the relationship between village networks and a community's physical position within a regional market system.

Using a snowball sample technique, a local assistant in each village collected network data from four villages for which I already possessed representative migration data. Those villages were selected because they were the largest villages and because they had varying degrees of interaction with the central town of Las Golondrinas. To begin the snowball sample, five informants from a variety of wealth classes were chosen from varying distances away from the center of town and ask to name people with whom they got along the best.

 $<sup>^{2}</sup>$  At least through 1997, the canton of Chone was the single largest contributor of migrants to Las Golondrinas.

In order to get a sense of community life as well as a range of opinions on agricultural life in Las Golondrinas, I collected a number of informal interviews with people within the Las Golondrinas area in 1997, 1999 and 2000. In 1999, I conducted informal interviews in several villages from which migrants to Las Golondrinas originated or which they had used as stopping points.

#### Structured Interviews with Cooperative Members

For this thesis, the conditions under which capital accumulation adversely affects cooperatives and when it can improve cooperative success with the help of cultural homogeneity were investigated through an analysis of cooperative social networks.

In 2000, quantitative demographic and socioeconomic data was collected through oneon-one structured interviews with cooperative members. The interviews elicited the intracooperative social networks of eleven agricultural cooperatives in the Las Golondrinas area. I used the reported level of trust in every member of the cooperative as a basis for creating each social network.

One difficulty in analyzing factors responsible for change in social structure is to collect reliable data that reflect stages in the development of social organization. One approach would have been to intensely study one or two cooperatives, and collect qualitative data on the nature of the relationships in the cooperative over time, based on informant recall. Another would have been to collect data on social relationships among a large sample of villagers within a single village. The methodological design used here is comparative. Social organizational features were compared between village communities and, on a smaller scale, the structure of social networks within several agricultural cooperatives in different stages of development were compared. This method was chosen both for its power to control for anomalies as well as because a comparative approach allows a researcher to build generalizations regarding the development of informal and formal cooperation.

Most of the cooperatives in the Las Golondrinas area were able to lend me their past minutes of meetings which I photocopied to examine membership, past activities and develop an ordinal measure of success. Also, I attended approximately 20 cooperative meetings to observe personal interactions among cooperative members.

#### Justification of the Field Site of Las Golondrinas

This anthropological inquiry focuses on social networks among peasants in a colonization area in northwest Ecuador characterized by extreme economic and demographic fluctuations, and is an attempt to unite a disparate yet rich literature on migration, peasant production, and social organization.

The fact that formal cooperatives in Ecuador have had varying levels of success and increasing difficulty staying together in the past 20 years provided a major motivation for this study. As such, I selected the study site of Las Golondrinas because the area has had a relatively large number of agricultural cooperatives—some successful, some struggling and some defunct. Significant changes in agrarian production and markets have caused changes in relations of production, constraining the possibilities of agricultural cooperatives in Ecuador (Phillips 1993). Although land reform in the 1960s and 1970s accompanied the continued rationalization of the Ecuadorian economy, the (limited) effects of land reform are being countered by a trend towards greater concentration of landholdings and corresponding increases in economic inequality. Many farms on the frontier are failing. In addition, increased proletarianization is occurring as Latin American governments abandon land reform for other sectors as possible avenues of economic development, since agriculture as a percentage of GDP is decreasing (Thiesenhusen 1995).

Cooperativism in Las Golondrinas is an interesting case for several reasons. First, the lack of time depth in newly settled areas made it possible to observe cooperative attempts develop. Secondly, the diverse group of migrants who settled in the area created a unique

opportunity to observe the ways in which individuals from different cultures and different landscapes interact and share knowledge.

#### **Outline of this Work**

Chapter 2 presents a complete ethnographic description of the town of Las Golondrinas and its hinterland, as well as relevant national and regional scale processes. I describe in chapter 3 the migration streams to Las Golondrinas associated with these processes. Chapter 4 considers the relationship between the place of any village in a regional system and the structure of that village's social networks, and explores the proposition that wealth and cultural heterogeneity of colonists influences the structure of social networks. Whether or not wealth and cultural heterogeneity have similar effects on social networks within formal institutions like agricultural cooperatives, I examine in chapter 5. Chapter 6 provides summative remarks regarding informal social relations and formal organization on the frontier. It is likely that such descriptions of actual patterns of cooperation, combined with a theoretical understanding of the factors involved in the success or failure of formal cooperatives, have the potential to inform small farmers as well as policy makers ways for improving the organization of cooperative institutions. The economic success of small farmers in the Las Golondrinas area is essential to sustain the ecological viability of the region: their position on the landscape is one of the strongest obstacles to large monocropping landowners and lumber companies who are positioned to soon dominate the area.

#### CHAPTER 2

#### THE ETHNOGRAPHIC SETTING

#### Site Description: Las Golondrinas, Ecuador

Las Golondrinas is a small, relatively newly settled town around 60 kilometers, as the crow flies, to the southeast of the provincial capital of Esmeraldas, which lies on the northwest coast of Ecuador (see Figure 2.1).



Figure 2.1. Coastal NW Ecuador's Major Cities and the Area of Las Golondrinas.<sup>3</sup>

<sup>&</sup>lt;sup>3</sup> After source: http://www.terraquest.com/assignment/maps/cont/b3.htm.

The major town of 8000 people, and the region of colonization (about 40,000 people, and 30x40km or around 1200 sq km), are both called Las Golondrinas—settled almost totally by Mestizos, along with a few Afro-Ecuadorians. The Las Golondrinas area is primarily defined by two rivers: the Canandé and the Guayllabamba, although recent colonization also occurs to the north of the Canandé River. The area between the Canandé and Guayllabamba Rivers is a flat plain, comprised mostly of sandy soils with a shallow layer of topsoil—a characteristic of many low-lying, flat tropical soils. The soils of western Ecuador have been characterized generally as more fertile than other typical tropical soils in the world (Dodson and Gentry 1991:274).

Las Golondrinas' sandy plain is cut frequently by small, clear streams that run to the south and east, eventually into the Guayllabamba River, and are used for bathing, clothes washing and fishing. Annual rainfall is 4.5-7 meters for this region of Esmeraldas (DeBoer 1996:17), which lies within a band of tropical moist forest that runs from Colombia half the length of Ecuador and covers much of the coastal plain and western Andean foothills (Dodson and Gentry 1991:275). Even higher rainfall occurs to the north, and even lower rainfall occurs to the south and west. Most long-time residents speak with ambivalence about an earlier time when rainfall was perceived to be even more plentiful. The ambivalence derives from: 1) the constant rain, the unbearable malaria that accompanied their early years here, and the then-difficult-to-cross torrential Guayllabamba River, vs. 2) the current dryness that even negatively affects production levels—"Aqui no se conoció el verano, solo de 1978 en adelante".<sup>4</sup> The palm plantations that dominate the area and the lack of forests also concern locals that desertification might not be far off.

Several semi-distinct communities are located within the Las Golondrinas area. Buses travel between Las Golondrinas communities and the greater northwestern Ecuadorian area on a regular basis. Roads also allow access by car.

#### **Settlement and Population Change**

Colonists first arrived in the Las Golondrinas area in 1968.<sup>5</sup> At that time, however, only one man known as the '*mochilero*' resided on the north side of the river. He cultivated several hectares of coffee at the site that would later become the landowner's association <sup>6</sup> Las Golondrinas, and then a thriving frontier town (see Figure 2.2). Downriver, the Guayllabamba landowners' association (resulting in the village El Recreo) was getting rolling at about the same time, soon to be followed by formation of the 15 de Octubre association (later Zapallo), and later the Perla Esmeraldeña landowners' association (later La Te). Approximately thirty landowners' associations received land in the Las Golondrinas zone of colonization.



Figure 2.2. Las Golondrinas Town and the Region of Las Golondrinas.

<sup>&</sup>lt;sup>4</sup> "Here, we never used to have a dry season, at least not before 1978."

<sup>&</sup>lt;sup>5</sup> Pottery fragments and other signs of prehistoric occupation throughout Las Golondrinas, such as floral indicators, suggest that this might be seen as a recolonization of the area. Archeological study detailed prehistoric life around the Santiago and Cayapas Rivers (DeBoer 1996), but population estimates and level of political organization for the Canandé-Guayllabamba area (Las Golondrinas) do not exist. Chachi, living at the northwestern edge of the Las Golondrinas region probably migrated into the area in the past one or two hundred years (Barrett 1994).

<sup>&</sup>lt;sup>6</sup> I use the term landowners' association, since the term used for the formal association allowing access to land reform is *pre-cooperativa*, which should not be confused with cooperatives.

Migrants who have populated Las Golondrinas can be divided into two types. One group, composed mainly of adult males in their 20s and 30s soon to be followed by their nuclear families, arrived between 1970 and 1980 in search of land. These original inhabitants were not the poorest of peasants; my research suggests instead that these migrants into Las Golondrinas were farmers who owned land and took advantage of land reform when drought caused declines in crop productivity in their place of origin (see chapter 3).

Increased difficulties in small-scale agriculture throughout Ecuador in the 1980s (Phillips 1993) led to the exodus of families from the area and a continuing reversion of much of the land to haciendas and large-scale farming. Of the original beneficiaries of land reform in the three adjoining cooperatives of Buenos Aires, Las Golondrinas and El Progreso, all but six percent have sold their land and moved to Quito, Santo Domingo, other big cities, or back to their home province to improve their quality of life by purchasing land, setting up a small business, or educating their children. Some families have moved into Las Golondrinas from surrounding rural areas and small neighboring villages for the education for their children, keeping their land in the outlying villages. Others board their children in Las Golondrinas with kin.

The second group of in-migrants was young male wage laborers. Most of the migrants in this group arrived more recently, to work in the newly begun palm plantations that sprang up with land centralization and the exodus of small farmers. Migrant workers in palm, palmito, and logging stay between a couple of weeks and a year.

Carlos Guerrero, considered the town founder, first arrived with his parents in 1968 on the south side of the Guayllabamba River, where the landowners' association of Buenos Aires was being founded. He returned to the north side of the river a couple of years later from his homeland in Los Rios with countrymen soon to follow. Guerrero and early settlers measured out 62 parcels that were given for free to those people who came to the banks of the Guayllabamba River from various provinces of Ecuador. They shouted across the Guayllabamba River, asking if there was land available and for how much and were told it would cost them nothing. In exchange

and in appreciation for his leadership and having measured the land, as well as for providing a place to stay when they were stranded, they gave him machetes, sugar and other basic goods. He felt that helping build the village was worth the sacrifice, and added "Hay que ser dynamica para crear un pueblo."<sup>7</sup>

In the Las Golondrinas area, men labor in the fields from 7 a.m. to 1 p.m., or thereabouts, if working for someone else. Landowners often keep longer hours, but are also seen taking days off. Women care for animals, gardens and children, and many consider agriculture their primary activity. Children help with minor chores, but during the school year are expected to perform well in school rather than help so much on the farm. Children in poor families have less choice, and older girls often wash clothes to earn extra money for school expenses.

Mostly nuclear families make up households, though there are occasional stem families. Some households are made up of just unrelated laborers, who have come to work on the African Palm plantations (which produce palm oil for cooking and household cleaning products) and the palmito plantations that produce palm hearts to be canned and exported. Small farmers plant rice, coffee, cacao, and corn for sale and fruit trees for household consumption. Rice, of course, is also the household staple. Typically each farmer works their own land with their families,<sup>8</sup> occasionally sharing labor with a neighbor, and often hiring laborers for planting and harvesting. In some cases, small farmers have banded together to form cooperatives to process, transport, or sell their produce, typically rice, coffee, and recently, palm has even become a crop of choice for small farmers with enough capital. Market is held Sundays in the town of Las Golondrinas when the dirt main street of this town, which normally boasts very few vehicles, becomes impassable.

In 1997, the SANREM Migration Survey shows approximately half of the immediate family members of Golondrinas residents lived with them and half lived in other households, either locally or in other provinces like Guayas, Los Rios, Loja, Manabí and El Oro. It was from

<sup>&</sup>lt;sup>7</sup> "You have to really animate people in order to build a village."

these provinces, following droughts in the 1970s, that most migrants to Las Golondrinas originated. Migration to Las Golondrinas for many migrants appears to be a two, or more, step process. Often, upon travel North, these southwestern Ecuadorians stop first in a regional city in their province of origin, then in Santo Domingo de los Colorados or Quinindé or nearby, before moving to Las Golondrinas. Santo Domingo is the western crossroads for agricultural products and is more agriculturally diverse than dry northern Manabí or humid Las Golondrinas, but similar in agricultural diversity to southern Manabí and the rest of the southern coastal plain. Some landowners living in Las Golondrinas have family in southern Ecuador to which they still have economic ties maintained by circular migration and occasional remittances of money or items like a chicken, leg of beef, a stalk of plantains, etc.

The 1997 population structure of Las Golondrinas is presented below in Figure 2.3, and includes all members of the 326 households in the SANREM Migration Survey.



Figure 2.3. Age and Sex Distribution of Las Golondrinas Region, 1997

Typical of Third World populations, the population pyramid was very wide at the bottom and very thin at the top, perhaps even thinner at the top than most, since virtually all of the original settlers—thus older residents—have left.

<sup>&</sup>lt;sup>8</sup> Probably a majority of landowners only possess provisional titles, since they have not paid the

### **Sample Sending Areas**

Where do these migrants come from? Four areas from which the colonists of Las Golondrinas hailed are shown in Figure 2.4. Milagro lies in Guayas province, and the other three sites lie in Manabí province, the province from which the highest number of people migrated to Las Golondrinas.



Figure 2.4. Four Areas Sending Migrants to the Las Golondrinas Colonization Area (Milagro, Rocafuerte, Las Gilces, Chone).

government for the land they received under land reform.

#### Milagro

On the southern coastal plain of Ecuador, some people started buying land as early as World War II for 500-1000 sucres/*cuadra* (0.7 hectares), although more change in land tenure occurred when IERAC distributed land to landowners' associations on the coast in the 1970s through land reform, typically 30-50 hectares per nuclear family. In the Milagro area in 1999, one cuadra went for 30 million sucres if one-half kilometer from the road but still with access to the road, and 80 million sucres if on the road. Despite seemingly high prices, in-kind rent prices were roughly equivalent to mid-1940s rents (a sack of rice).

This is the land of pineapple, although Milagro also has a reputation of producing cattle, rice, sugar cane and cacao. Pineapple prices were quite variable, ranging from 1000-6000 sucres/pineapple in 1999. One man said his pineapple seed was from 1941. Several farmers asserted that pineapple is best cultivated organically, one reason being that harvest lasts 5-10 years instead of two. To be competitive, however, farmers planted 30cm between plants instead of the traditional 1-2 meters between plants, in addition to using chemical fertilizers and planting between the harvested rows after the second harvest. Before land reform, pineapple was even more important, the sole crop of some families, but at the turn of the 21<sup>st</sup> century, variable prices and chemical fertilizers made it difficult to make a living, and smallholders began to cultivate corn, cacao, manioc and rice. Other crops also were plagued by difficulties; cacao was particularly fraught with pests and was negatively affected by El Niño in 1997, and cattle often stolen by rustlers who aren't hesitant to kill cowboys or owners. Some wealthier landowners have turned to greenhouses for ornamentals and perennial food crops, although mostly for resale and not actual production. Wages in the greenhouses in 1999 were 25,000 sucres/day.<sup>9</sup>

<sup>&</sup>lt;sup>9</sup> Inflation and devaluation relative to the US dollar was extreme at the end of the 1990s. Appendix 2.1 presents values for inflation and exchange rates.

#### Rocafuerte

On the coastal plain in the village of Rocafuerte, Manabí, most people cultivate rice during the wet season (December-May) and corn during the dry season, as well as cattle, cotton, watermelon, melons and cucumber, though the last three have been devastated in the late 1990s due to invasion of the white fly. Good rice production was 50-80qq/hectare;<sup>10</sup> 30 quintales/hectare was adequate for corn. Perennial crops included papaya and plantain<sup>11</sup> while dryer mountainous areas produced more coffee, castor bean and cattle. Other annual crops are difficult to care for due to neighbors' chickens, pigs and dogs, as well as occasional thieves. Some had a belief that it is not a good idea to plant the same thing time after time for annual crops, while others told of multiple croppings in the same year of rice in the low places and of corn on the dry hillsides. The poor plant yellow corn more because it stores longer, providing possible insurance against price fluctuations.

In some parts of southern Manabí, where there is a long history of smallholding and both the landless and land-owners farm rent land for rice at up to three times 1940s rent prices.<sup>12</sup> In the municipal market in Rocafuerte, no farmers sell their own produce, but leave it all to resellers. Other products from this area are sold to other parts of Ecuador. For example, a Colombian company transported all the grain from one of the storage facility of one of the middlemen. Only the larger plantations run cattle around here. For smallholders, and even on many larger extensions, rice is hand-harvested and hand-threshed, then stored or hulled by machine. Rice straw is burned or sprayed with herbicides to prepare it for the next planting of rice or corn.

Locals perceive land tenure and agriculture in general to have changed little in the past 35 years. Smallholdings are farmed both by people living on the land and people living in the town of Rocafuerte. Town-dwellers who farm usually have access to family land in the countryside. Workers are employed for planting, weeding and harvesting, and in 1999 were paid 10,000-

<sup>&</sup>lt;sup>10</sup> the number of 100lb sacks/hectare

<sup>&</sup>lt;sup>11</sup> Seeds for plantain are available from friends, usually.

20,000 sucres for work 7 a.m.-12 p.m. and sometimes an additional 10,000 sucres for work 1:00-4:00 p.m., six or seven days per week.<sup>13</sup> Locals reported little out-migration, but that some individuals become professionals in nearby regional cities.

#### Las Gilces

Agricultural production here was similar to that of Rocafuerte, which lies just to the southeast. In coastal Manabí, farmers cultivate mostly short cycle crops due to short rainy season. El Niño years are the exception, and in 1997 it rained through August when the dry season should have been starting in June.

From Las Gilces, located north of the tourist destination of La Crucita and less than a kilometer from the beach, a few people moved first with only parts of their families to Puerto Limón near Santo Domingo de los Colorados to take advantage of land reform in 1960s and 1970s. Like colonists throughout northwestern Ecuador, they received virgin land from IERAC that only required its claimants to begin clearing it with their machetes. Some stayed, while three families from Las Gilces were excited when approached by Milagreños about going to Las Golondrinas in 1983.

In 1998, one family from Las Gilces finally quit farming and sold their 58 ha of land in Las Golondrinas, and built a pool hall next to their home in Las Gilces. They said it was getting tough to go back and forth to Golondrinas to care for animals and land, and pay the cowboy who was taking care of the cattle and plantain. Nonetheless, one son still lives in the Las Golondrinas area and works his father-in-law's land, and a sister lives nearby with an aunt and uncle, helping them run their country store. The brother and sister do visit Las Gilces, but their parents and siblings do not go to Las Golondrinas to visit them.

<sup>&</sup>lt;sup>12</sup> Nonetheless, some people reported having fallowed land, more often on hillsides, not on lowlands.

#### Chone

The northern Manabí canton of Chone, which is the canton sending the largest number of migrants to Las Golondrinas, also experienced some land reform (around five thousand hectares). Most all properties there were finally legalized between 1981-85. This politic of legalization made the benefits of land reform visible, and new expectations led those still wanting land to leave for the agricultural frontier in western Pichincha province and southern Esmeraldas provinces, the latter being the location of Las Golondrinas.

About three-fourths of land in the area is dedicated to ranching, and the rest to agriculture, of which half consists of smallholdings and half of larger properties. In 1999, Nestle was buying about half of the approximately 15 thousand liters of milk produced in the area each day, with the rest made into cheese, locally worth 7500 sucres/lb at the farm level.

Renting in Chone, which is ranching territory, is less common than in coastal areas farther south. Here, daily wage labor was lower than on the flatter, wetter coastal plain to the south. In 1999, the daily wage was 25,000 sucres/day, or 15,000 sucres with lunch. Around half of land-owning farmers also work for daily wages. The trend is toward more and more contracted/piece-rate labor (*destajo*), especially with the weeding of pastures, and perhaps over half of workers are now contracted and do not perform daily wage labor. Although northern Manabí is not as diverse in agriculture as southern Manabí, common crops include fruit trees, coffee, cacao, pastures (*janeiro, estrella, saboya*), cattle, manioc, and plantains.

#### Cooperatives in these Sending Areas

Neither Las Gilces nor Rocafuerte had producer cooperatives in 1997, but a wholesaler/middleman in Rocafuerte said cooperatives should be created to plant by sector, geographically, to avoid overproduction and low prices. Milagro had one co-op that started in the

<sup>&</sup>lt;sup>13</sup> One farmer reported that 4-5 helpers/season are necessary for 10 ha of corn. See Appendix 2.1 for exchange rate and rate of inflation.

early 1970s and fell apart in the mid-1980s; it was strictly for pineapple growers and faced difficulties in coordination, high transports costs, slow transportation, and a corrupt leadership. "Cuando los lideres se portan mal, el resto pierda fe y energia y no tienen ganas seguir juntos; no hay a quien admirar para su liderazgo."<sup>14</sup> The co-op used to have a truck, agro-store, credit for members, and contracted markets, but members say that poor administration, corruption and lack of government support eliminated those projects. All pineapple in the area now goes through middlemen. Many farmers lament that agriculture is becoming less and less profitable, and cheap labor is hard to find despite the perception that very few people leave the area. This is partly because greenhouses that have become prominent in the local economy employ some of the potential labor.

The *Cooperativa Agropecuaria Chone* has been in existence since 1966. All 125 current members are cattle ranchers (roughly 30 percent <300 head, 80 percent have 300-1000 head, 15 percent have 1000+ head). There are hundreds of producers in the area with 5-15 head who are not members, and these small scale ranchers are not members because they must pay quotas each year and it is not worth the scale of their production. Nonetheless, some non-members buy grains for their animals from the co-op that tries to offer lower prices than in Porto Viejo. The co-op sells agriculture inputs, and extends credit to members and well-known acquaintances for 15-day periods; it used to be up to four months, but the factory that extended credit to the co-op rescinded that privilege. Members sell their cattle at the co-op fair every day—though mostly Sunday unless it rains. In 1999, an effort was being made to develop an export project to Spain, including the development of a slaughterhouse with the help of Catholic University of Quito. Buyers come from Quito, Guayaquil, Santo Domingo and El Carmen.

<sup>&</sup>lt;sup>14</sup> 'When the leaders are doing a lousy job, the rest of the members los e their faith in the cooperative and don't want to continue working together; there's nobody to look up to, no example to follow."

#### Land Tenure and Land Use Change

Landowners' associations were the mechanism by which original access was granted to land after the land reforms in 1964 and 1973. They were associations of people to which the government granted rights to land, assuming the beneficiaries eventually were going to legalize into producer cooperatives, develop economically, and pay the state for their land—it was not a gift from the government. Usually about 30-60 heads of household formed a group and were granted temporary titles saying "Patrimonio Forestal" (government land) to 35-100 hectare parcels of land. Sixty owners possessed 62 parcels in the case of the Las Golondrinas landowners' association . In Las Golondrinas, resident families owned virtually all of the land in the late 1970s and early 1980s when the area was colonized, and most all of the resident families also owned land.<sup>15</sup> The original value of the land to be paid to the government was only US\$5-7/hectare (around 20-30 thousand sucres/hectare in 1997, or three days of work—125-175 thousand sucres/hectare in 2000). In 1997, some collaborating contractors were charging 30-50 thousand sucres/hectare to survey land in Las Golondrinas for those beginning this process. With the typical daily wage at 15,000 sucres/day in 1997, agricultural wage-laborers and peasant farmers appear unlikely to amass the one to five million sucres necessary for survey, let alone pay for the land. Also, trips to Quito to process paperwork in the INDA (Instituto National de Desarrollo Agricola, formerly IERAC) can result in waits lasting days, months, or more. Despite an apparently slim budget in the national office, INDA started up a new office in Quininde in early September 1997 to move the titling process along in this area, run by the Quinindé River Foundation.<sup>16</sup> Lowland people are less likely to legalize land, and the people from the mountains

<sup>&</sup>lt;sup>15</sup> At an estimated 600,000 hectares allotted in the area through land reform at 50 ha /person, there potentially would have been 12,000 property owners.

<sup>&</sup>lt;sup>16</sup> The process of legalization in 2000 was follows: 1) inspect land (200-250,000 depending on distance from L.G.) which usually occurs with #2, 2) survey team goes to property and charges 20-25,000/hectare depending on distance from L.G., 3) packet including land use plan, *solicitud de tierra*, property boundaries as per UTM or INEN, copy of owner's legal personal identification, tax paid to INEFAN, document from INEFAN saying it's not in the CotacachCayapas Ecological Reserve, 4) pay property value to government, 5) title for property given to owner. If the plot of land is greater than 100 hectares in size, a bit

are much more interested in legalizing land. Very few local resident landowners have undertaken this process, and only non-resident palm plantation owners/buyers are likely to do so.

Of the 127 members of the three landowners' associations surrounding and including the town of Las Golondrinas, only six percent still own at least some of their original possession, having sold when credit payments mounted, crops failed, or their children's educations became more important. However, several more still live in or around Las Golondrinas and work as day laborers, already having sold their land. In the end, most are worse off now than before selling, even including those who left to buy a house and/or business and educate their children in the big cities of Quito, Guayaquil or Santo Domingo or back to their homeland.

Locals estimate are that over half of land in the area has been sold to and is held by absentee owners who have palm or palmito plantations, usually from Santo Domingo or Quito. Among Las Golondrinas area residents, 40 percent do not own land, one-fourth own less than 30 hectares and one-fourth own more than 30 hectares. Based on a random survey of households I conducted in 1997, average size of holdings for those who live in the area and own land is 40 hectares, though this average has been bumped up by the three or four families who own 300+ hectares (see Table 2.1).

more is required (detailing of natural resources, climate, investments, planned investments, objectives, prior ownership). If a company or cooperative, they need their constitution, names and id's of legal representatives, and a letter of obligations fulfilled with the Superintendencia de Companias. It typically takes 2-3 days to survey/inspect a property. In Las Golondrinas, they had done one legalization in March 2000, but about 20 in December 1999. Some recent properties are in Rio Jordan, 3 de Septiembre, Las Mercedes, El Recreo, 5 de Junio, La Leon. Other non-profit organizations plus some for-profit businesses in Quinindé also have such contracts with INDA.

Hectares	Frequency	Percent
0	161	50.6
.25-10	44	13.8
11-30	42	13.2
31-100	65	20.4
101-500	6	1.9
Total	318	100

Table 2.1. Land Tenure in Las Golondrinas: Percent Distribution of Plots by Size (N=318)

Source: 1997 SANREM Migration Survey (author's notes).

Zapallo, the first settlement in the area, lying at the Western edge of the zone, might be indicative of what is to come. Presently, around 10-20 percent of Zapallo's three hundred -plus families own land, most of the rest are wage-laborers, and a few have businesses (often the same families that have land). Coffee used to be brought to town and sold by the hundreds of tons, now virtually no coffee beans are sold to the middlemen here. Nonetheless five agricultural wholesalers/middlemen (also landowners) continue to purchase a variety of crops from locals.

Some of the wealthier villagers think the jobs on the palm and palmito plantations that dominate the area are good, because without them fewer people could maintain their families. On the other hand, other wealthy villagers say it is a shame that agriculture, especially family-farm agriculture, is dying out and that there appears to be little hope for it in the future—families do not even raise pigs anymore; they do not have enough money to do so. In mid-1997, 100 hectares went for 1.5 billion sucres (1,500,000 sucres/hectare), even less in locations removed from villages or inaccessible by road. Prices of 2,000,000-3,000,000 sucres/hectare were common along roads. Most buyers are turning to more remote, neighboring locations in search of land, by-passing properties for sale near Las Golondrinas. Land prices on the roads near Las Golondrinas soared 2000 percent between 1997 and 2000, doubling after accounting for the sucre's devaluation from 3500 sucres/US\$1 to 25.000 sucres/US\$1.
Land use change and land tenure instability have been accompanied by significant deforestation in NW Ecuador. Dodson and Gentry (1991:287) estimated that the pre-WWII 40,000 square kilometer band of Tropical Moist Forest and Tropical Wet Forest of NW Ecuador was reduced to less than 1600 hectares by 1988. While these numbers are not all ground-truthed, and do not include patches of secondary growth, the logging and colonization of NW removed virtually all of the coastal plain's forest cover over the course of 40 years.

One of the drivers of deforestation, land use change and land tenure instability is the 'useit-**or**-lose-it' dynamic, which is supported by both structural and cultural practices. Under the use-it-**or**-lose-it land tenure ethic, squatters or new owners of land previously were required to prove to IERAC that they were making productive use of at least 50 percent of the land, in order to maintain a legal right to it. Most often, a farmer cleared at least half of a plot to meet the Ecuadorian governments' definition of productive use of the land. This stipulation was repealed in 1994, but use-it-or-lose-it practices have continued. It is unclear whether the IERAC created a, or reinforced a prior, relation to the land more traditional in nature, where squatters make use of any treed piece of land, even if owned by a neighboring peasant. Tacitly, others in the community would typically support the squatters in this action.

This dynamic of use-it-**or**-lose-it seems to have facilitated timber-company demands for cheap wood. Peasants cleared the land to demonstrate productive use, and lumber companies built many of the roads providing access to plots of land. In 1981, timber concessions (first granted in 1971) were rescinded from the timber companies by the Ecuadorian government. This calmed the contentious relations between locals and lumber companies. However, it did not calm the deforestation, as locals let timber companies extract the wood from their land for a pittance, producing the roads-for-trees dynamic. For example, from Hoja Blanca, which lies 15 kilometers north of the Canandé River, lumber trucks haul about 18 loads of trees each day (90cm diameter). In 1997, a new agreement of the roads-for-trees nature was in the works to exploit 20,000 hectares in the Eastern part of this area. SOPROMA paid 40,000-60,000 sucres (though as little as

20,000, or US\$5) per tree in 1997, but also charged the first ten trees as payment for the road. By 2000, the company was discontinuing its operations because of low profitability, and had not quite made it to the Jordan River on the road that goes east from Las Golondrinas town past La Independiente.

Deforestation in the Las Golondrinas area was not just a compliant 'toads -for-trees" swap on the part of the colonists. Protests were held by hundreds of colonists in the late 1970s, particularly by residents of La Te and Zapallo. Eighty-plus troops and major brought in, but colonists said 'We're Ecuadorians, go ahead and kill us but it is we who produce food for the country."The military agreed and left. In 1982 negotiations gave locals jurisdiction over their own properties, but the companies had found a new strategy of wood procurement; they began to make agreements with the landowners' associations bu y logs cheaply in exchange for roads. Throughout 2000 the town of Las Golondrinas provided the staging ground for another battle between land seekers (some local peasants, some not) and the logging company about land 40 miles to the north, receiving national press. Those on the front line were the poorest, the most needy. In contrast, the fights 20 years earlier were fought by colonists with considerable resources—they had sold their farms to make a move to the frontier.

Though roads gave new life to the aspirations of local farmers for a short time and allowed much-needed access for beneficiaries of land reform, they started other processes in motion that have undermined their effective land management. Thus, there has been a recentralization of land acquired through land reform, which means a loss of small and medium peasant land-holdings in tropical NW Ecuador. Many plots of land have been sold four or five times since original demarcation. Degradation, land centralization and high rates of in- and outmigration are among these processes. 'Use -it-**and**-lose-it' has been the result of land reform, with the failure to keep land under the control of small farmers in colonized northwest Ecuador. Clearing the land to prove rights to it, as well as to provide for one's family as best could be done

given their minimal ecological knowledge and capital, turned the area into a deforested (though humid) plain ideal for palm plantations. <sup>17,18</sup>

African palm first set roots in Ecuador at the hands of Roscoe Scott from Idaho in the United States. (Casagrande, Thompson and Young 1964). He brought it to the Santo Domingo area over a decade before the land of Las Golondrinas even became part of the colonization or land reform process. The first wave of palm was planted in Las Golondrinas around 1988, though planting continues to occur, even by smallholders.<sup>19</sup> Some locals refuse to plant palm, saying that it is not really agriculture—'La palma africana es enemigo del agricultor. La produccion de la palma se acaba con los pueblos, margina a la educación y el desarrollo.''<sup>20</sup> They said that in 20 years the system of production will change to palmito, banana, or passion fruit, all crops whose markets tend to experience drastic booms and busts.<sup>21</sup> Another said, 'the thing with [palm] fincas is that not a single tree remains in their plantations after 20 years; they won't be able to work, as the land will be dried up from the sun and lack of water; in our pastures, coffee and cacao, we leave trees for shade.'' And others note the high use of he rbicides and chemical fertilizers in palm cultivation.<sup>22</sup>

Black pepper is getting bigger and bigger in the zone. Schoolteachers and students planted 1000 black pepper vines in one school in 2000, and another had plans to plant pepper as well. Many locals are interested in the idea of adding value to this already lucrative crop by drying pepper, then grinding and packaging it, though they do not always understand what its final markets are or what its final uses might be. Dried whole peppercorns were going for

<sup>&</sup>lt;sup>17</sup>African palm has an economically productive life of about 25 years. Most plantations are young in this area, but range from 1-15 years old.

<sup>&</sup>lt;sup>18</sup>Locals also talked of thuggery on behalf of the lumber companies to force landowners in some places to abandon their land.

<sup>&</sup>lt;sup>19</sup> 100 ha provides 150 workers 2 years of work, then 14 people continuously.

<sup>&</sup>lt;sup>20</sup> Palm is the enemy. Palm production destroys villages, education and economic progress of the people

 <sup>&</sup>lt;sup>21</sup> The palmito market was hit hard in 2000 from competition on the world market, mostly Costa Rica.
 <sup>22</sup> Some palm plantations do weed by hand to limit the use of herbicides, typically for cost reasons. There is

little rhetoric of explicitly organic farming here, although chemicals are used less widely than in many parts

4,000,000 sucres/quintal in late 2000, but had been up to 6,800,000 sucres/quintal just months earlier. Although investment and maintenance costs can be substantial, pepper is more accessible to produce for locals, since they can plant one hectare and do quite well for themselves, while palm requires much more land—a very expensive commodity.

Coffee, cattle and cacao built the village of Las Golondrinas and formed the basis of the economy of agricultural extraction in this zone, but it is rice that is the lifeblood of the small producer. Particularly beginning in 1999, times have been tough on the frontier, with low circulation of money, although rice harvests April-June always give fresh impulse to the economy. Currently, crops are rice, cacao<sup>23</sup>, coffee<sup>24</sup>, plantain, banana, oranges (harvested mostly in June and July), pasture for cattle<sup>25</sup>, palm, passion fruit, and some peanuts. Rice is harvested February through June, but mostly in May, followed by a cycle of corn in the dryer part of the year. Rice production is high, and seven small rice-hulling businesses operate within the Las Golondrinas area but appeal to outside markets is low since Las Golondrinas has achieved a regional and national reputation for low quality rice—most kernels are broken. Locals like the flavor of this rice (*cailan*) and express resistance toward planting other varieties. Very little plantain and banana are planted beyond that used for household consumption, particularly after the banana failures of a few years ago. Much of the Las Golondrinas area has been and continues to be planted in coffee, although some farmers estimated that half of the coffee plants have been replaced recently with pasture or annual crops. In other cases, land previously planted in coffee has been sold to outsiders for palm and palmito plantations. This is because coffee failed around

of Ecuador ("we've done agriculture just the *criollo* way."), and several expressed interest when I told them I had worked with organic fertilization and pest management.

<sup>&</sup>lt;sup>23</sup> A regional extensionist said problems with cacao in the Las Golondrinas area are lack of resistant varieties and a long fermentation (8 days) due to wet climate resulting in a less desirable aroma. He said the French were working in Guayas, Los Rios, and Manabí with biotech and not cacao to develop resistant varieties.

<sup>&</sup>lt;sup>24</sup> Coffee's problems are *la sigatoca* and *la broca*, and resulted when middlemen mixed good coffee from the east with coffee from the west, infecting the entire country.

<sup>&</sup>lt;sup>25</sup> For a few years in the late 1990s, Nestle had a 1200 liter milk collection facility which created local scarcity of milk and cheese. When Nestle left in late 1999, however, milk and cheese prices seem to have remained quite high.

1994-5, supposedly due to disease and a weevil, causing farm failures and turnover in land ownership. The largest part of the migratory exodus from the region, however, happened around 1990 when the international coffee market lost its high, stable prices and when inflation and structural adjustments were big in Ecuador.

Not surprisingly, of non-palm/palmito ground as much as 70 percent is pasture (e.g., *bracaria, saboya*). Local landowners own as few as three or four to as many as 100 cattle, but typically 5-15 head, where one hectare of good pasture easily supports two cattle. Most of these are dairy cattle, especially the small herds, whose milk (approximately 1500 liters/day) was purchased by Nestle for a few years until leaving in 1999. As many as five newly dead cattle were found many mornings during the summer of 1997, owing to various diseases previously unseen. Cattle deaths could cause more farm failures, increasing concentration of land into fewer hands and fewer activities (palm and palmito plantations), and cattle ownership is becoming less common. Such a scenario has the potential to increase labor needs and, thus, in-migration due to the switch from extensive to more intensive agriculture.

Though a number of people said it is the extremely wet climate (excess of three meters of precipitation/year) that is responsible for the lack of smallholder agricultural production and diversity of crops, others have said it is just because people just are not into farming—they just do not cultivate as part of their economic strategy. They say few farmers are left here, and even those with 10 hectares are planting palm, while the rest mostly have cattle. Others expressed that it is difficult to grow things outside your own yard because people steal them, especially black pepper, passion fruit, banana, plantain, coconuts. Many expressed a need for technical help, particularly recalling the banana loans made to farmers throughout the whole area a few years earlier resulting in virtually uniform failure, partly due to sandy soil that allows plants to fall over, partly because of lack of attention to propping up the plants, and partly due to disease. While some people rent land, it appears to be less common than in years prior because of the lack of smallholder land available for rent.

## A Town without a Provincial Home

The political affiliation of a sliver of the southern part of the Las Golondrinas area is contested, as to whether it lies with Esmeraldas or Imbabura province.<sup>26</sup> This is one of the biggest issues for people locally. The small strip in contest is between the Guayllabamba River to the south and the Agua Clara River a couple of miles to the north. Las Golondrinas town lies within this strip and is unincorporated; thus, it receives development efforts from both Imbabura and Esmeraldas provinces. The strip also borders on a third province, Pichincha province, to which some people would like to belong, since it is home to Ecuador's capit Quito and thus wealthier. One local resident shared his disillusionment with the politics of Esmeraldas, and interest in the politics of Pichincha-'Quininde had a future development then, now they just pass the time watching trailers go by filled with abaca, wood, and palm. Pichincha has developed people become more skilled to do their own development, but Esmeraldas just promotes trailers of products leaving, being exported." Geographically, many locals feel that a political affiliation with Esmeraldas might make sense, as the remainder of the area between the Guayllabamba and Canandé Rivers belongs to the Canton Quinindé. Quinindé is the closest large town, as well as the way to the outside world. Only the other hand, many argue that a political tradition with Imbabura's Canton Cotacachi should be maintained and strengthened.

Early on, Carlos Guerrero and other leaders sought a school from Esmeraldas province, but became frustrated, later to ask for help from Imbabura province. While always a village leader, he used to be a drunk and a fighter, but is now a very respected person. Years after his switch, he went to jail because he stuck a metal file into the gut of an Esmeraldas politician he used to support. He did this because the politician invaded Las Golondrinas in 1985 with thugs to force out the Imbabura teachers and replace them with Esmeraldas teachers. Guererro's house was riddled with bullet holes, but just to scare him, since the politician was with him in the house

<sup>&</sup>lt;sup>26</sup> Another major dynamic that differentiates the town of Las Golondrinas and provides for divided social networks is religion: fundamentalism and Catholicism. I do not examine the effect of this dynamic.

at the time. The other reason for his switch was that a fellow leader fell out of favor with the local Esmeraldas higher-ups. This fellow leader worked as a mechanic for a couple of brothers, one of which later became a congressional representative for Esmeraldas, doing a lot of the log hauling on contract for the timber companies. This local leader, the only mechanic in the area capable of working on their machinery, was dropped by the brothers for setting stable work hours in his shop, 8-5; they were upset that during off-hours they had to haul parts and vehicles a long distance for repair to avoid down time. The leader still runs an auto shop, brings in lots of candidates for Imbabura political races, and is the president of an artisan' s and skilled labor association formed in 1998.

Cronyism and lack of credibility have been factors as strong in Las Golondrinas politics as have been party and provincial politics, however. One president built buildings where the water tower was originally supposed to go and started charging rent, even though previously (pre-1987) there had been at least one vender on the site who had not been hassled, nor charged rent. Another leader did little but put a volleyball court in the park, and now is in charge of the brand new water system that is wrought with problems.

### Local Infrastructure

In the early 1970s, colonists walked in to their land from a place called Kilometer 200 on the highway to Esmeraldas. After the road to Buenos Aires was constructed by locals and logging companies, transport into the area was by catching rides with logging trucks and coffee middlemen and later the Quinindé bus, then canoe across the river at Las Golondrinas with Carlos Guerrero, or cross by canoe a few kilometers down river if the destination was El Recreo. In order to get to Zapallo and the area that became La Te, people rode in canoes to Cole near where the Canandé and Guayllabamba meet the Blanco River, then rode on lumber trucks to Zapallo. Don Selso was the first to begin using machinery to build the road from La Sexta to Las Golondrinas. Facundo Flores, who was contracted to haul logs for one of the logging companies

and who became a congressional representative from Esmeraldas, followed up with Selso's work because after Selso sank 5 tractors in the river, losing his son who was helping try to remove the tractors from the water. Prior to this, locals had solicited machinery from the mayor in Quinindé to help in the construction of the road from La Quinta to Las Golondrinas. Locals had to pay for gas, and the tree clearing had to be done first by hand, locals using their own axes. The current bridge over the Guayllabamba River was finished in 1984 by the World Bank. A bridge had been built just prior to that, but collapsed during its inauguration and killed 70+ people, according to locals.

Being one of four current zones in Ecuador not belonging to any province, in this case because of conflicts between Imbabura and Esmeraldas, Las Golondrinas has been the beneficiary of public works from both Esmeraldas and Imbabura provinces, with local help (see Table 2.2).

Public Work or Service	Year	Who Funded It	Who Helped
	Initiated		-
Bridge	1984	Foreign Aid	National government
Piped Water	2000	National Bank of Ecuador;	Quinindé, Esmeraldas
		users paid some with labor	(prior study by Imbabura)
Vigilancia	1999-2000	Quinindé (Esmeraldas)	Residents
Police		Quinindé (Esmeraldas)	Local crimestoppers
Roads		Machinery from Quininde;	Logging Contractors,
		gas, axes from residents	Residents
Community Building			
Esmeraldas High School		Esmeraldas	
Cotacachi High School		Imbabura	
Esmeraldas School		Esmeraldas	
Cotacachi School		Imbabura	
1 <sup>st</sup> Telephone		Emetel	Imbabura
2 <sup>nd</sup> Telephone	2001	Andinatel (Emetel)	Imbabura/Sto. Domingo
Sunday Market Taxes		Quinindé (Esmeraldas)	
Property Taxes		Cotacachi (Imbabura)	
Electricity		Emelec Company	Esmeraldas
Health Center	1997	Cotacachi (Imbabura)	

 Table 2.2. Infrastructure in the Town of Las Golondrinas

The Health Center in the town of Las Golondrinas was constructed in 1997. Before that, they had rented a room from the Antonio Valencia Cooperative for the Health Center. At least half of houses in the area have latrines, and many in the village are connected to city sewer, which runs into the Guayllabamba River. Frequently, the latrines and wells of households are too near one another, and may be a reason for water contamination and gastrointestinal ailments. La Te has a health center, and a small village three kilometers from Las Golondrinas received materials from a foreign embassy to build a health center. Interviews with local doctors and examination of the Health Center's records indicate that malaria, intestinal parasites and respiratory infections are the most common ailments, with less frequent occurrences of skin infections, diarrhea, urinary infections, gynecological problems, headaches, hypertension, accidents and sexually transmitted diseases.

Some of the water in the town of Las Golondrinas has been piped across the bridge from Buenos Aires, but most did not have running water until the water project in 2000. They got it from springs near the river or collect typically plentiful rainwater; they wash clothes in springs and creek, usually not the Guayllabamba River. Cristobal Colon and La Te have had piped water, but these systems were not functioning in 2000. In Las Golondrinas, the site of the well for public water was first located by engineers from Imbabura, but abandoned because of low quality of water it would produce. Esmeraldas provincial government tried several times between 1997 and 2000 to begin the project using that site and put the water tower in the park, but the Women's Committee<sup>27</sup> interfered, standing in the three holes each 2 feet deep, stopping the workers from being able to continue to put the water tower in the park. The workers took their tools with them; otherwise people would have stolen the tools. In April of 2000, right before mayoral elections, Quinindé was charged with administering funds of the National Bank of Ecuador destined for providing the entire village with water piping. The well was used that had been abandoned by Imbabura, but the water tower was not built in the park. Water began to flow in most parts of the village in mid-November, although there were no meters for charging according to use.

<sup>&</sup>lt;sup>27</sup> Women's Committe of Imbabura; there also is a Women's Committee that sides with Esmeraldas.

#### **Regional Agroecology**

#### Plantation Agriculture and Land Reform in Ecuador

Internal migration in Ecuador often results from boom or crisis in specific agricultural exports. Most notable have been the migrations following the booms of cacao (beginning of 1900s), banana (until the 1960s), rice, and coffee (1990s). With the cacao bust early in this century, the flood of rural-rural migration from Andes towards Guayas and Guayaquil then changed to rural-urban migration.

Development in other parts of the country occurred after coastal crises in banana and rice production slowed coastal population growth between the 1950-62 and 1962-74 periods. This was followed by the 1971 Policy of Promotions and Exoneration of Taxes for Machinery—support for cacao involving low-interest credit and grace periods which creating 17 cacao processing plants over the next decade. As this new cacao policy matured, virtually all of the exports were going to Argentina, Chile and Peru. Next, sugar became the state's development focus in the 1980 s—the state set sugar prices while international quotas presented external constraints. In the 1990s, palmito and African palm have brought workers to the northern coastal plain of western Pichincha and southern Esmeraldas, while small farmers were abandoning their coffee fields, selling their land, and heading for the cities.

The May Revolution of 1944 called for the formation of cooperatives, and the Catholic Church supported the organization of cooperatives primarily in the mountain areas in the 1960s. This occurred as land reforms were implemented, and as the Ecuadorian economy faced increasing pressure toward rationalization, giving impulse to the 1966 Law of Cooperatives, covering the whole range of productive and service activities allowed under cooperativism. Relatively little legislation regarding cooperatives followed.

Now, cooperatives' efforts and the (limited) effects of land reform <sup>28</sup> are being countered by a trend towards greater concentration of landholdings and corresponding increases in economic inequality. Many farms on the frontier are failing. In addition, increased proletarianization is occurring as Latin American governments abandon land reform for other sectors as possible avenues of economic development, since agriculture as a percentage of GDP is decreasing (Thiesenhusen 1995).

In 1999, the Director of Plans at the National Agricultural Development Institute (INDA, formerly IERAC) said Las Golondrinas is so named because the people show up for land, making a business out of selling it and heading on. He believed the farmers are not even interested in staying and farming, never were, just want to get free land and sell it. He showed me a claim for land from a landowners' association that he neither wanted to acknowledge nor to address, because he thought it ridiculous how little they are to pay for the land, though now wanted to legalize it 20+ years later without having paid for it yet. He summed up his attitude toward people requesting land with, "se ha terminado el gobierno obeso…por el gobierno regulador."<sup>29</sup> Plenty of people did have land before moving to Las Golondrinas, and others have sold and bought again, but very few currently on the frontier are so disinterested in agriculture as suggested by him.

Indigenous groups, the urban working class, and teachers typically have led protests to neo-liberalization in Ecuador. Mestizo and Afro-Ecuadorian farmers infrequently annex themselves to these protests, although *campesino* (peasant) leadership often is involved in the protests. The degree of alienation and individualism in agriculture in Ecuador was captured particularly well by a farmer in Las Golondrinas, who was discussing a strike when it was occurring in 1997, 'It wouldn't be only a couple of days if real farmers were involved. We'd stop the country, even politicians would cry for food. But the protest is by and for the leaders of the

<sup>&</sup>lt;sup>28</sup> In Guayas, in the midst of land reform, we know that 2.6 percent of the people owned 65.5 percent of the land, and 63.7 percent of people owned 5.1 percent of the land (INEC 1978).

movement, not by and for the farmers." Perhaps one reason for the lack of political involvement of lowland farmers in Ecuador is that colonization has served as a pressure valve for the effects of neoliberalism.

#### Regional Colonization

Government lands, rather than large plantations, typically were the sources of land during land reform. Most of northwest Ecuador was sparsely inhabited by Los Colorados, Yumbo and Chachi indigenous groups. Gradually much of it was settled, first through Santo Domingo. The landscape just to the south of Santo Domingo on the way to Chone now displays considerable diversification, being comprised of slightly broken terrain dotted with a number of lower and working class dwellings, some new and some abandoned, plus great extensions of pasture, banana, manioc, plantain, treed pastures, and palm fields ranging from 20 hectares to several hundred hectares. Cattle-ranching for both milk and meat is common in this entire region of western Pichincha/southern Esmeraldas, which 30 years ago was tropical and sub-tropical rainforest, and erosion is notable on steeper ridge tops in pastures. Below, the descriptions of villages in the area of colonization—northwest Ecuador's coastal plain to the north of Santo Domingo—present variation in terms of land tenure and land use.

*Puerto Limón.* An hour to the west of Santo Domingo, people cultivate corn, beans, manioc, papaya, plantains, coffee, cacao, passion fruit (since the mid 1990s), pineapple, and rice (normal harvest is 40-60 quintal/hectare on dry land), although the mix is weighted more toward perennials than toward short cycle crops. Cacao producers suffer from extreme price fluctuations; for example, 380,000s/quintal was the going rate for dry cacao in March 1999, but only 210,000s/quintal in May. About half of the land is used for agriculture, half for cattle ranching, similar to Chone. Puerto Limón is also similar to Chone in terms of land tenure, as about 10

<sup>&</sup>lt;sup>29</sup> 'We are through with the government of largesse; in it's place is a government of regulation."

percent of land here is rented. In 1999, land was sold for 2,000,000 sucres per hectare. Most landowners have 30 hectares or less.

Villagers believe that they suffer from lack of markets, and cited the need for grain storage so prices can be leveled out, since most farmers sell right away to pay the workers they've hired. Wage laborers tend not to find long-term jobs, here, but only get to work intensively in spurts throughout the year, thus creating hesitance on the part of some workers to accept work, which also drives up labor prices. Of course, larger plantations offer more stable work. In 1999, wage labor was 25,000 sucres/day from 7-12, and another 25,000 from 2-5 p.m., suggesting that a labor shortage does exist, since this amount is higher than the sending areas discussed in the previous section.

In 1960, four families first came to the area before land reform and settlement of the area, and one family bought 50 hectares for two pigs and a chicken from a large landowner. Under land reform, 5000 hectares of open land were settled, and IERAC came in 1965 to distribute this land to the landowners' association Puerto Limón, which was maintained by the dues of forty families at five sucres per year. The landowners' association designated land for the town, organized road improvement, and brought electrification. Eventually, many members quit because they did not believe they were receiving adequate benefits. Somehow, the landowners' association leaders continued their work. Like early leaders of many frontier villages, including those of Las Golondrinas, one founder told of occasions where the congressional representative was to meet with them in Quito for some project or another, but never showed up, and the farmers had taken a few days to travel there and back. The village gained *parroquia* (civil parish) status in 1982, spelling the political end of the landowners' association, and water was later brought by the parroquia. By 1982, one thousand-plus families lived in and around Puerto Limón, sometimes purchasing land, sometimes given a lot for their house by family or just fellow villagers. Locals say between twenty and fifty families eventually left Puerto Limón for Las Golondrinas; typically, they have been people with the economic means to move.

*Pedro Vicente Maldonado.* Few landowners cultivate crops other than the fervor of planting *palmito* everywhere, on all soils and terrains. Most produce cattle, which is easiest due to the problem for short cycle crops of 2.5m of rainfall per year. Salto de Tigre to the northwest of Pedro Vicente Maldonado (and east of Las Golondrinas) is a wood producing area along the Guayllabamba River, but cattle and palmito are more common as you move southwest toward Pedro Vicente Maldonado. The lumber-mogul Durini family (through ENDESA and other companies) has 10,000+ hectares to the north and east of Pedro Vicente Maldonado and has hired groups of thugs to commit rapes and other acts of violence to force people to sell their properties. As in Las Golondrinas, over half of the land in the area has reverted from land reform's smallholder beneficiaries to the lumber companies and large landowners.

*La Celica.* La Celica lies halfway between Pedro Vicente Maldonado and Las Golondrinas. In 1997, 200-250 people lived in the village. Most residents of La Celica grew up in the province of Loja. Families in the village own most of the surrounding land. Their land, the 10-30 cows each of them have, and bananas and plantains are maintained by cowboys (typically from Manabí) who bring the milk out every morning, although owners do usually make daily trips to their land (typically 40-50 hectares)—which can be up to 2½ hours of walking. Unlike Las Golondrinas, few families had sold their land by 1997.

*Nueva Esperanza*. Nueva Esperanza lies a little closer to Las Golondrinas than it does to La Celica. In 1997, few residents of the village owned land—most are day laborers—while farmers lived on their land outside of the village growing rice, plantains, banana and corn. Some extensions of African palm were visible, and the lumber company ENDESA owned a fifty-hectare plot nearby.

### CHAPTER 3

#### MIGRATION SYSTEMS IN A PIONEER COLONIZATION ZONE

## **Problem Statement**

In order to examine the development of social structure in a colonization zone, we first must know who migrants are, what they bring with them and how and why they moved. These characteristics will heavily influence their subsequent integration and occupational life course. In this section, I first summarize the literature on migration and development in Third World settings with a particular focus on migration associated with frontier colonization. Next, I present a historical synopsis of migration and rural development along Ecuador's coastal plain. This leads up to a description of the fieldwork and data collected, and a discussion of my empirical analysis.

## **Studies in Migration and Rural Development**

Migration studies began with concern for the relationships between the distance from a sending area to a receiving area, and the amount of migration from one to the other (Ravenstein 1885), now known as distance decay. As economic development in the Third World became important after World War II, one model was developed in which rural-urban migration was seen as development under conditions of labor surplus, with potential migrants calculating wage differentials against their perceived probability of employment at their destination (Todaro 1969). Similarly, Sjaastadt' s (1962) emphasis on the individual agency of migrants relied the role of human capital in predicting labor migration. This led to the common use of Lee's (1966) push - pull framework that seeks to determine if difficult conditions in sending areas are more or less influential in the individual migrants' decision -making process than are promises in the receiving

area. This framework has been adapted to structural analyses of the institutions in sending and receiving areas in order to explain migration. De Haan' s (1999:11) review of migration and development finds that analysis of structure tends to emphasize migration as negative—as the only option for the poor' s survival, rather than as opportunities–despite its incorporation of all levels of social analysis. For the migration of rural people, for example, poverty is the 'push' force because rural producers do not receive sufficient return to labor and are hampered by a land tenure system that doesn't provide access to capital or land (e.g., Brown 1991; Moran 1981). Table 3.1, below, is a categorization of migration theory as it relates to economic development.

Determinant	Effects on	Unit of Analysis						
of Migration	Migrants and	Individual Household/		Institutional				
	Sending		Family					
	Communities							
Economic	Positive	Wage Differentials	' New economics'					
		Human Capital	of migration					
		Push-Pull						
Social/	Negative			Marxian				
Cultural				Structuralist				
		←Structural Theory→						
		←Gender Analyses→						

 Table 3.1. Determinants of Migration, by Effects and Method of Analysis (after de Haan 1999:10)

As seen in Table 3.1, the discrepancies between microeconomic and macrosociological theory are as evident in the studies of migration as they are anywhere. A focus on individuals and work generally leads to theory about human capital, rational calculation of wage differentials, and push-pull factors for migration. A focus on institutions and society/culture leads to theory about the structure of the labor force and race and gender differentials.

Work on migration theory 20 years ago began to bridge this seemingly impossible theoretical gap between microeconomic and structural perspectives by using the household as the theoretical unit of analysis (e.g., Wood 1982:312-4; Meillasoux 1981; Stark 1982). In so doing, the field accommodated the Marxian theorem that the household is the source of the reproduction of (migrant) labor (e.g., Safa 1982), as well as emphasized the individual's rational allocation of resources. In a review of migration and development, Kearney (1986) also concluded that the household is an appropriate nexus linking individual behavior and societal processes. To underscore this, it is clear that families are pulled in different directions by the work opportunities presented to men and women. For example, Bravo-Ureta, Quiroga and Brea (1996:473) found that expected income in receiving area is a good predictor of rural-urban male migration (as per Todaro 1969) in Ecuador. Expected income is much less of a predictor for women's migration, who tend to migrate more often for non-economic reasons than do men. Also, Shields and Shields (1989) found that non-market domestic production, typically done by rural wives, is hampered by rural-rural migration because of disruptions of social networks and access to resources, while returns (typically male earnings) sometimes are not enough to offset the impact—resulting in another move.

Mabogunje (1970) advocated the use of a systems approach in order to understand social and cultural changes in both urban receiving communities and rural sending communities. Even before theoretical work on the household became commonplace, the systems approach allowed the incorporation of individuals and groups into larger societal processes rather than reverting to the theoretical and methodological extremes of equilibriumism or structuralism. Social scientists interested in structure have used this approach at the same time as being able to examine individual motivations and experiences in migration. For example, much research on migration and development accounts for remittances, return migration, integration of migrants into local communities/networks, and maturation of the migration stream (e.g., Rhoades 1978; Durand, Kandel and Massey 1996; for reviews, see Safa and du Toit 1975; Kearney 1986, 1995; de Haan 1999). While structural processes contribute to people's migration decisions, other reasons are invoked to explain the maintenance of specific migration regimes—feedback loops become

important, acting through social networks, social institutions and stepwise migration (Massey et al. 1993), resulting in maturation of the migration stream.

There are several other potentially useful findings from labor migration to be applied to pioneer studies. First, migration is expensive (Lee 1966), and social networks often must be mobilized for the substantial resources required to make a move to the frontier. Good times are characterized by more out-migration than bad times, which are characterized by more return migration (Milne 1993). This generalization seems to hold for pioneer colonization as well. Also, though regional labor migration follows national business cycles, it follows regional business cycles more (Milne 1993). Regional agricultural production and the power of middlemen in Ecuador also indicate that regional business cycles would be very important for in- and out-migration of pioneers.

Additionally, some useful concepts from basic human geography should be kept in mind. Table 3.2 presents types of migration that have been used to understand social change and population dynamics in ways that might be applicable to research on social networks in pioneer colonization areas.

Type of Migration	Conceptual Foci Relevant to Pioneer Colonization
circular	Home base, seasonality, status maintenance (socially, economically)
temporary	Instability, discontinuity
permanent	Stability, adaptation
return	Society of orientation, presume former place in society, remittances
chain	Social networks, stages
step-wise	Paths, migration history, relative expectations

<b>Table 3.2.</b>	Migration	Typol	logy
-------------------	-----------	-------	------

The types of migration in Table 3.2 are concepts used to describe mobility under various circumstances. Circular migration describes the continual return to a home base for rest or work. Temporary migration also can be circular, but denotes impermanence of migration, and

permanent migration is used for a one-time move or a move that is intended to last a long time. Return migration can be applied to migrants who were permanent migrants but are returning to their home society. Chain migration is when social networks are used to facilitate migration decisions, through information, financial resources or a place to stay. Chain migration also leads to maturation of the migration stream and its composition, including selectivity of migrant characteristics, as well as channeling migrants into specific social networks and jobs. Chain migration occurs through a number of processes: integration into similar occupations in a new place of individuals from the same geographic/cultural area (often known as channeled migration); individuals entering a new place with a job previously secured (often known as predetermined migration); the establishment of an economic niche by whole families or by interdependent kin in a new place (often referred to as familial migration). Finally, stepwise migration emphasizes the paths and number of steps that migrants took to get where they are, and recognizes that there may be intervening opportunities that cause paths to change or become what they are. Used together, these concepts allow for discussion of the connections with the sending region, the manner in which people arrived on the frontier, and the networks that are likely to result.

#### Pioneer Colonization

The effects of migration decisions on the frontier can be understood best not only by considering a broader sociopolitical context, such as boom and bust cycles or government incentives, but also by linking sending and receiving areas through the processes of class and household formation. Pichon (1996a:366) has advocated the investigation of these linkages between processes in the migrants' homeland and processes on the frontier. In tropical countries, a migrants' homeland is characterized by high unemployment, concentrated land holdings, mechanized agriculture, skewed income distribution (Myers 1991, in Pichon 1996a:345), and lack

of government support for *in situ* agriculture—but general support for colonization (Pichon 1996a:349). On the frontier, there is the additional presence of a market (often international) for frontier products, improved transportation facilities, and greater efficiency in marketing and supply (Riethmüller 1988:76). Nyerges (1992) used the concept of the perpetual internal frontier (Kopytoff 1987) to note the fission-fusion nature of some African societies, thus recognizing that migration is an integral part of those social systems.<sup>30</sup>

The objective of most anthropological studies in the broad field of migration was originally concentrated on 'adaptation' to a new socio-cultural milieu, and later transferred to the causes of migration. On the other hand, the pioneer colonization literature of the last two decades has shown a particular concern for the land use patterns and degradation of the biophysical environment often associated with pioneer colonization. The relevance of research on decisionmaking and agricultural sustainability for linking the frontier to sending areas is limited. Still, investigation of land-use patterns and agricultural decision-making has supplied data that bears upon our understanding of pioneer social organization. First, as a unique form of migration, pioneer colonization results in specific core-periphery relations that can be distinguished from other urban-rural systems. Second, it creates a unique mixture of mobility and subsistence strategies. Third, colonists seeking to farm tend to be more conservative than other migrants.

At a complex level of social organization, pioneer colonization is the extraction of resources from distant rural areas by the government and by private industry. Such a process of extraction does not benefit most colonists (Shoemaker 1981:245) because they receive low payments for raw materials that are then processed elsewhere. This process seems to be the same for any economic periphery, whether on the frontier or not, because boom and bust cycles of an extractive economy are extremely influential on people's subsistence strategies (e.g., Rattner 1988:285; Whitten 1974; Wallerstein and Smith 1992). Nonetheless, the frontier is theoretically distinct from other economic peripheries. For one, frontier towns are more closely linked to

 $<sup>\</sup>overline{^{30}}$  De Haan (1999) also has argued that social scientists need to recognize the normalcy of migration.

processes of national integration than are many smaller, older towns located closer to metropolitan areas. This is primarily due to the relative availability of transportation for extraction (Casagrande, Thompson and Young 1964: 315; Scholz 1988:52), as well as a result of structural changes in agriculture–especially prices (e.g., Scholz 1988:45). Changes in transportation and economic structures result from relatively easy access to land and from speculative capital made available on the frontier. The frontier initially undergoes a period aptly described as ruralization, whereby the urban petit bourgeoisie and cosmopolitan rural landowners living there must undertake a primitive existence on the frontier (Casagrande, Thompson and Young 1964: 316). In other words, an interesting urban-rural migration pattern co-exists with typical Latin American rural-urban migration patterns.

Further research distinguishes between planned and spontaneous colonization, typically in terms of the impact of people's movements on natural resource degradation and/or on the success of pioneer settlements (e.g., Dominguez 1984; Stearman 1984; Hall 1987; Thiele 1995:277-78; Uhlig 1988; Duran 1988; Bahrin 1988; Corvinus 1988). Very generally, success is inversely related to the degree of formalized direction of colonization by some agency or organization (Nelson 1977 in Jones 1988:261). Scudder (1981, in Jones 1988:262) found worldwide that over three-fourths of pioneers arrive on the frontier of their own accord rather than by assistance from a national government. This position is controversial, however. For example, Manshard and Morgan (1988:5) concluded it is rarely possible to define settlement regimes as spontaneous or planned (see also Jones 1988:261). It may be that obstacles and unique opportunities for success on the frontier are more appropriate objects of study. This would be true whether success is measured by equality, increased wealth, agro-ecological sustainability, or some other proxy for quality of life. For cases where the government selects colonists for settlement projects, Moran (1984:290) found that government criteria for eligibility such as family size, agricultural experience, and place of origin were not good predictors of success on the frontier. In Las Golondrinas, the national government provided land and agricultural credit,

but planning involved nothing more than surveying the settled land and keeping track of who owned each plot (if subsequent owners registered their land).

At a mid-level of social organization, researchers have successfully used frameworks that recognize variation in the source of in-migration and allow for the analysis of a variety of relationships between in-migrants and their home communities. From this research, it is clear that specific migration streams do have different effects on the subsistence strategies of colonists (Pichon 1996a, 1996b; Thiele 1995). Similarly, cultural traditions impact the sorts o subsistence strategies adopted by migrants (Smith 1982:91), especially if different levels of resources are available (Moran 1984:289). Also, the demographic characteristics of settler households in the Ecuadorian Oriente (Amazonian basin)—such as household size and geographic region of origin—affect land use patterns (Marquette 1998). Finding variation in land-use patterns, Scholz (1988:46; after Uhlig 1979) distinguished between pioneers as local peasants, non-local peasants, or medium/large scale farmers, and explained these differences partially in terms of two phases of colonization in southeast Thailand. First pioneers engaged in subsistence/extensive agriculture, which was later replaced by cash-crop cultivation, once a highway was constructed nearby (Scholz 1988:49-50). In another case, two regions in Thailand experienced different changes in the system of production under colonization (Sirisambhand 1988:66-67). In one region, indigenous, non-crop subsistence exploitation of the forest was followed by commercial logging, then colonists began with market-oriented agriculture. In the other region, subsistence agriculture developed into market-oriented agriculture. Although the end results are similar, the difference between the two very crude scenarios of change is whether the frontier was opened by subsistence farmers or by a large extractive business like logging.<sup>31</sup> Another framework described

<sup>&</sup>lt;sup>31</sup> In Las Golondrinas, a very tenuous relationship has developed between loggers and small farmers at the edge of the frontier.

the subsequent differentiation among maize farmers as permanent residents, seasonal residents, and seasonal wage laborers (Sirisambhand 1988:67-68).<sup>32</sup>

At the individual level, researchers have focused on personal factors as important descriptors of migration streams (e.g., Pichon 1996a, 1996b), in order to predict land use patterns. Few studies at this level of analysis have focused on social organization or culturally based behavior. One exception is Thompson's (1973:8-9) cross-cultural comparison of pioneers. In it, he characterized pioneers as conservative non-conformists, a refinement of earlier historians', geographers' and anthropologists' conceptualization of pioneers as rugged individualists. Thompson saw pioneers as non-conformists because they do not migrate to the city as do most rural compatriots. He saw them as conservative because they maintain more traditions-whether migrating nationally or internationally—than do their rural-urban migrant counterparts. Conservatism would seem to suggest that status roles are very important, yet Casagrande, Thompson and Young (1964:295) maintain that status distinctions are actually less important on the frontier than in the colonists' place of origin.<sup>33</sup> Nonetheless, conservatism is often evident in the use of familiar agricultural techniques and crops rather than those more suited to the setting (Jones 1988:260). Overall, the expectations maintained by pioneers tend to be realistic in the short term (Casagrande, Thompson and Young 1964:317), which makes sense in light of their conservatism. However, pioneers tend to rate their possibilities for the future much more highly than they do their situation in the present (Casagrande, Thompson and Young 1964:295), in contrast to the more tempered expectations of the future held by people long-settled in one place. Colonists' decision to stay or leave is often made 12-18 months after their arrival on the frontier (Casagrande, Thompson and Young 1964:317); interestingly, however, pioneer success depends more on the relative fulfillment of their expectations than it does any objective measurement of

<sup>&</sup>lt;sup>32</sup> Las Golondrinas' occupational structure developed similarly, and now inhabitants include land-owners, laborers, and seasonal laborers. Instead of seasonal farmers, there are absentee landlords that visit their properties frequently. <sup>33</sup> I attempt to refine this confirmed generalization in later chapters.

change in wealth (Thompson 1973; see Todaro 1969 for a discussion of relative expectations in labor migration).

# Esmeraldes Las Golondrinas Ibarra Lage Agrio Rives Napo c/Coreingo Si Nuevo Rocafuertem Manta Quevedo Banos Puyo Portoviejo Riobamba Macas Guayaqui Cuenda Amazon Machala Andes Loja Coast Pan-American Hwy Migration Stream

# History of Migration and Rural Development on Ecuador's Coastal Plain

Figure 3.1 depicts the almost exclusive coastal in-migration to Las Golondrinas.

Figure 3.1. Major Population Areas and Ecological Zones of Ecuador.

Economically oriented migration in NW Ecuador follows four patterns, including:

- 1) continued exodus by farmers and/or their children province of origin, or to larger cities for education or to invest in a small business,
- 2) movement by farmers to cultivate new zones of colonization,
- 3) agricultural labor migration by the poor, and
- movement by urban middle and upper classes to the periphery to buy up land to fight inflation.

Las Golondrinas is a migrant town involving all four of these patterns. Las Golondrinas pioneers arriving beginning with land reform. Farm failures occurred not long afterward, sending farmers back home or to bigger cities. Outsiders often bought up the open land for plantation agricultural. Agricultural laborers have arrived on the plantations with hope of eventually obtaining a piece of ground, although many of them work only seasonally or just long enough to acquire some capital to use elsewhere in the country.

The processes that produced these patterns generally have been government policies and conditions in the world market economy. Several national laws provided land and effected regulatory impacts for pioneer colonization in Ecuador. For one, the 1936 *Ley de Tierras Baldías y Colonización* (Unclaimed Lands and Colonization) aimed to reclaim abandoned plots and cede them to squatters. Prior to this, peasants and other potential smallholder beneficiaries moved to southwestern Ecuador in the late 1800s as a result of government support of cacao production (Barsky 1988:296), a crop with which land use and land tenure came to be intricately related for the next decades. The cacao bust of the 1920s helped lay the foundation for a new kind of feudalistic land tenure where renters paid with their harvest (*precarismo*), a practice lasting until 1970. Precarismo also led agricultural laborers to migrate to the south and central coast to cultivate rice. Around mid-century, banana cultivation brought the development of another distinct dynamic of wage-labor based colonization on the south coast, and to some extent in Esmeraldas (Barsky 1988:297)—lasting for a couple of decades. After the rice and banana

production crises, and the related breakdown of traditional labor relations in the early-1960s, migration became a survival strategy for those whose life ways were destroyed. The breakdown in feudal relations did not push all people to out-migrate, however. Precarismo in its final period often provided tenants with individual subsistence plots that they augmented with seasonal work on haciendas, or with occasional wage labor for neighboring farmers to form another survival strategy.

In the case of coastal northwest Ecuador, two legal events gave impulse to farm families seeking their own land in concert with other interested families: 1) the 1964 *Ley de Reforma Agraria* requiring the formation of landowners' associations to claim state lands, and 2) the 1970 *Decreto 373* and *Decreto 1001* abolishing precarismo and restricting agriculture that was carried out by people other than the owners themselves. The main land reform objectives in 1964 were: confiscation of underutilized arable land, limiting the size of larger landholdings, devolution of proprietary rights to feudal peasants (*huasipungeros*) and abolishment of feudal relations, minimizing the incidence of renting farmland, and permitting payment-in-kind in lieu of rents (Barsky 1988:151-2). The Ecuadorian government had only realized 11% of its objectives (in hectares) in national land reform between 1964 and 1979 (Luzuriaga and Zuvekas 1983). While the country fell short of the objectives, equitable land distribution by the early 1970s was, indeed, negatively correlated with the propensity to migrate within Ecuador (Bravo-Ureta, Quiroga and Brea 1996:472), although migration in the mountains, the Amazon, and the western coastal plain were all different (Brown, Brea and Goetz 1988).

Since the 1970s, the logging industry has been intricately involved in the economic development of NW Ecuador. Formal agreements made with landowners' associations provided the basis for logging by large national and multi-national operations. This occurred in a roads-for-trees dynamic, on the one hand, and value-added exploitation by locals on the other (Sierra and Stallings 1998:151). Colonists followed the lead of logging companies in order to exploit the

agricultural potential of their land (see Rudel 1993 for a general discussion on the Ecuadorian Amazon).

Virtually all Ecuadorian colonization, both in the Amazon and in the northwest coastal plain, has been associated with very little direct government intervention in the form of agricultural payments, loans, extension, planned communities, or selection of potential beneficiaries (Uquillas 1984:261; Casagrande, Thompson and Young 1964:288).

Coastal migrants arriving to the Santo Domingo area in the 1960s seem to have fared better than those coming from the mountains. The difference has been attributed to coastal migrants' greater familiarity with ecological conditions (Casagrande, Thompson and Young 1964:306). Moreover, people arriving from the mountains attempted to implement socio-cultural traditions unsuited for the frontier, including prematurely nucleated settlements—a pattern that resulted in failure since inadequate transportation left farmers far from their plots (Casagrande, Thompson and Young 1964:297). Some early Las Golondrinas residents also fared poorly because of their insistence on living in the village instead of on their land, far from social life. Construction of the road between Santo Domingo and Esmeraldas was completed in the 1960s (refer to Figure 2.1). Beginning at that time, colonists began to enter the Las Golondrinas area by foot at a place called Kilometer 200, about 40 km from Las Golondrinas. The frontier is now 20 miles away, and the privations of pioneer life are beginning to lessen. Ecuadorian pioneer colonization of the last three decades is fairly well documented. Still there are unanswered questions about Las Golondrinas and the process of pioneer colonization in Ecuador. How has the age cohort/family composition of the migration stream changed over time? How has the wealth composition of the migration stream changed over time? How have the provincial sources of migration changed over time? How many steps has it taken to get to Las Golondrinas? Answers to these questions help build a framework for frontier social organization.

## Methodology

Colonization to Las Golondrinas was measured through informal interviews and through a comprehensive migration survey. Questionnaires were administered to a stratified sample of 326 people living in the Las Golondrinas colonization zone over a 10-day period in July 1997 under the Ethnoecology of the Cotacachi-Cayapas Ecological Reserve Project of SANREM-Ecuador.<sup>34</sup> The survey instrument was part of a larger study by SANREM to get at the identity of migrants to three ecologically distinct areas slated for community-based natural resource management planning. The data presented in this chapter describe migrants' characteristics, including occupation, age, household size, and prior and current land ownership. The data also reveal people's participation in stepwise and/or chain migration events.

I trained the 8 assistants who helped me and I recurrently checked their work, as well as administered 60 questionnaires myself. Based on a population of approximately 10,000 families—some in villages and some sparsely located—the stratified sample size we sought was 278 individuals from 278 randomly selected households. However, more people than our initial estimate were ultimately interviewed in an attempt to fill our criteria of stratification (the same number of men as women and an even distribution of interviews across age groups 15-24, 25-34, 35-44, 45-54, 55+; see Table 3.3). We did not achieve a perfectly stratified sample, as the elderly are hard to come by in frontier populations.

To provide a random sample of households, we attempted interviews at every second house in sparsely settled areas, and every third house in villages. We conducted the interviews in about 20 geographically representative villages and rural areas throughout the zone. Though the sample is biased to some degree against those living far from roads, most houses in the zone are in fact located within one-half kilometer of a road.

<sup>&</sup>lt;sup>34</sup> The projects' principal investigators were Drs. Robert Rhoades, Virginia Nazarea, Jody Stallings, and Rocio Alarcon. The same interview schedule was conducted in Cotacachi in 1998 and in Nanegal in 1996. The Sustainable Agriculture and Natural Resource Management project is a USAID-funded Collaborative Research Support Program.

	missing	15-24	25-34	35-44	45-54	55+	Total
Female	0	38	40	36	32	26	172
Male	1	45	40	31	23	14	154
Total	1	83	80	67	55	40	326

Table 3.3. Interview Sample by Age and Sex (n=325)

The very sparsely populated far reaches of the Las Golondrinas zone (e.g., Hoja Blanca, Union Lojana Ganadera, and Voluntad de Dios) also are under-represented in the sample. Most of the data presented in this chapter is representative of the region because someone in every second or third house was interviewed, and data was collected about all of the individuals living in the household. Appropriate sample size, whether using just the stratified sample or these interviewees plus all household members (the latter being a random sample), is presented with each table or figure in the chapter. The results section explains the effect of using only interviewees (stratified sample) and not all their household members (random sample) where appropriate.

The basic structure of my analysis of Las Golondrinas' migration streams in the next section is as follows: spatial origins of migrations, their household demographics in Las Golondrinas, then the development of their socioeconomic characteristics.

#### **Results and Discussion**

## Spatial Origins of Migrants

Distance decay for migration to Las Golondrinas appears to have some effect if the data is coded broadly (say, far and near), but does not hold up with finer codes, as seen in Figure 3.2. Distances '1' and '2' are mostly comprised of the provinces of Esmeraldas, Pichincha, Manabí, Los Rios and Bolivar. Distances '3' and '4' are made up mostly by the provinces of Guayas, El Oro, Loja and mountain provinces.



Figure 3.2. Number of In-Migrants, by Distance of Province of Origin/Birth from Las Golondrinas (N=290).

One of the main reasons for the lack of a strict relationship between distance and number of migrants is that droughts were a major cause of migration in Manabí (Distance 2) and Loja (Distance 4). Thus climatic factors alter the relative importance of distance in determining migration to Las Golondrinas. Another relates to population pressure. Esmeraldas (Distance 1) is the closest province, but also the province with the lowest population density.

Only Manabí could be considered a major birthplace of Las Golondrinas' in -migrants, while seven other provinces contribute between 5-11% to the area's total population (see Figure 3.3). Since Manabitas typically arrived in the region later than other groups, their social and cultural influence is low compared to their population numbers (see Foster 1950 for discussion of cultural crystallization). Also, ethnographic fieldwork and more detailed analysis show regional variation in the Las Golondrinas area with notable concentrations of people from different provinces. Despite the large percentage of Manabitas, they are in the majority only in a few places, such as the larger towns of Las Golondrinas and La Te.



Figure 3.3. Provinces of Origin for Las Golondrinas In-migrants (n=290)<sup>35</sup>

The number of in-migrants to Las Golondrinas from each province varied little overall, except for a surge in Manabí's contribution to the stream since about 1979. The flow of in - migrants from Manabí leveled off slightly between 1988 and 1992, but later resumed its increasing contribution (see Figure 3.4, below).

Figure 3.4 details the flow of in-migrants age 15 or older from each province, over time. The extreme southern provinces of Loja and El Oro and the next closer group of provinces (Guayas, Bolivar, Los Rios) reacted similarly during the period investigated. Manabí and Pichincha, two of the nearest provinces to Las Golondrinas, along with the mountain provinces that contribute relatively few in-migrants, share a distinct pattern of ups and downs in the migration stream. This is particularly true for the slump between the mid-1980s and the period around 1990, as well as the very steep curves immediately before and after that period.

<sup>&</sup>lt;sup>35</sup> In-migrant totals are likely biased by family size in province of origin. Therefore, the stratified sample (one adult from each household) accurately shows province of origin of adult in-migrants as well as entire households (regardless of size).



Figure 3.4. In-migration of People over 15 Years of Age, by Source Province (n=750)

Only Loja shows a decrease in migration to Las Golondrinas in the most recent period. One reason for the decline in migration from this province may be that the original settlers have been away from their homelands so long that they are known to very few young people back home likely to migrate. El Oro and Loja are also the farthest provinces from Las Golondrinas. Notice also that the in-migrants from Pichincha/Other (mountain provinces) and Manabí saw a particular drop around 1990, while the other provinces (primarily coastal) did not.

Land tenure data from the sending area of Chone, Manabí indicates that the temporary decline in migration around 1990 is associated with a peak in activity in land sales. Chone is the Ecuadorian canton responsible for the highest number of Las Golondrinas in-migrants (see Figure 3.5).



Figure 3.5. Yearly Number of Land Sales in Chone, Manabí, 1960-97.

Based on the data from Chone, I suggest that that high land volatility is correlated with the retention of young people, or with the migration of young people to other urban areas, but not with migration of young people to rural areas. Interestingly, the second period of increased land sales in Manabí was a period of high inflation, and was characterized by hardships associated with structural adjustment policies.

Migrants originating in certain provinces were more likely to have more extensive migration histories than those from other provinces. Table 3.4 suggests some scenarios for stepwise migration.

# of Moves	Bolivar n=19	El Oro n=17	<b>Esm.</b> n=20	Guayas n=30	<b>Loja</b> n=34	Los Rios n=33	Manabí n=110	<b>Pichincha</b> n=27	Other n=23	<b>Avg.</b> N=313
1	42%	35%	35%	50%	21%	42%	27%	37%	13%	32%
2	42	41	55	37	53	52	40	26	30	42
3	5	6	10	7	12	3	22	30	39	16
4+	11	18	0	7	15	3	11	7	17	10

Table 3.4. Number of Moves on the Road to Las Golondrinas, Based on Province of Origin

Particularly, people from Esmeraldas, Guayas, Los Rios, and Bolivar are less prone to move more than twice. People from other provinces seem equally likely to make more moves.<sup>36</sup> Overall, individuals who moved three or more times in their lifetime comprised only one-fourth of Las Golondrinas' in -migrants. Lojanos, Others and those from Pichincha exceeded the average percentage of people making more than two moves. The people from Manabí and El Oro made two moves at the same frequency as the overall average, while people from all other provinces made two moves far below the average.

Not only is it important to know where people come from, but also how they got to Las Golondrinas, i.e., what paths they took. The paths people took, or stepwise migration, indicates potential exposure to similar ecological conditions, as well as the hopefulness of migrants to improve their own or their families' economic conditions. Table 3.5 presents the number of steps migrants took to arrive in Las Golondrinas, based on the province in which they lived immediately prior to Las Golondrinas.

Table 3.5. Number of Moves on the Road to Las Golondrinas, by Port of Entry (n=308)

# of	Bolivar	El Oro	Esm.	Guayas	Loja	Los Rios	Manabí	Pichincha	Other	Avg.
Moves	n=13	n=10	n=64	n=29	n=10	n=22	n=52	n=98	n=10	n=308
1	62%	50%	13%	48%	50%	50%	56%	12%	30%	31%
2	31	30	47	34	40	36	29	53	20	42
3	7	10	28	7	10	5	10	24	20	18
4+	0	10	13	10	0	9	6	11	30	10

In other words, Table 3.5 shows the entry points to Las Golondrinas, as well as what types of migrants (extensive or minimal migration histories) are coming through those entry points. The main entry points were the most geographically proximate and ecologically similar to Las Golondrinas. These entry points included Esmeraldas (city of Quinindé), Pichincha (city of Sto. Domingo, and the La Concordia area), and slightly farther away Manabí (El Carmen, Flavio

<sup>&</sup>lt;sup>36</sup> The other exceptions are the few people from 'Other Provinces'—typically mountainous places—who

Alfaro, Chone). Also, Los Rios and Guayas also served as stepping-stones for many Las Golondrinas in-migrants. People coming through Esmeraldas and Pichincha were least likely to have moved once, but most likely to have moved two, three or four times. All other provinces followed a distinct pattern of serving as an entry point mostly for people originally from that province, then for those making two moves, followed by those making three or more moves.

Individuals from some provinces appeared more likely than those from other provinces to follow family members to other places during their migration career (see Table 3.6). A Chi-square test shows it not to be a significant relationship when considering all provinces (p=.262). Table 3.5 shows that Manabí, Guayas and El Oro sent out people who were, on average, more likely to follow non-co-resident relatives. Overall, in the move to Las Golondrinas 40% of people over 15 arrived with family having already settled there. This pattern is very similar to their overall likelihood of following family previously, as shown in Table 3.5. While the variation based on province of origin is not significant, it is important to establish a baseline for studies of colonization in Ecuador regarding the likelihood of settlement to occur through family chain migration. This study offers a range of 35-59%.

Province of	Average % of Times Family was	Total # of Migrants
Origin	Present Before Migrant Arrived	
Bolivar	37%	19
El Oro	59	17
Esmeraldas	43	20
Guayas	50	30
Loja	43	34
Los Rios	35	33
Manabí	50	110
Pichincha	37	27
Other Provinces	41	23
Total	45	313

Table 3.6. Migrant Province of Origin, by Likelihood to Follow Family Members (n=313)

experience the greatest number of moves.

# Household Demographics

The current average household size is around six people. Households consist mainly of nuclear families, a few stem families, and nuclear families with the occasional cousin or resident helper. Childless families in the area are less common than households with nine or more people.



Figure 3.6. Household Size, by Number of Households (N=326)

Average age-at-arrival gives another picture of the Las Golondrinas population (see Figure 3.7). Over the short term, average age varies somewhat, but increases over the long term.



Figure 3.7. Average Age-at-Arrival of In-migrants over 15, by year, 1968-1996 (N=313).<sup>37</sup>

 $<sup>^{\</sup>rm 37}$  The values shown in this table come from moving one-year averages.
The change in average age of in-migrants seen in Figure 3.7 is explained more fully by disaggregating age groups, as in Figure 3.8. Figure 3.8, below, presents the flow of migrants to Las Golondrinas over time, with regard to age composition.



Year of Arrival in Las Golondrinas

Figure 3.8. Age of In-migrants, by Year of Arrival (N=1348)

Relatively smooth patterns of migration were interrupted for most age groups between 1988-1992, then a particularly bi-modal response occurred in the past 5 years. During that time, the 45+ and 15-24 age groups resumed a pattern of increased in-migration. However, the age groups that had the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> highest levels of in-migration at the time leveled off or declined in size. These groups include children and most family-aged working people (ages 25-44). It is plausible that in-migration of families may be leveling off. When flows are examined by yearly values, high variability is seen for all groups, but within a narrow range—there are few drastic changes in the number of people. Figure 3.8 also indicates differential responses by various age groups to dynamics in sending areas and in Las Golondrinas.

The presence of family has a slight effect on the age cohorts involved in the migrant stream. Table 3.7 shows that younger migrants are more likely than older migrants to arrive following a non-co-resident relative already present in Las Golondrinas (paired t-test=.001, correlation .208). The division appears very abruptly after 34 years of age.

Age at Arrival	% with Family	% with Family not	Total # of	
	<b>Present Before</b>	<b>Present Before</b>	In-migrants	
<15	49	51	39	
15-24	52	48	79	
25-34	44	56	57	
35-44	24	76	38	
45-54	19	81	16	
55+	40	60	10	
Total #	101	138	239	

Table 3.7. Age of Arrival of In-migrants, by Whether or not they Followed Family (n=239)

While some adolescents would be expected to follow family, such high percentages of young adults (25-44) following family members to a new place. A couple of hypotheses seem viable: 1) the job market has been tight for young rural Ecuadorians over the last 30 years (though variation over time needs to be examined), and 2) there is a natural tendency to rely on family for any move, especially the frontier. Unlike older rural Ecuadorians who have developed sufficient friendships over time to be able to rely either on friends or family for a move, opening up more destinations, young people must rely on family or no one.

Men seem more likely than women, but not significantly so (p=.157 for Pearson's chisquare), to participate in a form of chain migration and follow kin to new areas, including Las Golondrinas. A patrilocal dynamic is expected in Ecuador and Latin America, in general, though the pattern is probably less striking in Las Golondrinas than in long-established places. Thus levels of patrilocality in the both types of places should be compared. Despite possible patrilocality, both men and women are more likely to move to Las Golondrinas by themselves than through chain migration on the coattails of relatives, suggesting neolocal residence patterns.<sup>38</sup>

# Socio-Economic Characteristics

Figure 3.9 shows the distribution of productive wealth amongst the population of the Las Golondrinas area. Migrants' current productive material wealth in Figure 3.9 is based on the incidental possession of a list of several items.<sup>39</sup> Natural breaks can be seen at around 50 million sucres, 250 million sucres and perhaps 500 million sucres.



Figure 3.9. Percent of Interviewees in Various Wealth Categories in 1997 (N=326).

<sup>&</sup>lt;sup>38</sup> The SANREM survey did not ask if people had followed friends. As I show in Chapter 3, most people followed family or friends. Thus neolocality is being directed by chain migration.

<sup>&</sup>lt;sup>39</sup> These items are: land (cultivated, uncultivated, cultivated with palm), house, car, stock animals, motorcycle, chainsaw, business, and refrigerator. For arriving at a measure of productive household wealth, I used the equation: hectares of productive land\*2.5 (5 in the case of hectares in palm) + hectares of unproductive land + hectares of rented or sharecropped land/2 + # of businesses\*5 + automobiles\*8 + motorcycles\*3 + cattle\*1.5 + horses\*2 + chainsaws\*2 + pigs/2 + refrigerators/2 + chickens/15, which attempts to account for the market value of each of the items possessed. The equation only slightly accounts for the occupational structure of the household, and not at all for the household life cycle. I excluded the value of houses, due to their dubious status as productive wealth. One fourth of the people without any productive resources do own their own homes, however.

While even individuals with as many as 100 million sucres (US\$4000) could be considered poor and without resources, it is notable that over 85 percent of households have wealth-generating capacity besides wage labor. This means that day laborers were also engaging in other productive endeavors. Nonetheless, the sharp break between people with 50 million sucres or less is indicative that there have been two kinds of people arriving in Las Golondrinas people with resources, and people without. It is well known that well-to-do peasants migrate because of opportunity, rather than in response to hardship like poorer peasants (Connell et al. 1976:19). Without sufficient capital, poorer peasants have a difficult time increasing the stability of their livelihood on the frontier.

The current occupational structure of Las Golondrinas is depicted in Figure 3.10. Thirty percent of residents are in school. Another 20 percent of Las Golondrinas residents are young children. Of the other half of the population, about two thirds are involved in agriculture and domestic work.<sup>40</sup> These are the farm families of the region.



**Current Primary Activity** 

Figure 3.10. Number of Las Golondrinas Residents Dedicated to each Occupational Category in 1997.<sup>41</sup>

<sup>&</sup>lt;sup>40</sup> Due to the coding used in data collection, there may be some over-counting of either agricultural laborers or farmers.

<sup>&</sup>lt;sup>41</sup> N=1819, includes all household members of the random sample of households.

Change in the structure of the Las Golondrinas' economy is shown in Figure 3.11, below, wherein current occupational categories are grouped by the migrants' time of arrival. I consider occupation as a proxy for the capital and earning potential of each interviewee. The data show a slight but steady diversification of occupations over time. The data also show an increase in total membership within those occupations, although most of the households have been primarily agriculturally oriented over the course of colonization. Unfortunately, I was not always able to distinguish between farmer and farm laborer due to the nature of the survey. However, 80 percent of migrants in the last five years were poor, and thus it is largely agricultural laborers who are arriving.



Year

Figure 3.11. Year of Arrival of Migrants (in 5-Year Intervals), based on Current Occupation (n=326)

People who arrived earlier tended to remain in agriculture and perhaps business, and more recent in-migrants have taken up other occupations.<sup>42</sup> By looking at each individual's prior and current occupations (from the stratified sample), I present another perspective on the development of the current occupational structure in Table 3.8. Around two-thirds of youth took up the occupations of agriculture/domestic work/agricultural labor; the other one-third were involved in diverse labor activities including wholesale/retail and specialized activities. Overall, only 23% of people aged 15-55 (60 out of 256) changed the focus of their primary productive activities in their move to Las Golondrinas. In Table 3.7, it is apparent that people were about as likely to take up agriculture/housework/day labor as to switch out of it as a result of their move.

Prior Occupation Category	Current Occupation Category	%
childhood/studies (n=69)	housework/day labor/agriculture	64
	wholesale/retail	16
	specialized field	20
housework/day labor/agriculture (n=31)	wholesale/retail	39
	other activity	61
other activity (n=29)	housework/day labor/agriculture	69
	other activity	31

 Table 3.8. Migrants Changing Occupations with Move to Las Golondrinas (n=129)

To see whether people who currently own land had always owned land and to test the idea that prior land ownership predicts successful farm management, I separated agricultural families into categories of prior land ownership and prior land non-ownership. First, the number of migrant families that did not own land immediately prior to moving to Las Golondrinas is always greater than the number of migrant families that did own land. This figure begins at

<sup>&</sup>lt;sup>42</sup> This data ignores people who have left the area, which likely results in underestimation of the agriculturally oriented population in the past. Also, Figure 3.11 is based on the stratified sample, and does not include fellow household members. Thus it is only possible to compare within each period, not between them. The relatively low number of those involved in domestic work was partially due to self-reports by many rural women that their primary activity is agriculture.

around a 1:1 ratio, but ends up averaging around 5:3 over the history of in-migration to the area (see Figure 3.12).



Figure 3.12. In-migration, by year of arrival and prior land ownership (N=323).

At this more broad time scale, the rate at which landowning families migrated to Las Golondrinas appears slightly more variable than the rate of in-migration for non-land-owning migrants. At a finer scale, however, Figure 3.13 shows great inter-year variability in the migration of both groups to Las Golondrinas.



Year of Arrival in Las Golondrinas

Figure 3.13. Year of Arrival by Number of In-Migrants, Based on Land Ownership Just Prior to Moving to Las Golondrinas (n=323)

The important features of Figure 3.13 are the points at which the migratory behaviors of landowners and non-land-owners are diverging. At two points in time, it appears that landless and landed migrants were settling in Las Golondrinas in very similar numbers and rates. This would put the periods of similar flows at 1981-82 and 1989-92, immediately following two of the three noticeable periods of divergence: 1978-1980, 1985-1987, 1996-1997. There are two plausible hypotheses for the divergences include: 1) cyclical economic conditions that impact farmers and farm laborers differently, or 2) a lag in the response of one group to the same conditions that prompted the first group to migrate.

How well does previously owning land predict land ownership in Las Golondrinas? The relationship between prior land ownership and current land ownership is not significant (p=.182 for 2-sided Pearson's, n=297). <sup>43</sup> Of the 177 individuals interviewed who were still living in Las Golondrinas and who did not own land where they lived immediately before coming to Las Golondrinas, 45% now own land in Las Golondrinas. If land-ownership was the goal of non-land owners, then their move to Las Golondrinas made almost half of them better off. Of the 130 people who owned land right before coming to Las Golondrinas, only 52% now own land. Still, around half of migrants have land, and it does not seem to matter much whether or not they owned land before.

# Comparison with other Ecuadorian Migration Systems

Before presenting a conclusion regarding the above findings, I compare this study to pioneer colonization in general, as well as to both labor and pioneer migration systems in Ecuador. In order to put my colonization data in perspective, Table 3.9 compares Thompson's (1973) generalizations to my characterization of colonization in Las Golondrinas. In general, Las Golondrinas follows the patterns of other colonization zones.

Characteristics of Colonization	Las Golondrinas Manifestations
Traditional, conservative culture	Similar at beginning, but later fewer land-owners, meaning less of the conservatism that is based on
	maintaining agrarian wealth
Extraction-based economy	Similar (timber, palm)
Expectations realistic, high for future	Similar
Spontaneous migration	Similar
National integration moderate	Low politically; but moderate economically
High resource degradation	Less—due to sandy soil, flat ground, local varieties
government policies encouraging it	Similar; no interference, moderate assistance

 Table 3.9. Characteristics of Colonization (after Thompson 1973)

A few differences are notable. There is a lower threat of land and soil degradation in Las Golondrinas compared to other pioneer situations. Regarding expectations, the people of Las Golondrinas no longer rate the future so highly as when they came to the area, although most plan to stay in Las Golondrinas, meaning that they do not discount the future (see Table 3.10). Pichon (1996b: 418) found in the early 1990s that few landowners want to migrate from the Amazon. Las Golondrinas residents in the late 1990s were just as interested in staying on the frontier. Compared to a planned settlement project in Thailand, where 13 percent of high school children of first-generation colonists wanted to stay (Bahrin, Thong and Dorall 1988:114), 70 percent of teenagers aged 15-18 intended to stay in Las Golondrinas.

Noticeable differences between the Amazon and Las Golondrinas colonization regimes include: geographic origin of migrants, average household size, and levels of education (see Table 3.10). Similarities include prior landlessness and intent to stay. Compared to the national migration dynamics, Las Golondrinas appears similar to the national averages in terms of migrant age and level of education, but with a slightly higher level of education for males.

<sup>&</sup>lt;sup>43</sup> The data do not account for the household life cycle or changing occupations. In addition, some economically active young adults counted household land as their own while others did not, and I was not

Colonists' Attributes	Amazonian land-owners household heads (Pichon 1996b:418-9)	Las Golondrinas land-owners <sup>44</sup> (1997)	Las Golondrinas economically active <sup>45</sup> (1997)	Ecuadorian economically active non- migrants (1982)	Ecuadorian economically active migrants (1982)
Origin	42% coastal	??	$67\% \text{ coastal}^{46} \text{ (n=292)}$		
% Landless prior	67%+	54%	59%		
Avg. household size	6.6 people	4.3	2.9		
Households, size 1-3	17%	17%	21%		
Households, size 10+	17%	7%	4%		
Average Age		41 males 38 females	32 males 30 females (n=1183)	33 males 31 females	34 males 32 females
% with 25-60 has.	80%	45% (60+ha=10%)	50% landless (n=299)		
Avg. years edu.	3.9 years	6.1 years	6.4 males 7.5 females	5.3 males 7.2 females	5.9 males 7.7 females
Intend to stay	69%	73%	71% (n=298)		

Table 3.10. Comparison of Ecuadorian, Amazonian and Las Golondrinas Migrants

Educational levels in Las Golondrinas are considerably higher than education levels for a few years earlier in the *Oriente*. At the same time, Las Golondrinas immigrants tend to be less likely to have owned land prior to colonizing and less likely to end up with smaller plots, on average. Landowners' association records for Las Golondrinas show that most families originally claimed between 30 and 60 hectares. One of the reasons for the smaller plots in Las Golondrinas is that farmers have sold their land bit by bit. An effect of having smaller farms without much agricultural intensification is that Las Golondrinas is becoming more economically diversified, as well as differentiated in terms of socioeconomic classes. For example, many people left after selling their land to wealthy absentee farmers during the African palm craze around 1988. Wage laborers subsequently sought work with these plantation owners.

able to control for this.

<sup>44</sup> n=147

 $<sup>^{45}</sup>$  Data includes individuals, age 15 or older. I did not control for whether young adults were in school or not (n=302 unless otherwise indicated).

<sup>&</sup>lt;sup>46</sup> Pichincha's categorization as a mountain province may skew this percentage slightly lower than it should be.

# **Conclusion: Migrant Foundations for the Development of Social Organization**

As in other Latin American countries, the impetus for Ecuador' s agrarian colonization during the 1960s were in the highlands where smallholders were being pushed out by growing populations, land scarcity and poverty (e.g., Brownrigg 1983; see Collins 1988 for Peru). In addition, Ecuador's historic reliance on monoculture production on the coast (e.g., cacao in the 1920s, banana in the 1950s), the 1964 Agrarian and Colonization Law, and the oil boom in the Amazon further stimulated colonization on the agricultural frontier.

The related movement of people in and out of the Las Golondrinas area directly affects the nature of the local demographic structure and social organization. The extent to which this movement affects social networks will be taken up in the next chapter. Based on the data analysis presented here, an integrated vision arises indicating how several aspects of migration provide a foundation for further socio-cultural development, especially in a zone of new life. The cultural geography of migration in Las Golondrinas erupts from household dynamics, the processes of class formation, and emergent properties of migration streams. In summary:

1) In the long run, there is an upward trend in the average age of Las Golondrinas inmigrants, as predicted by models of migration stream maturation. One explanation is that fewer families are in-migrating. Indeed, the recent period (1993-1997) indicates that young workers and older in-migrants are on a different trajectory than are working age adults and their children. Interestingly, the time period *circa* 1988 is categorized by distinct breaks from previous and later patterns of age-dependent migration. Additionally, age-at-arrival and likelihood to follow family are significantly correlated. As a result, households have become larger due to the maturation of the migration stream.

- 2) Households always have been primarily agriculturally oriented. However, the data hint at a steady diversification of occupations over time and, of course, an increase in total membership within those occupations. Over the long term there is a relatively constant ratio of in-migration between landowners and non-land owners. In the short-term, however, the two groups decide whether or not to migrate based on different factors.
- 3) There is a relatively constant low level of flow of individuals from most places except Manabí, which is a sending area that is more tightly linked to Las Golondrinas by chain migration. The likelihood of people following their family to Las Golondrinas (and elsewhere) depends somewhat on their place of origin, not only for people from Manabí. Most people arrive in Las Golondrinas within one or two moves. Still, there is systematic variation in the number of times individuals move (step-wise migration) based on source areas; this, to some extent, is predicted by distance decay.

The above conclusions demonstrate the need to conduct analyses of entire migration systems in order to create a holistic picture from which to evaluate social change over time. Having placed migration and development in the context of the instability of pioneer situations, I consider the consequences of the above developments on social structure in the next three chapters.

#### CHAPTER 4

### PEASANT SOCIAL NETWORKS ON THE FRONTIER

In the CAV [Colonia Agrícola Villegas] one can glimpse the possible transformation of an impoverished and landless rural proletariat into an organized community of independent farmers who by their joint efforts might rise above the level of meager existence (Casagrande, Thompson and Young 1964: 311).

In most colonies...there was little co-operation for economic purposes, and most colonists were individualists (Farmer 1957:296).

# **Problem Statement**

Theoretically, the frontier situation is ideal for the study of the development of social organization. This was discussed some in chapter 1, but what happens after the initial decrease in inequality on the frontier due to ample land (Stone, Johnston Stone and Netting 1987:191). Inequality in Las Golondrinas is beginning to occur since agricultural land values are increasing and land tenure becomes less stable. This chapter considers some of the specific ways that these inequalities play out, particularly how they show up in people's social networks. Based on evidence from chapter 3, I expect the frontier characteristics of conservatism, extraction, high expectations of the future, spontaneous migration without government interference, and moderate national integration to influence the ways that people relate to one another.

This chapter is concerned with the social character of these potential strategies for dealing with conditions of agricultural and migratory instability on the frontier. I began my fieldwork in Ecuador with several predictions regarding colonist and community responses to frontier life. First, I expected social networks that are characterized by high levels of migration (the movement of people in and out of the network) to be extensive, weaker and less hierarchical. I also predicted that individuals arriving in Las Golondrinas simultaneously and/or from the same place would form cliques or sub-groups that would be maintained over time. Further, I predicted that when villages experience similar patterns of migration but still have very different social network characteristics, it is wealth discrepancy that produces much of the variation. In general, then, three potential factors were implicated to explain the variation of strategies available to town members. How risk and uncertainty are visible in the lives of pioneers depends on these three factors—migration streams, place in a central-place system, and wealth-based subsistence strategies. First, demographics, including temporal patterns of migration and life histories will play a role. Second, the centrality of a town in the regional economic system of a frontier area should act as an indicator of residual risk and instability associated with pioneer life, and should correlate with particular network characteristics. Last, economic stratification and wealth-based subsistence strategies are likely to impact the development of social networks. I will review these frameworks after presenting the concepts of risk and uncertainty.

### Literature Review: Rural Social Networks

Social networks—taken as conventional relationships and responsibilities—develop in concert with people's responses to initial settlement conditions,<sup>47</sup> and this chapter analyzes several aspects of Las Golondrinas social structure through social network analysis.

For several reasons, the agricultural activities of pioneer colonists are characterized as particularly high risk. Theoretical research on this problem in behavioral ecology suggests that minimization of the potential of shortfalls is often more important than is profit maximization, but that when shortfalls do occur, higher risks are taken (Stephens 1990). This is echoed in the literature on pioneer colonization:

<sup>&</sup>lt;sup>47</sup> See Foster (1950) for a discussion of cultural crystallization

Under the risky conditions of the frontier (i.e., fragile and easily-degradable soils, poorly developed market mechanisms, and physical infrastructure, etc.), farmers' decisions need to be flexible and leave room for a number of contingency strategies. The criteria used to compare different strategies are more likely to conform with a behavior designed to stabilize family security than to maximize profits (Pichon 1996a:357).

While it is well-documented that in frontier situations farmers plant subsistence crops in their first season and eventually stabilize with a mix of subsistence and commercial crops or just commercial crops, a more detailed analysis of this dynamic shows that there is a lack of discernible patterns in the land-use responses of individual colonist farmers (Pichon 1996b:417).<sup>48</sup> I propose that this apparent lack of discernible patterns results from some micro-processes which may well be patterned, such as: 1) the different perceptions farmers have of the uncertainty with which they are faced, sometimes depending on when they arrived on the frontier or the province from which they came, and 2) differences in social structure and economic resources for responding to risk. Next, I discuss some areas of peasant responses to risk and uncertainty that have more social and cultural implications: migration patterns, changing regional economic systems, and wealth-based subsistence strategies.

#### Migration Patterns

Much theoretical research has shown that population stability is important to achieve local informal modes of cooperation (Boyd and Lorberbaum 1987; Nowak and Sigmund 1993). Qualitative fieldwork similarly has indicated that formal cooperatives in Ecuador are affected by population dynamics (Phillips 1993). Specifically, social and demographic stability (e.g., permanent rather than temporary forms of migration) are more likely to result from intensive agriculture than from most other productive technologies (Goldscheider 1989). Family systems

<sup>&</sup>lt;sup>48</sup> Some fairly robust findings, however, are that prior land ownership, residential stability, liquid assets/capital, prior credit experience and prior success interacting with markets in a place of origin is a

are affected by fertility, mortality and migration (e.g., Skinner 1997), for all of which it would be useful to develop measures of variability over time, since different types of economies produce different responses in family systems based on how this variability affects social support networks. This stability provides for more corporate demographic orientation, specifically regular age at marriage plus fixed rules of inheritance (Blanton et al. 1996), creating a feedback process of continued stability. It is important to consider how these concepts about demographic stability are useful for investigating social structure and, more specifically, social networks.

Migration studies emphasizing social networks were reviewed by Boyd (1989) and tended to focus on treaties, government policies, sending country linkages, social/structural factors, and settlement/integration. These studies have benefited neither from the use of formal network analysis nor the discussion of network dynamics and could be improved through increased conceptual refinement (Boyd 1989). Subsequently, migration frequency was found to result in wider networks (Bernard et al. 1990) that imply weaker ties since people have only so much time and energy to dedicate to relationships, implicating migration as a source of instability. However, migratory instability need not result in low social integration, depending on the presence of individual factors as well as group factors that mediate such integration, at least in urban settings (Fellin and Litwak 1963).

A substantial portion of research on social networks and migration has focused on urbanrural ties. For example, Weisner (1976:218) found that urban in-migrants in Kenya tended to develop networks based first on clanship, then social status, and lastly residence. Jacobsen (1973 in Weisner 1976:220) argued that ties of rural-urban migrant tribal elites were more urban and intertribal while poorer rural-urban migrant tribesmen had social networks consisting more of kin and rural ties. While sub-group interactions may be intensified among kin and countrymen for a short period after migration (Colson 1971) on the frontier, low social cohesion is due largely to

better predictor of effective farm management on the frontier than are other migrant characteristics like

sparse frontier settlement patterns (Thompson 1973:11) that result from low capital and labor to land ratios (e.g. Pichon 1996b:17). Lastly, successful farm management requires adequate information and support networks, and is complicated by low levels of cooperation and limited village cohesion common in frontier societies.<sup>49</sup>

Attempting to better understand this confirmed generalization—that migration affects social networks—Grieco (1998) used Granovetter's (1973) distinction between weak and strong ties to study caste re-formation among Indian migrants to Fiji and was the first to link individualistic migration (e.g., labor, refugee) to weak social network ties and social migration (e.g., family, chain) to strong network ties. When individuals and groups migrate to a frontier community like Las Golondrinas, what do networks look like?

### **Central Place Theory**

For the purposes of this study, I consider the Las Golondrinas frontier area to be a dendritic system, a type of regional system having a single town as the only way out of a region, from which smaller towns, and then villages and then rural areas spread out (see Figure 4.1). Central place theory holds that variation in economic and social activity can be observed along a gradient, radiating out from a larger, more influential central town, based on von Thunen' s (1966 [1826]) idea that intensivity of land use around an urban center will vary directly with proximity to the urban center. Analyzing the relationship between consumer and supplier, Cristaller (1972) presented a nested pattern of central places, showing how the center has high- and low-order goods, while the outlying areas have only low-order goods. Smith (1976:15) concluded in a

family size and years of agricultural experience (Moran 1975, 1979 and 1981 in Moran 1984:289-290). <sup>2</sup> Several examples exist of ethnically or socially cohesive groups arriving on the frontier and maintaining relatively high levels of cooperation and social sancture, precipitated by the settling of an entire immigrant group in one place, the necessity of irrigation in an arid landscape, or the need for protection from hostility (Thompson 1973:13). A case of traditional social organization on the frontier was examined by Scholz (1988), who found that within one region, local colonists recreated traditional Thai village patterns, while longer distance in-migrants lived more sparsely.

review of regional analyses that presence or absence of goods is very reliably predicted by location in a central place system.



Figure 4.1. Idealized Dendritic Regional Economic System

A regional focus on export monoculture—like the early focus of Las Golondrinas on coffee and cacao, as well as its current focus on palm and rice—tends to create a dendritic system which is characterized by external demand, foreign capital, interregional transport, hierarchy of commercial centers, and local organization of productive sectors (Appleby 1976:292). The producers furthest from the core typically have access to less information about prices, plus have less access to transportation, putting them at the vagaries of unstable markets. Convenient price reductions, theft on the scales, high discounts for dirt and moisture, and company store practices by middlemen seeking to limit competition between themselves in the cores of these systems tend to hurt the producer (Appleby 1976:302-3).<sup>50</sup> But what about the relationships between regional systems and a finer level of social organization, like social networks? Although there has been no

<sup>&</sup>lt;sup>50</sup> However, Rees and Smart (2001) have argued that some differences in economic behavior, particularly labor migration, are not well predicted by core-periphery distinctions. I think it might be useful to distinguish between inter and intra-state core-periphery systems.

work done on social networks in a central-place system, there are some indications that social networks vary with place in a regional economic system. For example, peasants are more likely to trust others interpersonally, but less politically, while urbanites are the opposite (Seligson and Salazar 1979). Class/market relationships might be more dominant in the urban setting, while relationships based on interpersonal dynamics then reign in the rural setting.

Thompson (1973) characterized the pioneer peasant as a conservative individualist. The lack of contact between the peripheral peasant and core elite in a regional economic system means that core culture has little effect on peasant culture (Smith 1976:352), and for this reason rural farmers and farm laborers are considered so traditional and unchanging. Cultural homogeneity of the periphery is encouraged when external elites lump together the local elite and local peasants. Peasants in the villages and more successful peasants identify with elites from a more powerful core area, and this is obvious to poorer local peasants (Smith 1976:352). Also, local peasants can change classes by changing residence (migration) and ethnicity (peasants are referred to as *montuvios* or *campesinos* in Ecuador) as well as by becoming merchant-traders (Smith 1976:352). Nonetheless, class- consciousness does not necessarily arise (Smith 1976:352). Smith's findings show that even if a non-conformist shows up on the frontier—a place of 'progress' over the long term. Peasant conservatism then, in addition to resulti ng from risk minimization as discussed in the previous chapter, accompanies predictable variation in status and trust as potential products of a regional system's structure.

# Wealth-Based Behaviors

At what point does a temporally new rural society begin to develop the kinds of socioeconomic distinctions that characterize rural and urban societies long linked to processes of capitalist accumulation? These processes of rural wealth accumulation and socioeconomic

differentiation generally include: 1) changing land tenure, 2) variation in availability of financial capital and returns to investment, and 3) labor shortages.

Land title security is important in both migrant satisfaction and land-use decisions (Wood and Schmink 1979), given that few peasants have legal title to their land. Many pioneer colonization studies note the effects of changing land tenure—it is a major component in any measure of economic security for peasant farmers, especially if rents are monetary and fixed rather than payable in kind (e.g. Bagchi 1992), and if farmers do not have legal titles to their land, they are unable to get credit from banks, leaving them behind fellow peasants with title to land (Riethmüller 1988:93). Those with familial, even social support, networks may tend to be more successful because they can attain necessary information for selling their land at the right time (at a profit) and make a second move to a new frontier, thus investing their capital and experiencing upward mobility (Sewastynowizc 1986:745)—they can be considered moderate risk-takers (Sewastynowizc 1986:747).

Agricultural risk and uncertainty result in varied and contingent production strategies. Researchers on pioneer colonization tend to divide the population into occupational categories, such as, for example, plantation farmers/processors, laborers for plantations, small subsistence farmers who clear land for landlords, later-arriving medium-sized farmers, seasonal wage laborers who concurrently cultivate wet rice, shopkeepers and traders, crop brokers, and truck owners (Sirisambhand 1988:70-71), although it might be more appropriate to characterize occupations vis-a-vis their contingency upon conditions of risk and uncertainty. Plantation agriculturalists must have sufficient capital in order to expand and contract with external markets, while small producers must find a particular mix of subsistence production and market production for acquiring sufficient income, as well as produce food for themselves (Smith 1976:337-8), particularly under conditions of population growth that makes intensive cultivation necessary (see Boserup 1965; Conelly 1992; Hunt 2000). As discussed in chapter 3, the household plays a role in

these responses to the market such that, in particular, peasant households, whether pioneers or not, end up more oriented toward subsistence production during bust cycles (Wallerstein and Smith 1992; see also Whitten 1974), which reduces the capitalization of their own operations and makes them less able to compete during booms. Thus, economic booms are periods of increasing class-based inter-household stratification (Wallerstein and Smith 1992). The farm household often is constrained internally by the ratio of consumers to producers, a higher value of which causes more intensive use of household labor (Chayanov 1966). One could see how the larger economic cycles affect who are producers in any given household, especially when, as in the case of Las Golondrinas, farm households hire labor and hire themselves out for labor.

Schwartz (1987:172) is concerned that poor pioneers work hard to clear the land, but have to abandon it, leaving it to wealthier farmers or ranchers. This is contrary to the design of pertinent laws and government agencies—a process whereby "...peasants have subsidized the affluent by clearing forest for them" (see also Royden and Wennergren 1973:72). It is clear that farmers can lower at least some of their risks by working with or for others (James 1983:581 in Rudel 1993:25; Collins 1988:182-4). Of course, the poorest pioneers have no capital, only their labor to improve the land that, once improved, is worth more to them sold than it is to them while they still lack capital. Once pioneers sell or abandon their land, those who stay on the frontier tend to follow two different paths: the more wealthy and/or more connected pioneers may forge further into the frontier, either by buying from others or settling on unclaimed lands, while poorer pioneers typically take day labor jobs on others' fields (Rudel 1993:22).

People that move on to another piece of frontier not only have more resources, but have more than twice the number of kin ties and have acquired better information on local conditions, opportunities and development trajectories than those who do not migrate to a second frontier (Sewastynowicz 1986:745-747). Also giving credence to the importance of social networks in these circumstances, it is known that local information can be very hard to come by due to local

biophysical variation and complexity (Moran 1981). On the frontier in northwest Ecuador, as everywhere, a host of social processes create conflict and complicate the development of social networks characterized by cohesion and uniform information sharing, and that is taken up in the next section.

#### Social Relations on the Frontier in Ecuador

Migration to the Las Golondrinas area occurred in stages. Spatial patterns of in-migration were driven by several factors: the construction of roads, convenience of transportation, and availability of land. Temporal patterns of migration, on the other hand, seem to depend on both road accessibility, and on some of Ecuador's economic (e.g., export monoculture) and political (e.g., the organization of landowners' associations) structures. The temporal variation in migration patterns is, at least in part, responsible for the assemblage of a diverse array of interpersonal relationships within and between communities in the Las Golondrinas colonization zone. A sample of small communities in the Las Golondrinas area provides a means by which to compare local social networks and understand the major factors that affect the relationships between small farmers in the Las Golondrinas area.

Community division on the frontier is a potential source of the structuring of social networks. For example, division was caused by ethnic differences in the Peruvian frontier community of Satipo (Shoemaker 1981). And in the village of Las Golondrinas there is prejudice against Afro-Ecuadorians, particularly laborers—more often by colonists from the mountains than by colonists from the coast.<sup>51</sup> Land-owners and laboring families alike often fear crime and violence they associate with young male laborers, and vigilantism is not unheard of in this part of

<sup>&</sup>lt;sup>51</sup> Since Las Golondrinas is virtually all Mestizo, with a few Afro-Ecuadorians, in this dissertation I mostly discuss the kinds of social relations seen amongst Mestizos on the frontier, although Ecuador's colonization, especially of the Amazon, has involved incredible ethnic conflict and problems within indigenous and aboriginal inhabitants. Five Chachi communities on tribal land, accessible by bus, lie at the northwest edge of the Las Golondrinas area, north of Zapallo on the Canandé River.

Ecuador.<sup>52</sup> In the town of Las Golondrinas, locals told stories of vigilantism occurring in the two years previous to my arrival, saying that it was a time of heightened crime.<sup>53</sup> While there in 2000, I saw a lumber company guard tied up by locals and taken to the police for his part in torturing locals as part of a land tenure dispute between the company and colonists 30 miles to the north. It certainly did not help Mestizo racism that the guard was Afro-Ecuadorian like most of the company's guards up north—a region of Esmeraldas that is primarily Afro-Ecuadorian. In other cases, it may be less of a fear of incoming groups than it is a kind of hesitance to invest too much energy in a relationship that may soon end because of migration in search of a better life.

Other community conflicts are present, and seem to be considerably responsible for social relationships, especially two. First, there is ambivalence on the part of some people who have benefited from exploitation by logging companies, while others are vehemently against the politics and practices of the logging companies. Second, Imbabura and Esmeraldas provinces fight politically (and at one point, Esmeraldas used force) for a strip of land that includes the town of Las Golondrinas, and locals have taken sides. The problems associated with timber extraction have been existed in the four villages discussed in this chapter, while political delimitation really only affects the town of Las Golondrinas.

There are yet other sources of community conflict. In-migrants come from various parts of Ecuador and numerous tensions exist as a result. There is a coastal-mountain strain, based primarily on beliefs of people from the highlands that they are harder workers and more moral. There is also a strain between provincial groups that arrived at different times, some seeing themselves as the old guard with the right to have more say in village affairs because they were

<sup>&</sup>lt;sup>52</sup> In other cases, it may be less of a fear of incoming groups that is responsible for maintenance of social group boundaries and more of a hesitance to invest too much energy in a relationship that may soon end because of migration in search of a better life.

<sup>&</sup>lt;sup>53</sup> The frontier is often known as a relatively violent place. It is outside the scope of this thesis to discuss the mechanisms or structures that might serve to control that violence. The social networks examined in this chapter and the next are frequently imbued with antipathy, but not violence.

founders, at the same time that they are quite outnumbered by newcomers who are mostly Manabitas.

Regarding the potential strain of wealth or class differences, many people, especially the more wealthy, say there are no real differences between people in the Las Golondrinas area and that everyone is poor. Nonetheless, I found considerable objective differences in wealth. Ostentatious displays of wealth were very uncommon in Las Golondrinas, except the parading of the few cars in town up and down the two blocks of main street by vehicles owners' sons.

#### **Ethnographic Background of Villages**

Table 4.1 presents the general history of development as well as important town characteristics for the four villages I studied. Besides providing some ethnographic context, the data also indicate the appropriate position of each village in a dendritic central place system. La Te is connected to more roads than the three other villages. It is also accessed by more buses and cars, and has a relatively large population. La Te lies on the road to Zapallo, while El Recreo and 10 de Agosto are accessed by other roads from the town of Las Golondrinas. The population of La Te is around 180 families, Zapallo 200, El Recreo 55, and 10 de Agosto around 40.

Village	Year Begun	Km to LG	# of Families	Buses per Day	Road from LG Arrived	Village In- Migration Profile	# of Roads	# of Vehicles in Town
La Te	1977	13	180	12	1981	fast increase	3	?
Zapallo	1974	22	200	8	1981	short cycle	3	10
El Recreo	1970	15	55	2	1989	long cycle	2	8
Diez de Agosto	1980	10	50	2	1990	steady increase	2	2

 Table 4.1. Characteristics of Four Villages in the Study

In order of importance in the dendritic regional economic system based on the frontier town of Las Golondrinas, it was obvious that La Te was much more of a 'Central Place' than the other three; next would be Zapallo, then a close call, but it would be El Recreo then 10 de Agosto, based on the amount and kinds of contact these villages have with the town of Las Golondrinas.

*La Te* lies closest to Las Golondrinas of the four towns in my sample (see Figure 4.2), and contains more services than others in my sample. Buses travel to La Te several times a day. Furthermore, the town has been organized according to a relatively formal street grid. Settled later than Zapallo, La Te also was populated first from the West through Cole and the Canandé River, and not through Las Golondrinas until later. La Te's in -migration, at least for people who remain, grew steadily over the past 25 years until an extreme increase recently.



Figure 4.2. Geographical Relationship of Study Villages to Town of Las Golondrinas.

*Zapallo* boasts the largest population of the four villages, with 200 families in town. Of the 300 families in the larger Zapallo area, 10 have vehicles, half of which are pick-ups and half of which are grain trucks. Zapallo had a slightly less contentious relationship than did La Te with the lumber company that had governmental logging concessions for the area during the village's formation. As mentioned, its settlement occurred hand in hand (up to a point) with logging operations that we entering through Cole on the Canandé River. There has been some short-term variation in the in-migration of people who still remain in Zapallo, thus I characterize it as being short cycle.

*El Recreo* village is the oldest in my sample and was populated by way of a river crossing farther down river from Las Golondrinas. The village lacks the typical overarching political institution like a village council (*comité de promejoras*), but has an all-male committee responsible for electricity and roads, plus an all-female *provivienda* committee involved in general village welfare and social activities. In addition, a parent-teacher association has been established at the school. There are seven cars/pickups and one farm truck in El Recreo. Migration has picked up recently since an all time low in the mid-1980s, but changes have been gradual so I characterized this village as long cycle.

*Diez de Agosto* is the youngest of the four villages, and is small and rural like El Recreo. It lies ten kilometers to the east of Las Golondrinas. The town had just legalized their village council, and several villagers were at the verge of legalizing a small farmers' palm cooperative when I left the site in December 2000. Diez de Agosto was the only village of the four in my sample that was first populated by way of the road through Las Golondrinas.

As mentioned above, I characterize La Te as having continual increase in in-migration (very rapid recently), Zapallo as having short cycles of increase and decrease, El Recreo as having a long cycle of increase and decrease, and Diez de Agosto as having steady increase. My analysis attempts to account for the effect on social network structure of both the variation in the

volume/timing of the migration stream and the place of each village a regional economic system, paying particular attention to more micro-level wealth- and culture-based interactions within peasant networks.

### Methodology

I used a snowball sampling technique in November, 2000 in four villages—La Te, Zapallo, Diez de Agosto, and El Recreo—to elicit local networks. An assistant in each village was trained to employ the survey instrument (see Appendix 4.1). A first tier of five people, of mixed gender and wealth, was interviewed and each was asked the names of three people from the same community to whom they felt the closest.<sup>54</sup> The individuals named by tier one became tier two, and each person from tier two was interviewed, each providing three names for a third tier of people. This third tier was the last to be interviewed—the individuals named by them were not sought out for an interview. This technique produced a sample (of three interviewed tiers) ranging from 32 in Diez de Agosto to 46 in Zapallo, since some people were named by more than one person in the network (see Appendix 4.2). The network was created by using the individuals in the first three tiers and people they named amongst themselves, so no one from the fourth tier was included, unless they named someone who had already been named.

In addition to naming their three closest contacts and their relationship to these three people (i.e., friend, family or neighbor), informants gave the name of their birthplace/place of origin, the number of years they have resided in their present village, occupation, and whether or not they followed family or friends to the Las Golondrinas area. Each assistant was responsible for giving the individuals in their sample a wealth code, and attributing their religion. Wealth was ranked on a scale from one to five, although the 'five' code was only used for two people, so I recoded them as 'four.' People coded as 'four' owned considerable land usually with African

<sup>&</sup>lt;sup>54</sup> 'Favor de nombrar las tres personas con quienes mas se lleva usted, afuera de su casa"

palm, plus other obvious forms of capital like many stock animals or a vehicle. Individuals coded as a 'one' were considered to be among the poorest economic strata in the community —laborers or homemakers not owning their own home. 'Two' was assigned to laborers/employees or artisans owning their own home, in general, and 'three' to relatively small landowners or some wealth equivalent. After all data were collected I spent time reviewing the networks with my assistants, who then explicated familial ties within the network. Besides consanguineal and affinal relationships, I also considered *compadrazgo* to be a form of familial tie.

One particular challenge for the study of migration's role in social network develop ment is to account for out-migration. Some of the people that left the Las Golondrinas area were involved at one time in the social networks of my informants, and their out-migration may change the structures of social networks or the kinds of relationships the networks entail. For example, out-migration of a central person can cause the network to become less dense, or even fragmented. Information about out-migrants would then allow some reformulation of why the network came to be what it is. From informal interviews and reviews of the original membership lists of landowners' associations around Las Golondrinas, I made some inferences about the effect of out-migration on change in network structure.

I analyzed the network data I collected with two computer programs. I used UCINET V (Borgatti, Everett and Freeman 1999) for network characteristics of centrality, betweenness, and density. I used the network visualization program Pajek 0.69 (Batagelj and Mrvar 1996) for graphic depiction of data, from which I hand-counted reciprocal relationships between different groups of people, based on wealth, religion, age, years since arrival, and sex. The graphical depiction of the networks in this chapter was created by the Fruchterman-Reingold (2-dimensional) weighting feature of Payek 0.69 (see Appendix 4.3).

In order to code village locations in a dendritic system, I formulated the following levels, or degree of importance in the regional system: 1) Las Golondrinas, 2) La Te, 3) Zapallo, 4) El

Recreo, 5) Diez de Agosto, based on number of roads, number of buses, and number of cars (see Figure 4.2).<sup>55</sup>

#### **Results and Discussion**

First, I examine migration streams and migrant characteristics for their contributions to network structure, then I compare village networks regarding place in a dendritic system and, finally, I compare wealth-based behavior to variation in village networks.

#### Migration Patterns

Figures 4.3-4.6 depict representative migration streams, or years of arrival, of the four Las Golondrinas communities discussed above, as well as the years of arrival of the individuals interviewed through the network snowball sample. The point is to see how similar the streams are for each village, particularly in the most recent period, in order to see how well in-migrants are integrated into existing social networks.

Important differences can be seen in Figures 4.3-4.6. Specifically, there are a couple of cases where recent increases in village migration are accompanied by recent decreases in people named in village networks. This is important, because the networks I collected are for a point in time and not necessarily the same as in the past. Zapallo and Diez de Agosto are the two that show increases in recent village in-migration (1993-1997), but decreases in network inclusion. The differences for these two villages suggest that newcomers have not been integrated very quickly into their social networks recently.

<sup>&</sup>lt;sup>55</sup> Las Golondrinas, being a much larger town with many different functions, was not appropriate for comparing social networks.







Figure 4.4. Zapallo In-Migration, by Year of Arrival.



Figure 4.5. El Recreo In-Migration, by Year of Arrival.



Figure 4.6. 10 de Agosto In-Migration, by Year of Arrival.

 $<sup>^{56}</sup>$  Data is aggregated for five-year periods, and SYSTAT 9.0's (1999) inverse smoothing scatterplot (tension value of .1) was used to draw the curve.

Compared to the networks of the three other villages, La Te's network is characterized by the lowest centrality and betweenness centrality, the highest number of people in reciprocal relationships, and the highest number of cliques (see Table 4.2), suggesting that being a more central place has an effect on the structure of the village's social network.

Village with Network Size	% centrality <sup>57</sup>	% betweenness centrality <sup>58</sup>	% people in at least one reciprocal relationship <sup>59</sup>	Density 6061	# cliques <sup>62</sup> (size=3+)
La Te (40)	5	3	93	.06 (.42)	19
Zapallo (46)	11	20	61	.05 (.3)	11
El Recreo (41)	8	10	67	.05 (.4)	11
10 de Agosto (32)	16	15	65	.08 (.55)	17

Table 4.2. Differences in Social Network Characteristics for the Villages in this Study

As noted above, recent migrants are incorporated into social networks more readily in El Recreo and La Te. Interestingly, there are a couple of other similarities in network characteristics between El Recreo and La Te, as seen in Table 4.2—both have lower levels of centrality and betweenness centrality. One potential explanation of this similarity is that a single cultural group dominates each of the two villages, while Zapallo and Diez de Agosto show greater variety in the provincial origins of villagers (see Figure 4.7). By this logic, social networks become less centralized when there is greater cultural homogeneity. The implications are that, while virtually all of the in-migrants are Ecuadorian Mestizos, some form of cultural patrimony continues to operate in their trust networks, at least during the living memory of these migrants to the frontier.

<sup>&</sup>lt;sup>57</sup> Centrality denotes the focus of ties more on one group or individual(s) than on others.

<sup>&</sup>lt;sup>58</sup> Betweenness centrality indicates the extent to which a network has key individuals linking sub-groups.

<sup>&</sup>lt;sup>59</sup> Reciprocal relationships are those where people interviewed in the snowball sample ended up naming each other as closest to them.

<sup>&</sup>lt;sup>60</sup> Density is the number of observed ties divided by the number of potential ties.

<sup>&</sup>lt;sup>61</sup> The numbers in parentheses are density based on number of possible ties as constrained by my methodology. The other numbers are based on the theoretically possible number of ties.

<sup>&</sup>lt;sup>62</sup> Cliques denote groups of three that have a higher density of ties within the three-person group than in linking the group with others.

One day, as I was returning from an interview, walking up the main street of town, a local teacher that I knew yelled to me to come over. He stood in front of what served as the local arcade—a room full of televisions and home video games—flanked by some other male teachers. After greeting each other and shaking hands, he told me and the others to introduce ourselves. 'Haganse amigos," he said. Then he said 'Get this, Eric, we're all Manabas. He's from Chone, he's from El Carmen, he's from Jipijapa, and I'm from Chone. We're all f rom Manabí." This sort of camaraderie between people from one province was common, even though they were not all from the same town nor had known each other prior to arriving in Las Golondrinas.

Below, Figure 4.7 presents the two kinds of villages potentially responsible for variation in network structure—those with a diversity of provinces contributing to overall population (Zapallo, Diez de Agosto), and those dominated by a single province (La Te, El Recreo).



Figure 4.7 Provinces of Origin of Social Network Members

The most town-like of the three peripheral villages and largest of all four villages is Zapallo, which has a much higher number of n-cliques of size two,<sup>63</sup> despite having the lowest number of cliques, or sub-groups wherein density of relationships is highest, excluding members which are less connected to such a group. This suggests that such a village, in its social evolution just before becoming a central place, experiences greater integration and less division in its social network structure. Then, in its new role as central place, networks develop more recognizable subgroups.

Reciprocal relationships certainly are common in all four villages, but the number for La Te—a village with an ordinary level of reliance on family networks for the move to the frontier (see Table 4.3)—suggests that something about being the more central place has a profound effect on rural social networks.

Village	% Who Followed a Friend	% Who Followed Family	% not Following Friends nor Family	Density of Family Ties <sup>64</sup>	% of Individuals in Family Networks
La Te	28	47	25	.04	55
Zapallo	13	52	35	.01	41
El Recreo	20	80	0	.07	73
10 de Agosto	19	47	34	.10	91

 Table 4.3. Similarities in Social Network Characteristics for La Te, Zapallo, El Recreo and Diez de Agosto

Given the fact that all four villages are small agriculturally oriented Mestizo frontier communities that are relatively peripheral in Ecuador's internal market, I expected there to be at least some similarities in social networks, particularly the method by which people arrived (i.e.,

<sup>&</sup>lt;sup>63</sup> The number of possible groups where no connection from a starting point exceeds a length of two people away

whether they followed anyone). While Table 4.3 shows El Recreo as different from the other three villages, all have similar percentages that followed friends and El Recreo differs from the others only by the fact that none of the people interviewed in the snowball sample arrived without knowing anyone.<sup>65</sup>

For the general population of the Las Golondrinas area, about 42% arrived following family, and 58% arrived not following family (see chapter 3). The SANREM Migration Survey analyzed in the last chapter did not collect data on whether or not migrants followed friends, but villagers questioned in my snowball network sample show that only El Recreo is different from the general pattern for these four largest villages in terms of the role of social networks in determining who moves to the frontier. This could be due to the fact that El Recreo was the first to be populated, where harsher conditions and fewer resources necessitated social support networks—those who arrived without following somebody would have left (and thus not interviewed). Early instability in factors affecting social networks in El Recreo, however, appear to have given way to more stability, although it is still difficult to discern how much of El Recreo's and Diez de Agosto's social network structures is due to stability and how much is due to their small size.

### Central Places and Class

Notable in Table 4.4 is La Te's number of reciprocal relationships (two people naming each other), and the percentage of these relationships that are based on socioeconomic similarity. On the other hand, the more peripheral villages (El Recreo, 10 de Agosto, Zapallo) rely less upon wealth-related distinctions in the formation of social relationships than does La Te. In La Te, the

<sup>&</sup>lt;sup>64</sup> Ratio of ties between family members to theoretically possible number of relationships, whether familial or not. Family includes consanguineal, affinal and fictive kin.

<sup>&</sup>lt;sup>65</sup> El Recreo was the first of the four communities to be settled, and most of the people in this network were related by blood and affinal ties.

core village, relationships among people of similar socioeconomic status were twice as common as in the other villages. These network features hint at an interesting principle for the development of frontier inter-personal relationships: towns closer to the "core" of a frontier tend to be characterized by less diversity in network structure. It also suggests that towns further away from the "core" of a frontier—perhaps because of their more demographically unstable nature will exhibit less uniform network structures.

Village	% reciprocal relationships	% of reciprocal relationships based on class	ratio of % rec. rel. between women to % of women in network	% of rec. rel. based on province of origin	% of rec. rel. based on years in village
La Te	46%	66%	.47	62%	34%
Zapallo	25	28	.73	22	33
El Recreo	32	37	1.24	68	58
10 de Agosto	24	27	.45	53	47

Table 4.4. Nature of Reciprocal Relationships in Four Villages in this Study

The two smallest, most rural villages I sampled (El Recreo and 10 de Agosto) have the highest percentage of reciprocal relationships based on time in place, suggesting that tradition and long-term trust is very important for life in these small villages, also that cohort effects can be greater in smaller populations. These two villages also have highest percentage of wealthy people (see Table 4.5),<sup>66</sup> and in a small village network the more wealthy individuals are more likely to be cited due to their relative prominence. In other words, small town life affords access to the wealthy's resources in a direct manner. In addition, the rich may take more responsibility for fellow villagers' welfare (see Bollig 1998). I anticipate that this would be more the case for rural dwellers than for the wealthy that live in the larger villages.

<sup>&</sup>lt;sup>66</sup> The sample may be a higher percentage of the village's population than in the case of Zapallo and La Te, since the sample is a snowball sample, not a random sample.
Village	Wealthier %	Poorer %	Average Wealth Level of Those in Network (1-low, 4-high)	% of Time that Same Finer Class Named for Trust	% of Time that Same Broader Class Named for Trust
La Te	20	80	1.6	59	80
Zapallo	39	61	2.4	33	49
El Recreo	38	62	2.4	36	56
10 de Agosto	39	61	2.2	36	68

 Table 4.5. Percentage of Individuals in Social Network of Each Village according to

 Economic Status/Wealth

As a village becomes more central and grows into a commercial center, people are more likely to focus on fewer, stronger contacts, and begin to ignore community social responsibilities; it remains important to unravel specifically how that transition begins to occur. One mechanism for this transition is the proletarianization of villagers. As seen in Table 4.5, the majority of people interviewed in the social network sample in La Te are those with least economic resources. As individuals become more and more limited in their productive activities (i.e., exclusively day wage labor) and thus less able to follow through with their other social responsibilities, they may have no other choice than to interact only with people from their own socioeconomic level.

In addition, there are forces toward extra-familial organization on the frontier (e.g., *compadrazgo* even without a god-child involved). One example is that the two rural villages of El Recreo and 10 de Agosto have much higher density of family ties than do the more town-like communities of La Te and Zapallo (see Table 4.3, above), although several individuals named consanguineal and affinal family members as their closest ties in each of the four villages. Also, from the discussion of wealth and migration in chapter 3, those farmers with fewer resources are less likely to be around in the future, and thus villagers may be hesitant to invest in friendships with them (and thus not cite them).

## Conclusion

My objective in this chapter has been to examine how risk and uncertainty play out in the lives of pioneers where there exists variation in the nature of migration streams, place in a regional economic system, and wealth-based behaviors.

I expected social networks that are characterized by high levels of migration (the movement of people in and out of the network) to be extensive and less hierarchical due to hopefulness, but weaker due to lack of trust. I also predicted that individuals arriving in Las Golondrinas simultaneously and/or from the same place would form cliques or sub-groups that would be maintained over time because of frontier conservatism. I predicted the place in a regional system would affect the nature of each village's social network, based on central place theory, core-periphery dynamics of extraction and moderate national integration. Further, I predicted that when these other variables are held equal and villages still have very different social network characteristics, it is wealth discrepancy that produces much of the variation.

Migration regimes affect community development by constantly renewing social networks, even broadening them, bringing people into contact with others who might provide access to resources. The ways in which migrants are integrated into the community, whether through work or family, also interact with broad-scale factors (e.g., regional economy, climate) to help produce particular migration streams.

As a village becomes a more central place (and proletarianized), people' s relationships become more focused and more oriented towards their own socioeconomic class. This study shows roughly the point at which this occurs, in terms of village size and level of economic activity in a central place system. A village of around two hundred households, with another 100 households in the village's hinterland, is subject to particularly strong integrating forces, perhaps because enough surpluses can be generated at this size to allow enough individuals to spend time

in political/bureaucratic activities, especially if it links at least two other regions and itself to the outside or to the community (like the village of Las Golondrinas) that serves as the first gate in a dendritic system.

If living in a more central town means that people are more likely to have reciprocal relationships, does this mean it is easier to develop trusting relationships in central places? It is not possible to directly answer this question, since the networks in this study do not include people who came and then left the area. However, the argument by Seligson and Salazar (1979) remains viable, that peasants are more trusting than urbanites on an interpersonal basis. My data even allow for a more specific interpretation. It is possible that larger villages in the countryside afford opportunity for mutual trusting relationships, due to the development of both specialization and class-focused relationships, which both limit the universe of potential relationships. On the other hand, the rural peasant may be more trusting, but due to a lack of similar socio-economic interests, that trust might not be reciprocated by others. The fact that La Te has the highest percentage of reciprocal relationships suggests that in-migrants in the more peripheral villages spread out their contacts and resources, with less focus on mutual relationships.

I suggest a potential diachronic model for the relationship between migration, social networks, class, and village place in a dendritic system. First, cultural heterogeneity may cause sub-groups to form, even in a small community, while cultural similarity in a similarly sized village can result in fewer sub-groups and high network density. In both of the smaller villages of Diez de Agosto and El Recreo, everybody knows everybody, but in the latter, trust between individuals is quite homogeneous—as well as not too high nor too low—and spread out. Then, if a village grows, say from 50 to 200 families as in the case of Zapallo, villagers may still maintain a strategic spreading of alliances, meaning that the sheer volume of potential relationships causes a somewhat lower density of trust networks, but no less uniformity in the network and, thus, relatively few cliques. Last, becoming a central village in a regional system (meaning greater

proletarianization and market integration) increases the number of sub-groups, even in a culturally homogeneous village. These sub-groups are no longer based on culturally similarity, then, but on socio-economic status, as class becomes a more important factor in social organization through markets and proletarianization.

## CHAPTER 5

## SOCIAL NETWORKS OF AGRICULTURAL COOPERATIVES ON THE FRONTIER

Colonists generally recognize the intrinsic value of co-ops, but few trust each other enough, or can invest sufficient capital, to join and maintain one (Smith 1982:88-9).

...it is important to realize that in a non-totalitarian state [cooperativism] stands or falls with the reaction of the cultivating society. How far, then, are colonists willing to combine for economic and other purposes? (Farmer 1957:295-6)

## **Problem Statement**

Researchers have long proposed a variety of explanations for the development of agricultural cooperatives and for why such organizations succeed or fail. Internal characteristics include assembling competent people (Leavitt 1964), having effective team management (Blake and Mouton 1964), and the use of a problem-solving orientation (Blake, Shepard and Mouton 1964). External characteristics include being linked efficiently to regional/national organizations that can provide support and markets (Chayanov 1991). Further studies on collective action indicate that unity of member goals, a realistic match between goals and available capital, high expectations of individuals, and rights and responsibilities that balance individual and group benefits are some of the most important components of cooperative success. Such theories provide interesting yet incomplete explanations for the functioning of formal cooperation, however. Particularly, internal and external constraints on cooperation are also intricately linked to historical local conditions (Phillips 1993), and on a frontier this means there are likely unique problems for pioneers to solve in creating functioning cooperatives.

Farmer cooperatives in a pioneer colonization zone present a special situation for examining the development of cooperation (Smith 1982; cf. Stewart 1994). In general, people's modes of migration (e.g., individual or group, Grieco 1998) and the diverse backgrounds of new residents in a colonization area (Smith 1982:91) are potential challenges to the development of trust and, thus, potentially affect cooperative development. To be successful, producer cooperatives on an agricultural frontier must overcome the problems of pioneer existence in order to develop trust and common goals, particularly amidst inequalities of wealth. In this chapter, I examine interpersonal trust as one possible mechanism by which wealth heterogeneity affects the success of small farmer cooperatives in a northwestern Ecuadorian colonization zone. Cooperative success is based on each cooperative's wealth, number of cooperative activities and effectiveness of cooperative meetings. In the absence of good diachronic data on the development of cooperation in the Las Golondrinas area, I use comparative data on five co-ops at different stages of development. I propose that interpersonal trust between members allows for more successful cooperative functioning. Wealth differences help predict the extent and direction of these trust relationships. Generally, I conclude that the effect of wealth heterogeneity varies over the life of a cooperative. Specifically, the presence of economic differences between co-op members facilitates co-op development during the initial stages of formation but such inequalities later negatively affect co-op success, though might be overcome by cultural similarities.

## **Previous Studies on Inequality and Heterogeneity**

Humans cooperate under a variety of circumstances. As communities develop, distinct political economic formations allow for different modes of social relations and cooperation (e.g., Blanton et al. 1996). In some cases, groups function under a set of formal or implied rules, often designed to regulate a limited public good. In other cases, individuals pool their resources to accrue increased benefits under economies of scale. In either situation, when individuals identify

with a common future (Ostrom 1992) and develop strong interpersonal relationships (Portes and Landolt 2000), collective action efforts are likely to be more successful. These hypotheses have inspired a litany of arguments that emphasize 'social capital' as well as similar backgrounds and interests (i.e., cultural homogeneity) as important factors for creating the trust necessary for collective action efforts to succeed. For example, Flora et al. (2001) found that social capital in the form of interlocking boards of institutions in small Ecuadorian villages were correlated with higher village per capita wealth. It is important, now, to build upon these assertions by investigating such scenarios for the ways in which individuals create alliances and institutions develop agendas. I suggest that wealth is a salient and important variable for people, and that wealthy individuals in cooperatives play special roles in different contexts. Although wealthy individuals (and institutions) often attempt to maintain their wealth at the expense of others, coops might actually be held together by inequalities under certain conditions (Pandey and Patthak 1997; cf. Phillips 1993). To find out why this is so, it proves fruitful to link the ideas of social capital/trust and wealth heterogeneity in an examination of the success of small farmer cooperatives in a northwest Ecuadorian colonization zone. Before such an examination, it is important to establish the theoretical similarity between cooperatives and common pool resource user groups (whether or not they are actual formal 'groups').

Fundamentally, cooperatives are bounded groups with some common interest, including mutual economic benefit, which maintain formal criteria for decision-making and membership,<sup>67</sup> and whose members possess some common interests, including mutual economic benefit. Common pool resource user groups are also relatively bounded and have at least implicit criteria

<sup>&</sup>lt;sup>67</sup> Requirements for agricultural cooperative membership in Ecuador are: an ID card, voting card, not belonging to another cooperative of the same kind or married to someone who is, title to property and, of course, acceptance to membership by the cooperative (Corporacion de Estudios y Publicaciones 2000: 01828, Rg-LCoo). All cooperatives are to reelect their officers annually. In Ecuador, *asociaciones* function with similar objectives but are governed by slightly more lenient laws. For the purposes of this research, I consider both *asociaciones* and cooperatives as the same kind of institution. Of the five groups in this

for decision-making but, although they have common interests, mutual economic benefit might not be one of those common interests. Egalitarian, small farmer cooperatives depend on the ability of the poorest members to contribute land, labor or capital, which has the practical effect of a limited public good (in terms of capital), as with many common-pool resources.

Proportionality—to each according to what they invest—is necessary for common-pool resources to be managed efficiently under collective action (e.g., Trawick 2001). Cooperative egalitarianism also can be considered a form of proportionality, since no member accrues benefits disproportionate to their (albeit equal) investment of time and money.<sup>68</sup> This egalitarianism often results in less variation between members in terms of benefits, unlike common-pool resources. However, cooperatives based on individualized production (as in Las Golondrinas) instead of collectivized production<sup>69</sup> do create more variation in benefits. It is this variation in benefits, which encourages the wealthy to take on the financial responsibility of getting collective action (like a cooperative) started.

The major difference between collection action governing limited common-pool resources and formal agricultural cooperatives is that limited common-pool resources cannot be reinvested to grow at the rate at which capital sometimes is capable of growing in the context of a cooperative.<sup>70</sup>

Recently, debates regarding the effect of heterogeneity on cooperation have intensified. A wide variety of theoretical and empirical research has found that cooperation is more likely to occur when in-group formation is based on cultural homogeneity and conformity (e.g., Nettle and

study, 12 de Octubre and 6 de Diciembre are *asociaciones*, thus members are not required to be landowners.

<sup>&</sup>lt;sup>68</sup> Most cooperatives have sanctions as well as informal means for controlling member behavior, in order to avoid non-compliance.

<sup>&</sup>lt;sup>69</sup> Individualized production means that labor is generally carried out by a member and their family or paid help. The actual collective aspects of cooperatives in Ecuador tend to involve processing, marketing or infrastructure. Most use of credit is not collective, but the cooperative has served as a relatively easy vehicle by which the government could distribute and collect on individual loans.

Dunbar 1997; Ostrom 1990; Boyd and Richerson 1985). Nonetheless, high wealth heterogeneity—a specific kind of cultural heterogeneity—may create a particular condition under which wealthier members take on a disproportionate economic responsibility in order to ensure the success of collective action (e.g., Olson 1965:33-4; Ruttan and Borgerhoff Mulder 1999; Ruttan 1998), or even the survival of fellow rural producers under ecological stress (Bollig 1998:147), but only under certain resource extraction technologies (Baland and Platteau 1998). On the other hand, similarities in risk perception (thus, potentially similar access to resources) also encourage success of collective action (Ostrom 1992:299). Joining these two tendencies together potentially results in a U-shaped relationship between wealth heterogeneity and collective action (see Figure 5.1), where moderate amounts of heterogeneity result in lower levels of success.



Figure 5.1. Wealth Heterogeneity vs. Success (U-Shape)

High wealth differences between individuals might also discourage cooperation if poorer members lose their incentive to participate because of lack of benefits, (Ruttan and Borgerhoff Molder 1999; cf. Baland and Platteau 1999), if extreme homogeneity discourages anyone from

<sup>&</sup>lt;sup>70</sup> This is only a theoretical distinction, at least in this case, since for practical purposes growth in the cooperatives with which I worked was very low.

taking the initial lead to invest time and money (Molinas 1998), or if the wealthy opt for an exit option, suggesting a *negative* U-shaped relationship (Molinas 1998) as seen in Figure 5.2.



Figure 5.2. Wealth Heterogeneity vs. Success (Negative U-Shape)

How can we resolve the contradiction between these scenarios? One solution is that there is no generalizable relationship between cultural nor wealth heterogeneity and cooperation—such a relationship is too simplistic—and that the context for collective action is extremely important (Varughese and Ostrom 2001). Heckathorn (1996) posed another solution to the apparent contradiction between these theses. His framework suggests that members are presented with a specific and predictable evolution of social dilemmas, rather than a single kind of collective action problem. This is because an institution faces different collective goods production functions at different points in time (Marwell and Oliver 1993). If true, predicting collective action outcomes requires an understanding over time of the conditions under which various types of heterogeneity can be detrimental or beneficial. By comparing cooperatives at different stages of development, it is possible to unify the above disparate findings. We must also remember the role of trust in analyzing the potential of social capital as an intervening variable between wealth heterogeneity and collective action success. The fact that cooperatives vary regarding the extent to which members are seen as *compañeros*, or trusted by fellow members, encourages us to investigate the question, "what exactly are individuals taking into account when deciding whom

to trust?" I argue that part of the answer lies in the nature of the frontier, where brand new social networks are created on the basis of wealth differences and cultural differences. I also argue that those cooperatives that are successful in the long run find ways to overcome divided social networks and build trust in spite of inter-individual differences.

Despite the inherent difficulties of cooperation, there are many types of regulations, beliefs and behaviors that create conditions for the potential development and success of collective action, or cooperation. According to Ostrom (1992) and Becker and Ostrom (1995), collective action is successful when there is: 1) cultural homogeneity (assets, information, cost/benefit perceptions, preferences, and norms—especially reciprocity and trust), 2) small group size, 3) moderately strict rules, 4) low rates of discounting the future, 5) widespread participation, 6) accurate and low cost monitoring of behavior, 7) legitimate maintenance of cultural norms. Given there are many conditions limiting the benefits and potential success, collective action is rare. One of the strongest constraints is confirmed generalization #1, or the difficulty in creating conditions of 'shared fate' (cite) or homo geneity among members. Cooperatives on the frontier have had a difficult time because settler members are usually from different parts of a country or the world, or belong to different religions (e.g., Smith 1982:91, Farmer 1957:299-303). In this chapter, I revisit factors of trust, wealth and cultural similarity that can contribute to this sense of 'share fate' in the context of a colonization zone.

## The Context for Ecuadorian Cooperativism

Beginning in 1964, a series of land reforms were enacted in Ecuador, which required individuals to become members of a landowners' association in order to receive access to land. These *precooperativas*, like Las Villegas of the epigraph of chapter 4, were designed to facilitate colonization and eventually were to morph into full-fledged legal cooperatives serving as the institutions by which agricultural production and marketing would be organized. Virtually none

of the landowners' associations became agricultural cooperatives. Nonetheless, agricultural cooperatives did develop in the Ecuadorian countryside. Cooperatives that did form are oriented more toward private property and individualistic production than toward the diverse potentials presented by cooperativism, partially because of significant neoliberal changes in agrarian production and markets (Phillips 1993). For example, Phillips (1993:433) noted the following commonalities among small-scale coastal Ecuadorian cooperatives: mono-crop orientation, domestic market orientation, state-based credit and marketing, similar to all cooperatives in Las Golondrinas. She also noted that small scale coops often are considered threatening to large local landowners who, along with middlemen, tended to thwart local attempts to reform markets.

The frequency of formation of agricultural cooperatives in Ecuador has varied from region to region. At least 15 cooperatives have developed in the Las Golondrinas colonization zone over the last 10 years. This is a very high density of cooperatives per population and geographic area for anywhere in Ecuador during the 1990s, especially at a time when large palm and *palmito* (for palm hearts) plantations are spreading across the local landscape. However, locals say agricultural cooperatives have not been very effective in promoting the economic success of their members because there is: 1) high turnover in land ownership, 2) a lack of cooperative marketing endeavors, and 3) a lack of political/governmental support, particularly credit. Wealthier individuals can provide collateral for loans and access credit are through prior wealth or legalized collective wealth (Phillips 1993), and thus allow even further access to capital. Less wealthy individuals may benefit from putting up the cooperative's collective wealth as collateral, but with fewer resources they are unable to benefit to the same extent as the rich.

In coastal Ecuador, Phillips (1993) found that two types of cooperatives have been able to acquire credit (Phillips 1993). First, fiefdom cooperatives typically are characterized by semi-feudal relationships, consisting of 10 to 15 members who are dependent on a veritable 'big-man' for their share of the cooperative benefits. Funds are allocated by a bank or other creditor to one

elected individual or household which is typically wealthier and more capable of amassing resources than are other members. Family fiefdoms include non-family members to legitimize and formalize the fiefdom, while leaving most of the decision-making responsibilities to a resourceful member from amongst the family. On the other hand, large-scale, collectively operated cooperatives are often export oriented. These bigger cooperatives have faced increasing pressures toward individualized production, because symmetrical benefits are accrued by individual members, with poorer individuals gaining less. Also, wealthy members begin to invest money instead of time, creating animosity. Cooperatives in the Las Golondrinas typically do not have much access to credit. Those successful at accessing credit were associated with the Ministry of Social Welfare's Integrated Rural Development project (DRI) of the early 1990s, and several currently are part of a larger union of cooperatives seeking to produce palm for export to Taiwan. Only one of the cooperatives in the area successful at obtaining loans could be considered a family fiefdom-type of cooperative, where one mover-n-shaker makes most of the decisions.

### Las Golondrinas Cooperatives

All but two of the 16 producer cooperatives formed in Las Golondrinas' history were initiated either around 1990 or around 1999. Around 1990, multiple cooperatives formed when the government's agricultural extension and development efforts were focused though the Integrated Rural Development Project (DRI) on a large area of northwest Ecuador, including the Las Golondrinas study site. Other cooperatives arose during 1999 as Ecuadorian currency experienced devaluation from US\$1/5,000 *sucres* to US\$1/ 30,000 *sucres* before being capped at 25,000 *sucres*, burdening farmers by soaring costs for imported agricultural inputs. The unusually high density of cooperatives for the area also may owe something to the fact that local farmers

had the means to finance a move to the frontier and, thus, generally have been wealthier than the average Ecuadorian farmer and able to afford the investment in a cooperative.

The cooperatives of the Las Golondrinas area display many similarities—most are primarily interested in processing, and all but one started out by seeking credit. Very few are concerned with in technical support, collective transport, collectivized agricultural production, or export markets. Most of them are legalized, but one in this study is not (Febres Cordero). The uniformity in intent of these cooperatives owes partly to the fact that processing agricultural goods is where most value can be added to these products, as opposed to increasing production, locating specific markets, or cutting out the middleman. It is no surprise that farmers in almost all of these cooperatives see the potential of pooling capital for purchasing processing equipment.

Among problems encountered in their economic functioning, the repayment of loans has been a harbinger of cooperatives in this area, although those who have kept their distance from paternalistic bureaucracies have worked less with credit, and faced this problem less. This contradicts the emic perspective that cooperatives need more government support (e.g., credit). However, government credit to individuals seems to destroy the collective initiative of the cooperative when defaults occur. On the other hand, internal credit binds members to one another, as does achieving collective ownership of a means of production. Indeed, the problem of lack of capital has limited cooperatives' ability to gain direct access to consumer markets, leaving them focusing on perennials and grains which permit storage and allow them to have at least some control over prices at which they are willing to sell their harvest. Another major problem for cooperatives has been generalized freeloading, or what I consider in these cases to be individual benefit from the cooperatives with little in terms of capital gains for the cooperative. It is not hard to understand the prevalence of this problem, since members see few results from all of their dues and attendance, and thus focus only on projects that will benefit them individually. Dividend payments help maintain a high level of member loyalty, although difficult to achieve

because of lack of capital to create a substantial collective business. To complete the general picture of cooperative formation and functioning in Las Golondrinas, I present below some background on five cooperatives I studied, emphasizing variation in crop focus projects undertaken.

*Jaime Ordoñez* cooperative began under the name "Primavera," with members mostly from the same town in 1990, and shortly thereafter was renamed upon the death of its founder. Initially, the cooperative used *mingas* (collective labor sessions) to build a slaughter shed and a facility for the rice huller they bought on credit. The first years also included obtaining loans and rice seed on credit from the then-well-funded regional Union of Peasant Organizations, plus requests for donations from the informal village council. Like other cooperatives, Jaime Ordoñez had some problems with people not paying back their loans to the Union. Presently, most members are interested in acquiring a rice drying machine, as well as buying and selling rice; their only current productive activity is hulling local rice for a fee, from which members are paid dividends. Out of 27 original members, several have dropped out, and no new ones have joined. Eleven of the 15 members still in the cooperative have also joined other cooperatives nearby, and four people from other co-ops are interested in joining.

*12 de Octubre* was the first co-op in the area when it began in 1987, though it later slumbered for a few years and was reinvigorated in 1997 with the construction of a common slaughter shed. This co-op acts as a cartel, and its members, who are almost all from the same town, maintain the exclusive right in the village to slaughter and sell beef. While all members are butchers, most of them also cultivate a small amount of land outside of their cooperative activities. Each individual buys their own cattle for butcher and resale, often with the help of the cooperative's credit of 2 million *sucres*/person for one-half of the cooperative members every month, thus giving each person opportunity for a loan every other month. Capital comes from the 5%/month interest on loans to members, fines for late payments and other inappropriate conduct,

and dues. The 12 de Octubre meetings are always focused on the exchange of loan money, discussion of slaughtershed maintenance, and labor sharing for the next month. Members are in agreement that their next project should be the construction of a meeting house/office space. The poorest member of the cooperative slaughters almost all of the 11 cattle each weekend.

*Febres Cordero was o*rganized in July 1999 by people from a single village, and began with a request for a loan of 10 sacks of rice seed from the nearest office of the Ministry of Agriculture and Livestock (MAG), followed by cooperative members each cultivating 1.5 hectares of rice on land rented to them by a fellow cooperative member in 2000. Wealthier members lent money at no interest to poorer members for clearing the land, although each person was on their own for the purchase of agricultural inputs and maintenance of their plot. The cooperative divided 50% of the profits equally among all participating members, and 50% to the cooperative for the 2001 crop. Although they cultivated individually like in other cooperatives, the collective pooling of the profit from primary agricultural production is unique for the area. Also in order to build capital for the organization, Febres Cordero members initially paid 100,000 *sucres* each. Three wealthier members also contributed a million *sucres* each towards achieving legal status, but they were held up by a local bureaucracy and were still not legalized when I left, nor had they met for six months. Besides the cooperative's plans for *collective* rice production the next year, members are not very focused as to the next step—legalization is most important for some, while others hope for technical help, rice processing machinery, or credit.

*6 de Diciembre* is an African palm cooperative founded in July 1999, by people who said, 'hopeless from the current chaotic situation [in Ecuador], we decided to form a collec tive association of African Palm producers." Although few of the members cultivate palm yet, many of the active members are farmers who own land, with lots ranging from a garden plot to 500 hectares. A few others are laborers or professionals. The members of 6 de Diciembre are unique in this sample of five cooperatives because they hail from various parts of the Las Golondrinas

area, as well as from outside it. Most members are focused on getting credit for palm production, having affiliated with the regional Union of Peasant Organizations in 2000 when they began to have discussions with a Taiwanese company about palm production. They also had a Quito-based consulting firm come to a meeting to draw up (for free) a potential plan of activities to sell to the cooperative for successful project management. The plans had not materialized within a year of that meeting. Meetings were not held every month while I was there.

Los Limones cooperative began with government assistance through the regional Union of Peasant Organizations in July 1991, focusing on credit for seeds, fertilizers and purchasing cattle. Most members are from the same village. It immediately went defunct for several years and was reinitiated in 1999 by two newcomers to the village, one a furniture maker and the other who farms on rented land. The cooperative currently is helping members gain legal title to their land, as well as seeking to affiliate with the resurrected Peasant Union and its new project of building a palm extractor and supplying Taiwan with palm oil. This is the cooperative with least direction, with goals of various members including land titling, road improvement, credit for cattle, credit for agriculture, cooperative vegetable production, and village water supply construction.

Besides the similarities already discussed, individual members also have some characteristics in common. For one, they are typically long-time residents—they arrived an average of 18 years ago, compared to the general population of Las Golondrinas averaging 11 years of residence (see Figure 5.3). In general, there is an elevated respect for the earlier settlers of the region. In fact, in several instances petitioning members themselves made a point to assert that they have 'been in Las Golondrinas for seve ral years," are 'known by many current members of the cooperative," and are 'ready to collaborate." <sup>71</sup> In this context, it is clear that history in a place is an important quality.

<sup>&</sup>lt;sup>71</sup> This data comes from documents of the Jaime Ordoñez co-op.



Figure 5.3 Year of Arrival of Cooperative Members in Las Golondrinas (n=135)<sup>72</sup>

Cooperative members also are much older than the general adult population of Las Golondrinas. Compared to the average age of 31 years of age for Las Golondrinas' economically active residents, the average age of 50 for co-op members also is notable. The high age of members perhaps comes from: 1) older, more established villagers attempting to maintain their lifestyle without selling out and moving on to another place, and 2) the fact that cooperative membership requires a level of access to the means of production that is simply not attainable for most young aspirants. Lastly, almost all members are males. Two of the three newer cooperatives have one female member each, while 6 de Diciembre has a few (only one in the 15-person sample, however). However, despite the inter-co-op similarities and intra-co-op homogeneity, wealth inequalities and other differences that remain may have an effect on cooperative success.

## Methodology

In order to test the relationship between wealth-based trust and cooperative success, I used social network analysis. In total, I collected data from eleven cooperatives in 2000, mostly between September and December. For the purposes of this analysis, I chose the five cooperatives with the most complete data sets for comparison: Jaime Ordoñez, 12 de Octubre, Febres Cordero,

<sup>&</sup>lt;sup>72</sup> This sample includes 19 members counted twice, as they each belong to two or three cooperatives, but the shape of the graph does not change by leaving them out.

6 de Diciembre, and Los Limones. Three of the five cooperatives have fifteen members. Two of the cooperatives each have twenty-five members. I eliminated inactive and least active members from my dataset, in order to arrive at a uniform sample size for network analysis. Thus, each of the five cooperatives was analyzed with an N of fifteen, and interviews were conducted with thirteen members of Jaime Ordoñez, 12 de Octubre and 6 de Diciembre, and twelve for Febres Cordero and Los Limones, since my four assistants and I were unable to interview all cooperative members. Since individuals rated each of the fourteen other members, average values (and thus codes) could be obtained for all fifteen members even if I didn' t interview all members. The networks with 12 interviews were normalized to be comparable to the networks with 13 interviews. One problem with artificially reducing the group size of 6 de Diciembre and Los Limones is that groups of fifteen can have different kinds of social networks than, and behave differently from, larger groups. In order to control for the effect of group size, I also present an analysis of the two larger cooperatives using all of my interviews in Table 5.3, and discuss the effect.

I constructed an ordinal scale of success based on each cooperative's material wealth/property, number of projects implemented relative to co-op lifespan (from their minutes), and my observance of the effectiveness of their meetings, as seen in Table 5.1.<sup>73</sup>

Cooperative	Wealth	Projects	Meetings	Total
Jaime Ordoñez	5	5	5	15
12 de Octubre	4	4	4	12
Febres Cordero	3	3	1	7
6 de Diciembre	2	1	3	6
Los Limones	1	2	2	5

 Table 5.1. Ordinal Ranking of Cooperative Success

<sup>&</sup>lt;sup>73</sup> These names are pseudonyms.

Jaime Ordoñez is by far the most successful, and 12 de Octubre a clear second, while I consider the other three only 'minimally successful' with relatively less variation between them, although they are more successful than most cooperatives in the area.

I, along with several trained local assistants, administered a questionnaire to cooperative members requiring each interviewee to respond regarding each and every of their fellow cooperative members—one question regarding trust, the other regarding perceived wealth—in order to arrive at an emic ordinal wealth ranking of members within each cooperative, as well as elicit intra-cooperative trust networks for the computation of an ordinal ranking of trustworthiness within each co-op.

In terms of wealth, I acquired cooperative members' perception of fellow members' wealth was acquired by asking if each other member had more, the same, or less wealth than did they.<sup>74</sup> It was important for me to examine perceived wealth, rather than actual wealth, because it is a perceived access to resources and power that I think may be an important factor for the development of trust in these situations. I coded each emic wealth ranking of 'more', 'the same', and 'less' as values of 1, 2 and 3, respectively, and averaged all of scores given to each in dividual by fellow members—this resulting in the following wealth rankings: 1.0-2.0=high wealth, 2.1-3.0=low wealth.<sup>75</sup>

Table 5.2 gives the number of wealthier and poorer individuals in each cooperative, based on the average perceived wealth rankings.<sup>76</sup> It also gives the breakdown of individuals

<sup>&</sup>lt;sup>74</sup> Each member was asked about every other member of their cooperative, "Tiene <u>(name of fellow</u> <u>cooperative member)</u> mas, igual, or menos recursos que usted?"

<sup>&</sup>lt;sup>75</sup> Other researchers have employed emic wealth ranking techniques. For example, Scoones (1995) used pile sorting to ascertain local wealth rankings. Nonetheless, although the question I posed to individuals used the word 'recursos', using emic wealth ranking without further cognit ive research on the domains of prestige and resources does not do much to distinguish wealth as resources vs. wealth as prestige.

<sup>&</sup>lt;sup>76</sup> To give an idea of the actual variation in wealth, some members had as little as a couple of bicycles and a couple of pigs, while others had as much as 300 hectares and hundreds of cattle. Most had something like 10-50 hectares or the wealth equivalent. When I adjusted for life cycle of the household, the numbers all shifted somewhat downward, but the distribution was similar.

from a single dominant provincial sub-group in each cooperative, and the number from other provinces.

Cooperative	Rich (n)	Poor (n)		Dominant Province (n)	Other Provinces (n)
Jaime Ordoñez	12	3	Loja	8	7
12 de Octubre	9	6	Manabí	11	4
Febres Cordero	8	7	Loja	5	10
6 de Diciembre	12	3	Manabí/	Loja 5/5	5
Los Limones	8	7	Guayas	7	8

Table 5.2. Distribution of the 15 Members in each Cooperative<sup>77</sup>

Cooperative members were also asked to rate their level of trust in each of their fellow members on a scale of 0-100%.<sup>78</sup> As each person's mental scale is likely to be different, I averaged the trust scores (0-100%) received by each individual. Then, I coded all percentages above the co-op average as 1, all below as 2. Trustworthiness codes for each person were achieved by averaging all of these 1's and 2's, as follows: 1.0 -1.4=high trustworthiness, 1.5-2.0= low trustworthiness. I then created the intra-cooperative trust networks by linking individuals through their high trustworthiness scores. In other words, individuals were graphically linked in Payek 0.69 (Batagelj and Mrvar 1996) in a network with all of those they rated with higher than average trustworthiness scores, allowing me to count the relationships between individuals—both

<sup>&</sup>lt;sup>77</sup> If the ordinal values given by each member concurred with those of other members, we would expect the 15 members to be distributed equally, i.e., (8 rich and 7 poor). However, I do not speculate as to the potential impact of divergence from an equal distribution of individuals between rich and poor.

<sup>&</sup>lt;sup>78</sup> I used a different basis than for the cooperative survey than for the village survey in the prior chapter because the village snowball samples were a free listing of three people by each interviewee, while the cooperative samples were limited to the membership of each cooperative. The implications are that if you are presented a name, as in the case of the cooperatives, you can say whether you trust them or not. If you are not presented a name but have to think about specific people, as in the case of the village networks, it is easier to respond with the names of people to whom you feel the closest to or with whom you get along best. Also, trust is considered an important aspect of social capital necessary for collective action, such as a cooperative, while villagers have preferences about people with whom they prefer to interact not necessarily based on trust.

unidirectional and mutual. Then I compared wealth scores to level of trust, and density of trust networks to cooperative success.<sup>79</sup>

#### **Results and Discussion**

# Wealth and Trust

In order to examine interpersonal trust as a possible mechanism by which wealth heterogeneity affects the success of cooperatives, I first examine the relationship between degree of wealth and trust within each cooperative. The correlation between individual wealth scores and individual trust scores at the individual level is shown in Table 5.3. Using the individual scores as in Table 5.3 is another way, in addition to analysis at the network level in the next section (Figures 5.4, 5.5), of analyzing the tendency to form social capital based on wealth differences. Interestingly, the lowest correlation between perceived wealth and trustworthiness is for the cooperative that has, objectively, by far the two wealthiest people of all, in addition to members of more humble means like the other cooperatives.

Cooperative	Squared Multiple		
	R		
Jaime Ordoñez (n=15)	.012 (p=.702)		
12 de Octubre (n=15)	.003 (p=.851)		
Febres Cordero (n=15)	.439 (p=.007)		
6 de Diciembre (n=15)	.143 (p=.165)		
Los Limones (n=15)	.43 (p=.008)		

Table 5. 3. Correlation between Perceived Wealth and Trustworthiness<sup>80</sup>

<sup>&</sup>lt;sup>79</sup> Portes and Landolt (2000) have cautioned in the use of individual attributes as group measures regarding trust/social capital.

<sup>&</sup>lt;sup>80</sup> Simple regression calculated by SYSTAT 8.0 (SPSS Science 1999).

From these scores, the most successful cooperatives have the lowest and least significant correlations between perceiving somebody' s wealth level and affording them trust. Thi**a**llows the possibility that: 1) those with less experience in cooperatives are more likely to base their trust on wealth, and/or 2) that people who do not know each other use wealth as a means of deciding whom to trust. Of course, cooperative members tended to be more inclusive when asked general questions like 'would you loan any of your fellow members money?" Responses like "Yes, I'd help a *companero* if they asked" insinuate that certain members would never ask them, because they have not developed trusting relationships with those members.

One reason that 6 de Diciembre has a relatively lower score than the other newer cooperatives, when only considering 6 de Diciembre's fifteen most active members, is that eight of those fifteen members have experience in other cooperatives and, thus, their experience allows them to dissociate trust from how they perceive the wealth (and power) of other members.<sup>81</sup>

### Trust and Cooperative Success

The other part of my investigation into the effect of wealth heterogeneity on collective action success concerns the relationship between interpersonal trust and cooperative success. Table 5.4 below measures the relationship between trust and success through the density of trust relationships within a socioeconomic group in each cooperative (i.e., the ratio of high-trust relationships to the potential number of such relationships). Potentially, a linear relationship exists between trust network density and cooperative success, though variation is low.<sup>82</sup>

thus producing a density of .5. What the variation here shows is a skewing of trust scores around the

<sup>&</sup>lt;sup>81</sup> However, when considering the entire 6 de Diciembre cooperative, which is formed of even more people who do not know each other, the correlation increases. There is slight decrease in the correlation value for Los Limones when considering the whole cooperative, probably because less active and inactive members are also long-time fellow villagers, unlike the case of 6 de Diciembre whose members come from all over. <sup>82</sup> Part of the reason for low variation in density is that the method of using higher-than-average trust scores in a limited universe of relationships typically results in half of the relationships being higher than average,

Cooperative (in rank order of success)	Network Density <sup>83</sup> (ratio of # of ties to possible # of ties)
Jaime Ordoñez	.6
12 de Octubre	.5
Febres Cordero	.5
6 de Diciembre	.4
Los Limones	.4

Table 5.4. Ratio of Actual to Possible Dyadic Relationships between Wealth Levels

In Figure 5.4, density is high and relatively uniform across cooperatives for the poor-torich and rich-to-rich networks, and lower but still uniform for rich-to-rich mutual relationships.





Figure 5.4. Density of Trust Networks Naming the Rich.

average. Members of higher density co-ops are trusting most people highly and a few people quite lowly. Those of lower density co-ops are trusting most people lowly and a few people quite highly.

<sup>&</sup>lt;sup>83</sup> As noted in the Methodology section, I counted relationships in the networks by hand using Payek 0.69 (Batagelj and Mrvar 1996) to depict the networks graphically. The elimination from the network matrices of people not interviewed and analysis with UCINET 5.0 produced similar results (.7, .6, .6, .5, .5). Each tie did not rely on whether the relationship was mutual or not; thus effectively halving the denominator.

It is interesting that there is little variation between co-ops for these types of relationships. What it means, specifically, is that the variation between co-op network density seen in Table 5.4 does not come from relationships between the rich, or the poor citing the rich as trustworthy.

The variation in Table 5.4, then, comes from relationships in which poorer members are cited as trustworthy, whether by the rich or by the poor (see Figure 5.5). Comparing Figures 5.4 and 5.5, two other conclusions can be made. First, the tendency for the rich to cite the poor as trustworthy is lower in all of these cooperatives than the tendency of the poor to cite the rich. Second, between these co-ops, the variation in trust of the poor is associated with cooperative success. Certainly in the meetings I attended, it seemed that wealthier members had the floor more of the time in the newer cooperatives, compared to the older, more successful ones.



Cooperatives, from Most to Least Successful

Figure 5.5. Density of Trust Networks Naming the Poor.

This reliance on wealth-based trust by members of new cooperatives means that wealthy members generally are trusted by rich and poor to the same extent regardless of time and place, but that poor members are not. Rather, trust in the poorer members is associated with co-op success. This exclusive trust in the wealthy may be a factor that allows for co-op start-up since the three newer cooperatives all exhibit this tendency. However, the wealthy must be more inclusive of less wealthy members over time if the cooperative is to succeed.

This variation between cooperatives regarding the increase in trustworthiness with wealth level spurs two hypotheses: 1) people with less experience in cooperatives are more likely to base their trust on wealth, maybe a proxy for power, and 2) people who do not know each other use wealth as a means of deciding whom to trust.

Now, what about network centrality in cooperatives? My analysis of network centralization shows the same relationship between the third and fourth place cooperatives as seen in Figure 5.5. If these two cooperatives switched places, a more ideal linear relationship would exist between network structure and cooperative success. In this case, an inverse relationship between success and centralization, or reliance on key individuals, means that democratization is important for long-term success (see Figure 5.6).



Figure 5.6. Percent Network Centralization of Cooperatives

The nagging persistence of fledgling Febres Cordero in the 3<sup>rd</sup> position, instead of 6 de Diciembre which is also young but which appears to have higher social capital, continues to lend support to the idea that centralization of power/responsibility is important for getting a cooperative started toward success.

An alternative hypothesis to 'the effect of trusting fellow members on the development of social capital' is the importance of trust placed in the cooperative leadership by members. For example, more than in the other cooperatives, members of the two least successful cooperatives cited organization, leadership and follow through as the major problems. The two most successful cooperatives noted fewer problems, but stated that lack of participation and low knowledge of cooperation are problems. The middle cooperative had moderate amounts of both leadership and membership problems.

The economically successful cooperatives have in fact achieved a sense of a common future since members identify with their leadership, while the others have not since they cite leadership and organization as the problems. But is this general identification with leadership reflected in members' trust in specific leaders? Based on the same inter -personal trust scores used in the analyses above, the four officers in each cooperative were highly trusted, except for one officer in Los Limones and one officer in Febres Cordero. Thus, high trust in leadership occurs in all of these cooperatives, but it is more likely a necessary but not sufficient condition, and does not seem to predict success. Perhaps a slightly better indicator of social capital is whether officers are involved in mutually trusting relationships. No officers from Los Limones were amongst those with the highest number of reciprocal relationships in the cooperative, while at least two officers of all other cooperatives were those with the highest number of reciprocal trust relationships.

## The Role of Cultural Homogeneity

Having demonstrated the effect of wealth heterogeneity on cooperative success, the question remains: What is it that allows people divided by wealth to trust one another? Cultural similarity is believed to be a strong candidate, as least since Ostrom's (1990) clear explication of the principles of collective action. The people of the Las Golondrinas area have arrived primarily from eight of Ecuador's 21 provinces, but cooperative membership is derived overwhelmingly from only four or five provinces. The concentration of subgroups in cooperatives (refer to Table 5.2) has interesting implications for trust networks within and between sub-groups drawn from these specific provinces. Even after 15 years or more in a place, in-group (intra-province) affiliations are still strong within cooperatives (see Table 5.5).

Table 5.5 shows that the dominant group within each cooperative always has a higher density of in-group relationships than does the group from Miscellaneous provinces. This may not be surprising, but it does show that cultural similarity can serve as an anchor for the development of trust under conditions of wealth inequality.

Cooperative	Dominant Province and its Contribution to Coop Make-up	Intra-province Trust		Ratio of Reciprocal Relationships to Intra- province Relationships	
		Dominant Group	Misc. Provinces	Dominant Group	Misc. Provinces
Jaime Ordoñez	Loja (1/2)	.8	.4	.5	1.0
12 de Octubre	Manabí (3/4)	.7	.5	.4	1.0
Febres Cordero	Loja (1/3)	.7	.3	0	.4
6 de Diciembre	Manabí/Guayas (2/3)	.5	0	.6	0
Los Limones	Guayas (1/2)	.5	.5	.5	.2

 Table 5.5. Density of Sub-Group Networks (Dominant Group, People from other Provinces)

What is particularly surprising is that, in the two most successful cooperatives, members from miscellaneous provinces have a higher ratio of reciprocal relationships amongst themselves

than does the dominant group. These individuals might also be affording a great deal of trust to the stronger group in the cooperative. Overall, however, they have formed stronger relationships with others from miscellaneous provinces than they have with the dominant group, suggesting that differentiating themselves from the dominant culture may be an important part of their willingness to participate in the cooperative.

In the two most effective cooperatives of Jaime Ordoñez and 12 de Octubre, as noted above, all of the intra-province relationships between others are reciprocal. Nonetheless, like all other cooperatives, the density of Miscellaneous intra-province trust relationships is lower than density of Dominant Group trust relationships. Somehow, cooperatives are able to overcome the potential negative affects of group exclusivity. I already suggested one reason is the bonding of individuals of non-numerically dominant provinces—the minorities, so to speak. An additional and potentially co-occurring reason is that it is within the dominant group that people are able to develop a sense of shared fate and the level of trust necessary to carry out cooperative responsibilities. In successful co-ops, perhaps an even a more generalized reciprocity becomes possible in the dominant group, as opposed to the balanced reciprocity that occurs in the nondominant groups.

With all of the inherent difficulties for establishing agricultural cooperatives in colonization zones, it is clear that familiarity with cooperativism in a source area may not alone guarantee success in cooperativism (Farmer 1957:297). My experience in Las Golondrinas suggests that such training does help. One Las Golondrinas cooperative, 6 de Diciembre, had a more uniformly dense social network than did another, Febres Cordero. One explanation for the difference may be related to prior knowledge. That is, because half of 6 de Diciembre's members had prior experience with cooperatives, individuals in that cooperative were able to establish high levels of trust between one another. On the other hand, wealth homogeneity can promote greater cooperation (Ostrom 1992), and social networks should reflect this.

Non-systematic data I collected from cooperative members regarding intra-cooperative information sharing adds a new dimension to the study of trust. In virtually all cases, interprovince scores for information sharing were higher than intra-province scores, which I would not have predicted. Information sharing may not be based on cultural similarity, as is trust. The diversity that is always likely to be present in a colonization zone thus will affect trust and information sharing differently.

## Conclusion

Although these five cooperatives are similar in terms of general economic orientation, they vary in terms of the effect of (perceived) wealth and their cultural backgrounds on the structure of their trust networks, as well as the subsequent effect of trust networks on success. Does reliance on wealth-based indicators for developing trust always negatively affect cooperative success? Certainly under conditions of economic uncertainty and high in- and outmigration characteristic of a colonization zone, cooperative membership can change quickly, making it difficult for members to develop appropriate expectations and trust. Many cooperatives have suffered from the mobility of their members, resulting in a list of non-active members who are legally quite difficult to remove from the roles, at the same time making it difficult to achieve quorum to conduct business legally, or to develop consistent, coherent, member-supported goals (i.e., sense of common future) and follow through on them. Some cooperatives have been able to overcome this difficulty, but not without a great deal of effort, while other cooperatives remain relatively inactive. The national law's constraints on getting rid of members does allow for co-ops to be resurrected easily, as well as serve as *de jure* proxy for yet un-legalized village councils. However, it also keeps co-ops hamstrung if a quorum cannot be met. None of the cooperatives examined here have problems meeting quorum, but many of the others in the area do.

Some alternative hypotheses should also be considered for cooperative success. Are crop focus, age of cooperative, group size or legal status responsible for cooperative success? It does appear that smaller groups that have been together longer, have legal status, and are involved in crops requiring low capital inputs, have been most successful. Also, time knowing each other through village life or physical proximity does seem to have some positive effect, but not as much as does experience within the cooperative itself. These hypotheses, however, complement the thesis of this chapter, rather than displace it.

As with the case of Heckathorn's (1996) predictable evolution of dilemmas regarding the production of social goods, both the U-shaped and inverted U-shaped relationships between wealth heterogeneity and collective action may be feasible. One possible scenario is that a group of wealthier individuals disproportionately will front the costs of forming a cooperative in anticipation of benefits. They seek out some poorer individuals to accrue the bodies and interest to start a cooperative. At first, social networks are likely to be based on wealth. In fact, newer, less successful cooperatives in Las Golondrinas still demonstrate subgroups based on wealth. To succeed in the long run, however, the cooperative has to moderately equalize social networks between wealthier and poorer cooperative members, breaking down those subgroup-forming tendencies through continued formal interaction. As always, it is also necessary to form goals that are supported by wealthier and poorer alike. Over time, cooperatives are able to succeed, at least in part, by overcoming the inherent tendency of humans to form relationships based on relative/perceived access to resources (wealth). If a cooperative is not able to develop more inclusive relationships to counteract class-consciousness or antagonistic class relations, a cooperative may fail, leaving only those that have successfully confronted the challenge over time.

Do people become wealthy through participation in a cooperative, or why do people join? On the whole, members are hopeful about the future, and it seemed that members of the new

cooperatives were even more hopeful, despite their criticisms of the current condition of their institution, than members of established co-ops. In addition to their hope for the future, however, I saw fraternal camaraderie and bantering to be at least as important to members as any efficiency or high productivity at meetings. This was accompanied by a language of cooperativism—always referring to each other as *compañero*—which was more noticeable in the successful cooperatives. One difference between rich and poor is that the lower classes are less explicit about their goals and more fuzzy in their plans for achieving their goals (Casagrande, Thompson and Young 1964), due in no small part to the lack of availability of capital.

Why, then, do the wealthy join with people who have less commitment to specific goals, and why do they even stay in cooperatives with people who have few resources? Hunt (1992) suggests that the reason for rich participation in collective action may be a division of labor that is more productive. The ethnographic data from Febres Cordero and 12 de Octubre give some indication of how this division of labor works in cooperatives. A couple of rich Febres Cordero members said their cooperative has some really poor members, and talked as is they were interested in helping these other members, or at least that they had sympathy for them. However, that cooperative planned to cultivate collectively the next season by paying poorer members to do the labor. Being in such a cooperative then puts rich and poor into separate relations of production (employer, employee), and membership could be used to enforce work compliance. Whether or not that is a good or bad thing is likely to depend on the situation. I predict future success, however, will depend on how well they equalize social networks between wealthier and poorer cooperative members, breaking down or bridging sub-group forming tendencies. In the case of the 12 de Octubre butcher cooperative, the poorest member slaughters for most of the other members.

Future studies of collective action would benefit from this emphasis on actual relations of production, in addition to the power and prestige created by wealth differences. Other suggestions

are for further research to: 1) examine whether or not formal organizations with wealth discrepancies must necessarily equalize wealth (or, perhaps, cause the rich or poor to exit) in order to overcome the disjointed networks, and 2) investigate other potential mechanisms for achieving interpersonal trust or other specific components of social capital.

Preliminarily, it seems that wealth heterogeneity is related in a complex, yet somewhat predictable, way to the success of small farmer groups. In coastal Ecuador, the larger cooperatives involved in collectivized production have faced increasing pressures toward individualized production, but wealthy members began to invest money instead of time, paying poorer members to do the formers' work and, although this began to create animosity, the cooperative continued functioning (Phillips 1993). A milk cooperative in arid India, despite wealthy individuals benefiting more than poorer members, functioned well, partly because the wealthier members should red a disproportionate share of the costs (Pandey and Patthak 1997:104). The two cooperatives did not arrive at this inequality or differentiation under the same conditions. The former was oriented toward communal production, while the latter focused on communal transport and wholesale for individual production. This chapter's data analysis on trust relationships contributes to an understanding of the conditions under which wealth contributes to exclusivity within bounded social networks, called negative social capital by Portes and Landolt (2000:533). Still, the question must be asked: Does trust cause success or is it success that causes trust?<sup>84</sup> It may be not only that wealth heterogeneity promotes lopsided trust between wealthier and poorer members, which in turn produces failure, but also that trust comes about through successful activity together. But what helps predict successful activity? At least in the beginning or in times of instability, it appears that the same wealth heterogeneity is partially responsible. Although wealth accumulation and related inequality may be responsible for encouraging the

<sup>&</sup>lt;sup>84</sup> I recognize the notion of trust as potentially problematic. For example, one interpretation is that trust of poor by the rich is really an evaluation of how much the poor will follow the lead of the rich. While my

wealthy to undertake disproportionate responsibility to start a cooperative and create a productive division of labor, this inequality also can hinder successful continuation.

ethnographic experience does not rule this out, I noted an emphasis by locals on fairly typical concepts of trust, like reliability and judiciousness.

## CHAPTER 6

## CONCLUSION: THE DEVELOPMENT OF SOCIAL NETWORKS

# Introduction

This chapter has three objectives. First, I summarize prior chapters in an attempt to specify some conceptual relationships between migration and network structure. Second, I evaluate the practical implications of such a detailed analysis of heterogeneity and social capital. Third, I consider future directions for research.

## Summary

Demographic change, or the number of births, deaths and in/out-migrants, can make it more difficult to maintain the same traditions and formal structures over long time frames.<sup>85</sup> It is now clear that demographic change is an important mediating factor in determining the nature of social networks; i.e., changing the players affects the development of local networks because people bring with them varying degrees of wealth and different cultural repertoires. Thus, though Thompson's (1973) pioneers are conservative individualists, they experience difficulty creating formal structures and traditions, and must use family, friends and charisma for information and access to resources. Las Golondrinas exemplifies this model.

<sup>&</sup>lt;sup>85</sup> Specifically, a more corporate or formal orientation towards social reproduction results from conditions of social stability (Blanton et al. 1996), such as steady group membership and homogeneity of norms. On the other hand, a society takes on a network orientation, or reliance on family, friends and charismatic individuals, under conditions of changing fertility, mortality and migration.

While my research primarily focused on capitalist peasants, it also included other rural producers such as sharecroppers and wage laborers. Many relevant patterns of rural economic exchange/cooperation depend upon the infrastructure available, the type of wage labor practiced, the availability of credit, existent kinship networks, modes of family formation, and migrant history. Specifically, based on my research in Las Golondrinas, rural economic exchange/cooperation is constrained by the following three propositions:

- 1) Homogeneity of assets reduces (class) barriers to cooperation once collective action has gotten off to a successful start (see also Becker and Ostrom 1995).
- 2) The attempt by the wealthy to seek influence to continue to control their wealth. It is likely that, who have more to lose, will become involved in cooperation for economic gain before the poor become involved.
- 3) The development of social networks as people come and go. It is likely that individuals with more time in place and greater access to transportation and communication (typically the wealthy) will have wider networks that provide greater access to resources. People with less time in a place will be restricted to narrower networks involving kin relations and fellow migrants from the homeland. Long-term, stable occupation of the community also may result in more rigid class differences.

Patterns of migration depend on the economic, political and biophysical climate of sending areas, and result in differential out-migration to Las Golondrinas. Migration regimes renew social networks and sources of capital accumulation based on wealth and cultural heterogeneity, and are part of larger processes that create and sustain these regimes. Cultural homogeneity is compounded by cohort effects, as people who arrive to a place at the same time often experience the same conditions. In one village, 10 de Agosto, for example, most people from Loja arrived around 20 years ago after droughts in southern Ecuador, and most from Manabí arrived around 10 years ago after droughts there. The combination of place of origin and time of
arrival thus form a very important context for understanding the development of social networks over time in a colonization zone. Also in the case of village networks, the dendritic regional economic system and its particular types of production and distribution seem to provide context for the development of social networks. Wealth differences do, in part, predict social network structure in Las Golondrinas, but it is central places that predict where wealth will be a factor in social networks.

Indirectly, migration creates social networks characterized by low levels of trust and which do not easily support formal attempts at collective action. Migration in Las Golondrinas has had quite an effect on the ability of cooperatives to perform, both directly and indirectly. A coffee cooperative was defunct and held no meetings for the time that I was in Las Golondrinas because the president had left town. Prior to his departure, they had not executed any cooperative endeavors for many years, excepting technical assistance to one third of the members who have taken out loans for rejuvenating their coffee plantations.

The cooperatives of Las Golondrinas show variation in social network density and centralization. Density seems to be associated with cooperative success, and centralization negatively associated with success, with the exception that new cooperatives may be given a start-up boost by this heightened trust in a few individuals. The variation in trust derives partly from the importance of class in the development of new relationships under conditions of migration.

This finding was also borne out in my analysis of village networks. The village with the greatest migratory instability showed very high reliance on class as a basis for forming relationships. Data also show, however, that this tendency can be counteracted by similarity in the background of villagers/co-op members. For example, the percent of wealth-based relationships was moderated by having a higher propensity of co-op members from the same place. Similarly, the low network density caused by the generally high migration to the area was moderated in the

case of villages comprised mostly of people from a single province. Otherwise, religion and province of origin also can be very powerful markers for inclusion in, and exclusion from, social networks. In one village in Las Golondrinas, El Recreo, evangelical religious convictions created a sub-group of social interaction—one that provided impulse to general village welfare through village organizations.

The nature of the peasant moral economy under conditions of stochasticity suggests that wealth individuals invest material wealth in both rich and poor neighbors to increase their social and symbolic capital (e.g., Bollig 1998:154). In successful cooperatives in Las Golondrinas, the rich were less exclusive in this behavior than they were in unsuccessful cooperatives. When a history of trust and success does not exist, regardless of the cultural make-up of the cooperative, members rely upon wealth-based indicators of homogeneity for helping develop trust in others.

## **Practical Implications**

Although the practical implications of such a detailed analysis of social capital and heterogeneity may seem elusive, cooperatives should be able to benefit from an understanding of these dynamics. Inequalities can jumpstart a cooperative, but later it is also likely to cause problems. I anticipate members of new cooperatives could use this finding to their benefit but plan to implement structures that improve levels of trust between cooperative members. Some such structures include social activities, training of poorer members to be ready to take over leadership at some point, and goal-setting to achieve a number of small successes at the beginning. Of course, there are also in-group mechanisms like hats/t-shirts/calendars sproting the co-op's logo, as well as the creation of 'enemies' (e.g., large landowners and industrial producers of the same products). Care must be taken to realize that members of different wealth levels and different access to resources may not always have the same goals in the organization. At a higher sociopolitical level of organization, regional and national cooperative organizations and

governmental institutions could focus extension efforts early to support the creation of trust and in-group mechanisms, particularly realistic goal-setting (and implementation) through which members develop mutual respect and confidence.

What about the implications of this study for the sustainability of smallholder agriculture? In Las Golondrinas, smallholders (wealthy and poor) generally use fewer chemicals and are more diversified than plantation owners. Nonetheless, there remains the quandary posed by Flora et al. (2001) that communities that are better off economically not only have more social capital but a bigger environmental footprint as well. While local ecological knowledge is being developed by smallholders and perhaps non-landholding long-term residents and considerable animosity has been generated by the logging companies, it remains unclear what the potential practical impact of this study could be for the biophysical environment. In any case, it is impossible to ignore recent arguments by Ruttan and Borgerhoff-Mulder (1999) and Smith and Wishnie (2000) that conservation that occurs latently may not be sustainable, and only institutions that have set explicit goals about conservation or sustainable resource management can be said to be engaging in conservation.

Development projects cannot afford to ignore the topic of gender, and the virtual absence of women in the cooperatives of Las Golondrinas must not be overlooked. As mentioned, these organizations are almost fraternal in nature, and thus appear to serve functions other than economic ones. While males represent the household and often implicate their entire families through work in the cooperatives, by using household funds to pay dues or by sending a family member to help with a *minga* (group work session), these cooperatives do not explicitly represent family interests but, rather, only specific productive interests of the male head of household. Phillips (1989) has made the argument that rural women's social netw orking also depends upon the family's class/socioeconomic status. My data seems to support this, with poor women banding more together and more wealthy women including rich and poor in their networks. Thus,

research must elaborate upon these findings to understand the potential role of cooperatives in light of gender and intra-household dynamics.

#### **Directions for Future Research**

Besides suggestions made in individual chapters, theoretical research on cooperation ideally can develop more fully the framework developed in this thesis. Specifically, a need continues to exist to develop modes of translating the theoretical relationship of instability and social structure into strategies for data collection. Also, the concept of instability needs refinement in the context of human systems. One vein of research, typically in behavioral ecology and economics, focuses on risk and uncertainty, while another vein of research, typically ecology, focuses less on the individual informational and decision-making components of environmental variability and more on the population level structures developed in a feedback system with the constancy or contingency that comprise variability. Such a framework would need to account for the great diversity of institutions successfully responding to collective action problems (Becker and Ostrom 1995) due to the local effects of specific historical conditions (Varughese and Ostrom 2001).

At a mid-range of theory, investigation should focus on how trust is involved in the development of social capital by continuing to tease out the influences of cultural and economic heterogeneity and the sources of these influences in achieved status, ascribed status and fundamental relations of production. Three questions of potential theoretical interest follow.

Flora et al. (2001) found inter-institutional linkages in several rural Ecuadorian communities to be correlated with per capital wealth in each community, suggesting that social capital may provide a link between economic behaviors and collective action success. Nonetheless, I would hypothesize that the relationship between village wealth and social capital is a byproduct of elites working together to maintain status and control. Thus, what is often termed

social capital may be more of an effect than a cause, although it could also be another term for 'social structure', which would give it causal responsibilities under certain circumstances.

Another interesting question concerns inheritance practices on the frontier. In the case of migration, the extent to which wealthy pioneers are conservative in associating with newcomers (Thompson 1973) may depend on whether people have inherited wealth (more conservative) or new wealth (less conservative). Although my current data set does not allow me to test this hypothesis, it is clear from my case study that credit, which is sought by many farmers in Las Golondrinas, can provide more uniform access to capital, as well as mask the social and cultural effects of wealth differences.

Family and fictive kin ties played an important role in some of the village networks in Las Golondrinas, and cooperatives often had brothers, brothers-in-law and *compadres* (godparents of a couple's child) in them. There is a high importance placed on the *compadrazgo* relationships on the frontier in Latin America. How does this relate to lack of solidarity mechanisms on the frontier that many researchers have noted? For example, it has been suggested that the breakdown in feudal relations resulted in more migration (Brown, Brea and Goetz 1988), and in Peru this caused an increase in fictive kin ties through compadrazgo (Faron 1960). Faron (1960) argued that this increase occurred to develop greater exogamy and to develop access to necessary resources since feudal resources had been cut off. This seems to be the case, since in Latin America, the more wealthy city-dwelling individuals maintained compadrazgo relationships with poor villagers in order to maintain access to products from the countryside (Santos-Granero and Barclay 1998). These relationships continue to occur in Ecuador, with wealthier city-dwellers buying land and providing housing for poor caretakers, often developing fictive kin relationships. Also, people who live in the city maintain their connections to consanguineal and affinal family in the countryside.

Though this study shows roughly when the change from reliance on similarity in cultural background (i.e., province of origin) to economic similarity (i.e., productive wealth) occurs in both small villages and agricultural cooperatives, it is not clear how this switch occurs. I can think of a few research techniques, both qualitative and quantitative, to help understand this process by which the change in the bases for trust occurs: 1) pay greater attention to the symbolic interaction of people in these networks, 2) collect data on informal cooperation from the same people in these networks in either a comparative or a diachronic fashion, 3) collect data on their intrahousehold budgeting dynamics, 4) collect data on inheritance/marriage wealth practices, 5) collect these individual rankings of the prestige status of various occupations, 6) informally interview people with varying lengths of time in place about their criteria for trust and for friendship.

The frontier, despite its instability and related difficulties for smallholders, continues to be one of the few places in the contemporary world that offers the leeway for alternatives in social organization, and presents researchers a particularly good opportunity to investigate the creative potential of systemic interactions between physical, biological, social and cultural environments.

#### REFERENCES CITED

#### Appleby, Gordon

- 1976 Export Monoculture and Regional Social Structure in Puno, Peru. In Regional Analysis, Volume II: Social Systems. Carol A. Smith, ed. Pp. 291-307. New York: Academic Press.
- Bagchi, A. K.
  - 1992 Land Tax, Property Rights and Peasant Insecurity in Colonial India. Journal of Peasant Studies 20(1):1-49.
- Bahrin, Tunku Shamsul, Lee Boon Thong, and Richard F. Dorall
  - 1988 The Jengka Triangle: A Report on Research in Progress. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 106-116. Tokyo: United Nations University.
- Bahrin, Tunku Shamsul
  - 1988 A Survey of Government Pioneer Land Settlement Programmes in South-East Asia. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 170-193. Tokyo: United Nations University.
- Baland, Jean-Marie, and Jean-Philippe Platteau
  - 1999 The Ambiguous Impact of Inequality on Local Resource Management. World Development 27(5):773-788.
- 1998 Wealth Inequality and Efficiency in the Commons, Part II: The Regulated Case. Oxford Economic Papers 50:1-22.
- Banco Central de Ecuador
  - 1997 70 Años de Información Estadistica. Quito.
- Barnes, J.A.
- 1954 Class and Committees in a Norwegian Island Parish. Human Relations 7:39-58. Barrett, S.A.
- 1994 Los Indios Cayapas del Ecuador. Quito: Abya-Yala (1st ed. 1925 in English). Barsky, Oswaldo
- 1988 La Reforma Agraria Ecuatoriana. Quito: Corporación Editora Nacional.
- Batagelj, Vladimir and Andrej Mrvar
- 1996 Payek 0.69. Ljubljana, Slovenia. http://vlado.fmf.uni-lj.si/pub/networks/pajek/ Becker, C. Dustin and Elinor Ostrom
- 1995 Human Ecology and Resource Sustainability: The Importance of Institutional Diversity. Annual Review of Ecological Systems 25:113-133.
- Bernard, H.R., E.C. Johnson, P.D. Killworth, C. McCarty, G.A. Shelley and S. Robinson
- 1990 Comparing four Different Methods for Measuring Personal Social Networks. Social Networks 12:179-216.
- Blake, Robert R. and Jane S. Mouton
  - 1964 The Managerial Grid: Key Orientations for Achieving Production through People. Houston: Gulf Pub. Co.

- Blake, Robert R., Herbert A. Shepard and Jane S. Mouton
- 1964 Managing Inter-group Conflict in Industry. Houston: Gulf Pub. Co. (for the Foundation for Research on Human Behavior).
- Blanton, Richard E., Gary M. Feinman, Stephen A. Kowalewski and Peter N. Peregrine
- 1996 A Dual Processual Theory for the Evolution of Mesoamerican Civilization. Current Anthropology 31(1):1-14.

Bollig, M.

- 1998 'Moral Economy and Self-interest: Kinship, Friendship, and Exchange among the Pokot (N.W. Kenya),"in Kinship, Networks, and Exchange. Thomas Schweizer and Douglas R. White, eds. Pp. 137-157. Cambridge: Cambridge University Press.
- Borgatti, S.P., M.G. Everett and L.C. Freeman
  - 1999 UCINET 5.0 Version 1.00. Natick: Analytic Technologies.

Boserup, E.

1965. The Conditions of Agricultural Growth. Chicago: Aldine.

- Boyd, Robert and Peter J. Richerson
- 1985 Culture and the Evolutionary Process. Chicago: University of Chicago Press.
- Boyd R., and J.P. Lorberbaum
  - 1987 No Pure Strategy is Evolutionarily Stable in the Repeated Prisoners-Dilemma Game. Nature 327 (6117):58-59.
- Boyd, Monica
  - 1989 Family and Personal Networks in International Migration: Recent Developments and New Agendas. International Migration Review 23(3):638-570.
- Bravo-Ureta, Boris E., Ricardo E. Quiroga and Jorge A. Brea
  - 1996 Migration Decisions, Agrarian Structure and Gender: The Case of Ecuador. Journal of Developing Areas. 30(4):463-475.
- Brown, Lawrence
  - 1991 Place, Migration and Development in the Third World. An Alternative View with Particular Reference to Population Movements, Labor Market Experiences and Regional Change in Latin America. London: Routledge.
- Brown, Lawrence A., Jorge A. Brea and Andrew R. Goetz
- 1988 Policy Aspects of Development and Individual Mobility: Migration and Circulation from Ecuador's Rural Sierra. Economic Geography 64(2):147-170.
- Brownrigg, Leslie
  - 1983 Economic and Ecological Strategies of Lojano Migrants to El Oro. In Cultural Transformations and Ethnicity in Modern Ecuador. Norman Whitten, ed. Pp. 303-326. Urbana: University of Chicago Press.
- Carneiro, Robert L
  - 1967 Relationship between Size of Population and Complexity of Social Organization. Southwestern Journal of Anthropology 23(3):234-243.
- Casagrande, Joseph B., Stephen I. Thompson, and Philip D. Young
- 1964 Colonization as a Research Frontier: The Ecuadorian Case. In Process and Pattern in Culture: Essays in Honor of Julian H. Steward. Robert D. Manners, ed. Chicago: Aldine Publishing Company.
- Chayanov, Alexander Vasilevich
- 1966 The Theory of Peasant Economy. Daniel Thorner, Basile Kerblay and R.E.F. Smith, eds. Homewood, IL: R.D. Irwin.
- 1991 The Theory of Peasant Co-operatives. Translated by David Wedgwood Benn. Columbus : Ohio State University Press.

## Cohen, Mika

1999 Evaluating Cross-Cultural Patterns in the Transmission of Information: An Evolutionary Approach. Unpublished Master's Thesis. Davis: University of California Department of Anthropology and Ecology Graduate Group.

#### Collins, Jane

- 1988 Unseasonal Migrations: The Effects of Labor Scarcity in Peru. Princeton: Princeton University Press.
- Colson, Elizabeth
  - 1971 The Social Consequences of Resettlement: the Impact of the Kariba Resettlement upon the Gwembe Tonga. Manchester: Manchester University Press.

#### Conelly, W.T.

1992 Agricultural Intensification in a Philippine Frontier Community: Impact on Labor Efficiency and Farm Diversity. Human Ecology 20(2):203-223.

#### Connell, John, et al.

- 1976 Migration from Rural Areas: The Evidence from Village Studies. Delhi: Oxford University Press.
- Corporación de Estudios y Publicaciones
  - 2000 Ley de cooperativas: Reglamento y legislación conexa. Quito: Corporacion de Estudios y Publicaciones.
- Corvinus, Friedemann
  - 1988 Energy Use in West Malaysian Rural Villages, with Special Reference to FELDA Villages. In Agricultural Expansion in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 117-129. Tokyo: United Nations University.
- Cristaller, Walter
  - 1966 Central Places in Southern Germany. Translated by C.W. Baskin. Englewood Cliffs, NJ: Prentice-Hall.
- DeBoer, Warren R.
  - 1996 Traces Behind the Esmeraldas Shore: Prehistory of the Santiago-Cayapas Region, Ecuador. Tuscaloosa: University of Alabama
- de Haan, Arjan
  - 1999 Livelihoods and Poverty: The Role of Migration A Critical Review of the Literature. The Journal of Development Studies 36(2):1-47.
- Dirección General de Estudios
- 2000 Información Estadistica Mensual, No 1.775. Quito.
- Dodson, C.H. and A.H. Gentry. 1991. Biological Extinction in Western Ecuador. Annals of the Missouri Botanical Garden 78(2):273-295.
- Dominguez, Camilo A.
  - 1984 National Expansion and Development Policies in the Colombian Amazon. In Frontier Expansion in Amazonia. Marianne Schmink and Charles H. Wood, eds. Pp. 405-418. Gainesville: University of Florida Press.

#### Duran, Sergio

- 1988 Organized Settlement on the Amazon Frontier: The Caquetá Project in Colombia. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 266-279. Tokyo: United Nations University.
- Durand, J., W. Kandel and D.S. Massey
  - 1996 International Migration and Development in Mexican Communities. International Migration Review 33(2):249-264.

## Farmer, B.H.

1957 Pioneer Peasant Colonization in Ceylon. London: Oxford University Press.

# Faron, L.C.

- 1960 The Formation of 2 Indigenous Communities in Coastal Peru. American Anthropologist 62(3):437-453.
- Fellin, Phillip and Eugene Litwak
  - 1963 Neighborhood Cohesion under Conditions of Mobility. American Sociological Review 28(1):364-376.
- Flora, Jan L., Mary García Bravo, Cornelia Butler Flora, and Segundo Andrango Bonilla
- 2001 'Sostenibilidad comunitaria en un paisaje ecuatoriano: El rol del capital economico, humano, ambiental y social," in Tendiendo puentes entre los paisajes humanos y naturales: La investigación participativa y el desarrollo ecológico en una frontera agrícola andina. R.E. Rhoades, ed. Pp. 341-368. Quito: Abya-Yala.
- Foster, George
  - 1960 Culture and Conquest: America' s Spanish Heritage. New York: Wenne Gren Foundation for Anthropological Research, Viking Fund Publications in Anthropology No. 27.
- Goldscheider, C.
  - 1989 Comparative Perspectives on Rural Migration and Development. In Rural Migration in Developing Nations: Comparative Studies of Korea, Sri Lanka and Mali. C. Goldscheider, ed. Pp. 289-307. Boulder: Westview Press.
- Granovetter, Mark

1973 The Strength of Weak Ties. American Journal of Sociology 81:1287-1303.

- Grieco, Elizabeth
  - 1998 The Effects of Migration on the Establishment of Networks: Caste Disintegration and Reformation among the Indians of Fiji. International Migration Review 32(3):704-736.
- Haenn, Nora
  - 1999 Community Formation in Frontier Mexico: Accepting and Rejecting New Migrants. Human Organization 58(1):1999.
- Hall, A.
  - 1987 Agrarian Crisis in Brazilian Amazonia: The Grande Carajás Programme. Journal of Development Studies 24:522-552.
- Hallpike, C.M.
  - 1988 Principles of Social Evolution. Oxford: Clarendon Press.
- Heckathorn, Douglas D.
  - 1996 The Dynamics and Dilemmas of Collective Action. American Sociological Review 61(April):250-277.

Hunt, Robert C.

- 1992 Inequality and Equity in Irrigation Communities. Paper presented to International Association for the Study of Common Property (17-20 September). Washington, D.C.
- 2000 Labor Productivity and Agricultural Development: Boserup Revisited. Human Ecology 28(2):251-277.
- INEC (Instituto Nacional de Estadística y Censo).

1978 II Censo Agropecuario de 1974. Quito: Instituto Nacional de Estadisticas y Censo. Ingold, Tim, David Riches, and James Woodburn, eds.

1988 Hunters and Gatherers I: History, Evolution and Social Change. Oxford: Berg. Jacobsen, D.

1973 Itinerant Townsmen: Friendship and Social Order in Urban Uganda. Menlo Park, CA: Cummings.

James, William E.

1983 Settler Selection and Land Settlement Alternatives: New Evidence from the Philippines. Economic Development and Cultural Change 31(3):571-586.

#### Jones, Jeffrey R.

1988 Colonization in Central America. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 241-265. Tokyo: United Nations University.

Kearney, Michael

- 1986 From the Invisible Hand to Visible Feet: Anthropological Studies of Migration and Development. Annual Review of Anthropology 15:331-361.
- 1995 The Local and the Global The Anthropology of Globalization and Transnationalism. Annual Review of Anthropology 24:547-565.
- Kopytoff, Igor
  - 1987 The Internal African Frontier: The Making of African Political Culture. In The African Frontier: The Reproduction of Traditional African Societies. Igor Kopytoff, ed. Pp. 3-84. Bloomington: Indian University Press.
- Leavitt, Harold J.
  - 1964 Managerial psychology; an introduction to individuals, pairs, and groups in organizations. 2nd Ed. Chicago: University of Chicago Press
- Lee, Everett. S.
  - 1966 A Theory of Migration. Demography 3:47-57.
- Luzuriaga, Carlos and Clarence Zuvekas, Jr.
  - 1983 Income Distribution and Poverty in Rural Ecuador, 1950-1979: A Survey of the Literature. Tempe: Center for Latin American Studies (Arizona State University)

#### Mabogunje, Akin L.

- 1970 Systems Approach to a Theory of Rural-Urban Migration. Geographic Analysis 2(1):1-18.
- Manshard, Walther, and William B. Morgan
  - 1988 Introduction. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 1-6. Tokyo: United Nations University.
- Marquette, Catherine M.
- 1998 Land Use Patterns among Small Farmer Settlers in the Northeastern Ecuadorian Amazon. Human Ecology 26(4):573-598.
- Marwell, Gerald, and Pamela Oliver
- 1993 The Critical Mass in Collective Action: A Micro-social Theory. New York: Cambridge University Press.
- Massey, Douglas S., Joaquin Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegrino and J. Edward Taylor
  - 1993 Theories of International Migration: A Review and Appraisal. Population and Development Review 19(3):431-466.
- Meillassoux, Claude.
  - 1981 Maidens, Meal and Money. London: Cambridge University Press.
- Milne, William J.
- 1993 Macroeconomic Influences on Migration. Regional Studies 27(4):365-373. Moran, Emilio F.
  - 1975 Pioneer Farmers of the Transamazon Highway. Ph.D. dissertation. Gainesville: University of Florida Department of Anthropology.
  - 1979 Criteria for Choosing Homesteaders in Brazil. Research in Economic Anthropology 2:336-359.
  - 1981 Developing the Amazon. Bloomington: Indiana University Press.

- 1984 Colonization in the Transamazon and Rondônia. In Frontier Expansion in Amazonia. Marianne Schmink and Charles H. Wood, eds. Pp. 285-303. Gainesville: University of Florida Press.
- 1993 Through Amazonian Eyes: The Human Ecology of Amazonian Populations. Iowa City: University of Iowa Press.
- Molinas, Jose R.
- 1998 The Impact of Inequality, Gender, External Assistance and Social Capital on Local Level Cooperation. World Development 26(3):413-431.
- Myers, N. 1991. Deforestation Rates in Tropical Forests and Their Climatic Implications. London: Friends of the Earth.
- Nelson, M.
  - 1977 El Aprovechamiento de las Tierras Tropicales en America Latina. Mexico City: Siglo Veintiuno Editores.
- Nettle, Daniel and Robin I.M. Dunbar
  - 1997 Social Markers and the Evolution of Reciprocal Exchange. Current Anthropology 38(1):93-99.
- Nowak, M. and K. Sigmund
  - 1993 A Strategy of Win Stay, Lose Shift that Outperforms Tit-for-Tat in the Prisoners-Dilemma Game. Nature. 364 (6432):56-58.
- Nyerges, A. Endre
  - 1992 The Ecology of Wealth-in-People: Agriculture, Settlement, and Society on the Perpetual Frontier. American Anthropologist 94(4):860-881.
- Olson, Mancur
- 1965 The Logic of Collective Action. Cambridge, MA: Harvard University Press.
- Ostrom, Elinor
  - 1990 Governing the Commons : The Evolution of Institutions for Collective Action. Cambridge: Cambridge University Press.
  - 1992 "The Rudiments of a Theory of the Origins, Survival, and Performance of Common-property Institutions," in Making the Commons Work: Theory, Practice and Policy.
    D.W. Bromley, D. Feeny, M.A. McKean, P. Peters, J.L. Gilles, R.J. Oakerson, C.F. Runge, and J.T. Thomson, eds. Pp. 293-318. San Francisco: ICS Press.
- Pandey, Vikash N. and Akhileshwar Patthak
  - 1997 Peasants and the Dairy Co-operative in Dry Land: A Fragile Existence. Economic and Political Weekly (Sept 27): 98-105.
- Phillips, Lynne
  - 1993 Co-operatives and Agrarian Transitions in Coastal Ecuador: Implications for Neoliberalism. Canadian Review of Sociology and Anthropology 30(4): 429-450.
  - 1989 Gender Dynamics and Rural Household Strategies. Canadian Review of Sociology and Anthropology 26(2):294=310.
- Pichon, Francisco J.
  - 1996a Settler Agriculture and the Dynamics of Resource Allocation in Frontier Environments. Human Ecology 24(3):341-371.
  - 1996b Land-Use Strategies in the Amazon Frontier: Farm Level Evidence from Ecuador. Human Organization 55(4):416-424.
- Portes, Alejandro and Patricia Landolt.
  - 2000 Social Capital: Promise and Pitfalls of its Role in Development. Journal of Latin American Studies 32(2):529-547.
- Raison, Jean-Pierre
  - 1981 La Colonización des Terres Nueves en Afrique Tropicale. Travaux et Memoires de l'Institut des Hautes Etudes de l'Amerique Latine 34:59 -75.

#### Rattner, Henrique

1988 The Colonization and Occupation of Brazilian Amazonia. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 280-303. Tokyo: United Nations University.

Ravenstein, E.G.

1885 The Laws of Migration. Journal of the Royal Statistical Society 44:420-423.

Redclift, Michael.

- 2000 The Frontier Environment and Social Order: The Letters of Francis Codd from Upper Canada. Cheltenham, UK: Edward Elgar Publishing.
- Rees, Martha W. and Josephine Smart, eds.
  - 2001 Plural Globalities in Multiple Localities : New World Borders Lanham, Md.: University Press of America.
- Rhoades, Robert E.
  - 1978 Intra-European Return Migration and Rural Development: Lessons from the Spanish Case. Human Organization 37(2):136-147.
- Riethmüller, Robert
  - 1988 Differentiation and Dynamics of Land-Use Systems in a Mountain-Valley Environment: A Case Study of New Colonization Areas in the Upper Mae Nam Pa Sak Catchment Area, Thailand. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 74-94. Tokyo: United Nations University.

Royden, Thomas and E. Boyd Wennergren

- 1973 The Impact of Access Roads on Spontaneous Colonization. USU Series 2373. Logan: Utah State University.
- Rudel, Thomas K. (with Bruce Horowitz)
  - 1993 Tropical Deforestation: Small Farmers and Land Clearing in the Ecuadorian Amazon. New York. Columbia University Press

# Ruttan, Lore

- 1998 Closing the commons: Cooperation for Gain or Restraint? Human Ecology 26(1):43-66.
- Ruttan, Lore, and Monique Borgerhoff-Molder
  - 1999 Are East African Pastoralists Truly Conservationists? Current Anthropology 40:621-652.
- Safa, Helen I., ed.
  - 1982 Towards a Political Economy of Urbanization in Third World Countries. Delhi: Oxford University Press.
- Safa, Helen I. and Brian M. du Toit, eds.
- 1975 Migration and Urbanization: Models and Adaptive Strategies. The Hague: Mouton. Salomon. Frank
  - 1981 Killing the Yumbo: A Ritual Drama of Northern Quito. In Cultural Transformations and Ethnicity in Modern Ecuador. Norman E. Whitten, ed. Pp. 162-208. Urbana: University of Illinois Press.
- Santos-Granero, Fernando and Frederica Barclay
- 1998 History, Economy and Land Use in Peruvian Amazonia. Washington, DC: Smithsonian Institution Press.
- Schmink, Marianne and Charles H. Wood
  - 1984 Frontier Expansion in Amazonia. Gainesville: University of Florida Press.
  - 1992 Contested Frontiers in Amazonia. New York: Columbia University Press.

## Scholz, Ulrich

1988 Types of Spontaneous Pioneer Settlement in Thailand. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 44-61. Tokyo: United Nations University.

Schwartz, Norman B.

- 1987 Colonization of Northern Guatemala: The Petén. Journal of Anthropological Research 43(2):163-183.
- Scudder, Thayer
- 1981 The Development Potential of New Lands Settlement in the Tropics and Subtropics. Binghamton, NY: Department of Anthropology. Mimeo.
- Scoones, Ian
  - 1995 Investigating difference: Applications of Wealth Ranking and Household Survey Approaches among Farming Households in Southern Zimbabwe. Development and Change. 26:67-88.
- Seligson, M.A. and J.M. Salazar
  - 1979 Political and Interpersonal Trust among Peasants A Re-evaluation. Rural Sociology 44(3):505-524.
- Sewastynowicz, James
  - 1986 Two Step Migration and Upward Mobility on the Frontier: The Safety Valve Effect in Pejibaye, Costa Rica. Economic Development and Cultural Change 34(4):731-754.
- Shields, Gail M. and Michael P. Shields
  - 1989 Family Migration and Non-market Activities in Costa Rica. Economic Development and Cultural Change 38(1):73-88.
- Shoemaker, Robin
  - 1981 The Peasants of El Dorado: Conflict and Contradiction in a Peruvian Frontier Settlement. London: Cornell University Press.
- Sierra, Rodrigo and Jody Stallings
  - 1998 The Dynamics and Social Organization of Tropical Deforestation in NW Ecuador, 1983-1995. Human Ecology 26(1):135-161.
- Sirisambhand, Napat
  - 1988 The Forest Colonization Process: Case Studies of Two Communities in North-East and South-East Thailand. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 62-73. Tokyo: United Nations University.

Sjaastadt, L.

1962 The Costs and Returns of Human Migration. Journal of Political Economy 70S:80-93.

Skinner, G. William

- 1997 Family Systems and Demographic Processes. In Anthropological Demography: Toward a New Synthesis. David I. Kertzer and Tom Fricke, eds. Pp. 53-95. Chicago: University of Chicago Press.
- Smith, Carol A.
- 1976 Regional Economic Systems: Linking Geographical Models and Socioeconomic Parameters. In Regional Analysis, Volume I: Economic Systems. Carol A. Smith, ed. New York: Academic Press.
- Smith, Eric Alden, and Mark Wishnie
- 2000 Conservation and Subsistence in Small-Scale Societies. Annual Review of Anthropology 29:493-524.
- Smith, Nigel J.H.
  - 1982 Rainforest Corridors: The Transamazon Colonization Scheme. Berkeley: University of California Press.

SPSS Inc.

1999 SPSS for Windows. Release 9.0.0. Chicago: SPSS Inc.

SPSS Science

1999 SYSTAT 8.0 for Windows. Chicago: SPSS Science.

Stark, Oded and David

1982 On Migration and Risk in LDCs. Economic Development and Cultural Change 31:191-196.

- Stearman, Allyn MacLean
  - 1984 Colonization in Santa Cruz, Bolivia: A Comparative Study of the Yacapani and San Julian Projects. In Frontier Expansion in Amazonia. Marianne Schmink and Charles H. Wood, eds. Pp. 231-260. Gainesville: University of Florida Press.
- Stephens, D.W.
  - 1990 Risk and Incomplete Information in Behavioral Ecology. In Risk and Uncertainty in Tribal and Peasant Economies. Elizabeth Cashdan, ed. Pp. 19-46. Boulder, CO: Westview Press.

Stewart, Douglas I.

1994 After the Trees: Living on the Transamazon Highway. Austin: University of Texas Press.

Stone, Glenn Davis, M. Priscilla Johnston-Stone and Robert McC. Netting

1987 Household Variability and Inequality in Kofyar Subsistence and Cash-Cropping Economies. In Household Economies and Their Transformations. Morgan D. Maclachlan, ed. Pp. 173-197. Lanham, MD: University Press of America.

#### Thiele, Graham

1995 The Displacement of Peasant Settlers in the Amazon: The Case of Santa Cruz, Bolivia. Human Organization 54(3):273-282.

Thiessenhusen, William C.

- 1995 Broken promises : agrarian reform and the Latin American campesino. Boulder: Westview Press.
- Thompson, Stephen I.
- 1973 Pioneer Colonization: A Cross-Cultural View. Reading, MA: Addison Wesley Module in Anthropology, No. 33.

# Tilman, David

1996 Biodiversity: Population versus Ecosystem Stability. Ecology 77(2):350-363.

Todaro, M.P.

1969 Internal Migration in Developing Countries: A Review of Theory. Geneva: ILO.

Trawich, Paul B.

2001 Successfully Governing the Commons: Principles of Social Organization in an Andean Irrigation System. Human Ecology 29(1):1-25.

Turner, Frederick Jackson.

1961 Frontier and Section: Selected Essays of Frederick Jackson Turner. Englewood Cliffs, NJ: Prentice-Hall.

Uhlig, Harald

- 1979 Völkerschichtung und Völkerbewegungen in den Gebirgen Thailands im Umbruch der modernen Entwicklung. Innsbrucker Goegraphische Studien 5:265-291.
- 1988 Spontaneous and Planned Settlement in South-East Asia. In Agricultural Expansion and Pioneer Settlements in the Humid Tropics. Walther Manshard and William B. Morgan, eds. Pp. 7-43. Tokyo: United Nations University.

# Uquillas, Jorge

- 1984 Colonization and Spontaneous Settlement in the Ecuadorian Amazon. In Frontier Expansion in Amazonia. Marianne Schmink and Charles H. Wood, eds. Pp. 261-284. Gainesville: University of Florida Press.
- Varughese, George and Elinor Ostrom
  - 2001 The contested Role of Heterogeneity in Collective action: Some Evidence from Community Forestry in Nepal. World Development 29(5):747-765.
- von Thünen, Johann Heinrich
- 1966 [1826] Von Thunen's Isolated State. P. Hall, ed. Translated by C.M. Wart enberg. Oxford: Pergamon Press.
- Wallerstein, Immanuel
  - 1974 The Modern World System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century. New York: Academic Press.
- Wallerstein, Immanuel and Joan Smith
  - 1992 Core-periphery and Household Structures. In Creating and Transforming Households: The Constraints of the World-Economy. Joan Smith and Immanuel Wallerstein et al., eds. Pp. 253-262. New York: Cambridge University Press.

Watts, M.

- 1988 Coping with the Market: Uncertainty and Food Security among Hausa Peasants. In Coping with Uncertainty in Food Supply. I. de Garine and G. A. Harrison, eds. Pp. 260-289. Oxford: Clarendon Press.
- Weisner, Thomas S.
  - 1976 The Structure of Sociability: Urban Migration and Urban-Rural Ties in Kenya. Urban Anthropology. 5(2):199-223.
- Whitten Jr., Norman E.
  - 1974 Black Frontiersman: Afro-Hispanic Culture of Ecuador and Columbia. Prospect Heights, IL: Waveland Press.
- Wood, Charles H.
  - 1982 Equilibrium and Historical-Structural Perspectives on Migration. International Migration Review 1(2):298-319.
- Wood, Charles H. and Marianne Schmink
  - 1979 Blaming the Victim: Small Farmer Production in an Amazonian Colonization Project. Studies in Third World Societies 7:77-93.

# APPENDICES

(numbered according to the chapter in which they are cited)

#### Appendix 1. Glossary of Terms Used.

- Afro-Ecuadorian –Ecuadorians of African descent, historically from Esmeraldas province where a slave ship was said to have crashed in the 17<sup>th</sup> Century.
- Betweenness centrality extent to which a network relies on key individuals to link sub-groups.
- *Canton* level of political organization between *provincia* and *parroquia*, and the level at which the mayor is elected.
- Centrality extent to which a key person or a few people are either most cited by others or who cite the most number of people in a network.
- Central place any number of regional economic systems whose characteristics are predicted by relationships to other, typically smaller or more distant, population centers.
- Chachi indigenous Ecuadorians, said to have arrived in Esmeraldas from the highlands around Ibarra in the past two centuries. The three populations reside around Müisne, the Canandé River, and the Cayapas River.
- Class relationship between groups of people based on relative access to means of production and distribution.
- Clique sub-groups wherein density of relationships is highest, excluding members who are less connected to such a group. This is different from n-cliques (of size 2, 3, etc.), which describes number of possible groups where no connection from a starting point exceeds a length of n people away
- Collective action activities of individuals, that may or may not have formally delineated structures which guide those activities, but which are recognized as serving a common goal, whether it be a public good or summative individual betterment.
- Common pool resources resources whose access is managed by a group of people, whether formally or informally. Common pool resources are also characterized by being a limited good.
- Conservation an intentional effort, recognized as such, to protect or manage a non-human biological and/or physical entity.
- Cooperative a formal institution of production, typically legalized by the state, characterized by egalitarianism and as having the recognized goal of collective economic benefit.
- Density the extent to which a network is tightly woven, or highly integrated, which occurs by people frequently naming each other or the same third parties.
- Development improvement in individual and/or group indicators of economic standing, typically resulting in higher levels of education and consumption.
- Dendritic system a type of regional economic system whose characteristics are predicted by central place theory. These systems frequently occur on the frontier or in areas of raw

natural resource extraction. A single town serves as the gate of access to the rest of the region, and subsequent towns serve as gates to sub-regions.

- Frontier agricultural frontier. Society based on recent conversion of unused or low-use land to agricultural purposes.
- Instability low degree of constancy (extent to which something is the same over time) and low degree of contingency (extent to which something depends on other events).
- Intensification higher rate of labor usage (or labor equivalent, such as financial or physical capital) per unit produced. It typically results in increased production, lower system efficiency. Reduced plot size is common in capital-poor areas, and increased plot size is common in capital-rich areas.
- Heterogeneity diversity, difference or variation for a given trait or traits.
- Homogeneity sameness or similarity for a given trait or traits.
- Human capital individual attributes which make a personal marketable for employment or more economically efficient in their work. Typically these are education (basic skills), charisma, dexterity, strength, age (proxy for strength and dexterity), and knowledge.
- *Mestizo* People of mixed indigenous and Spanish descent, making up just over half of Ecuador's population.
- Migration stream flow of individuals over time along a given path. Characteristics of the migration stream include traits of individuals, description of the path, and volume.
- Migration system Description of the relationship between sending and receiving areas, in terms of migration volume, individual characteristics, and transfer of information and/or resources.
- *Parroquia* lowest level of nested political organization in Ecuador. Towns, which incorporate typically, are receiving this status, but also often become responsible for significant rural surroundings.
- *Precarismo* feudal relationship of mid-20<sup>th</sup> century Ecuador, characterized by payment in kind for rent, typically paid by peasants to landlords for rice production.
- Pre-cooperative Landowner association in Ecuador. These were stipulated as legally necessary before the Ecuadorian government would provide access to land under land reform. The pre-cooperatives were intended to morph into full-fledged cooperatives responsible for the planning of the production and social life.
- Regional economic system human geographical units (cities, towns, villages, rural areas) linked together through patterned relationships of production and distribution of goods and services.
- Risk the probability of stochastic variation in the results of decision-making vis-à-vis given means of production.

- Social capital attributes of groups or individuals that improve collective action. These attributes commonly include interpersonal trust, norms of reciprocity, common goals and expectations, cultural similarities.
- Social network individuals linked together through some exchange of resources. Examples of social networks include information sharing, overlap in attendance at various meetings, friendships, and acquaintances.
- Social relations relationships between identifiable groups of people.
- Social structure patterning of social relationships based on age, sex, relative access to resources, quests for dominance and perceived needs.
- Sustainability productive activity that does not diminish the biophysical resource basis for longterm human existence. It is limited to some extent by the carrying capacity of a bioecological ecosystem and the human technology brought to bear on that ecosystem.
- Uncertainty the lack of perfect information for making decisions.
- Wealth material and financial assets. The concept is used in this dissertation primarily to refer to assets useful for agriculture, business, or other forms of production.

The Dollar	Inflation Rates <sup>88</sup>
(rounded average yearly interbank	(increase in price index for low and
cost of purchasing the dollar <sup>86</sup> )	moderate income consumers, rounded;
562s in 1989	base: Sept. 1994- Aug. 1995 = 100)
816s in 1990	3% in 1968
1,090s in1991	5% in 1969
1,574s in 1992	6% in 1970
1,919s in 1993	10% in 1971
2,196s in 1994	8% in 1972
2,564s in 1995	12% in 1973
3,189s in 1996	23% in 1974
3,998s in 1997	15% in 1975
5,437s in 1998	11% in 1976
11,760 in 1999	13% in 1977
	14% in 1978
Maximum Conventional Interest Rates <sup>87</sup>	10% in 1979
10% in 1948-69	13% in 1980
12% in 1970-81	15% in 1981
15% in 1982	16% in 1982
19% in 1983	48% in 1983
23% in 1984-6	31% in 1984
28% in 1987-8	28% in 1985
36% in 1989	23% in 1986
39% in 1990	30% in 1987
49% in 1991-92	58% in 1988
50% in 1993	76% in 1989
67% in 1994	49% in 1990
89% in 1995	49% in 1991
69% in 1996	55% in 1992
	45% in 1993
	27% in 1994
	23% in 1995
	24% in 1996

# Appendix 2. Exchange Rates, Interest Rates, and Inflation Rates.

<sup>&</sup>lt;sup>86</sup> Dirección General de Estudios 2000:62. <sup>87</sup> Banco Central de Ecuador 1997:54.

<sup>&</sup>lt;sup>88</sup> Banco Central de Ecuador 1997:141-2.

ID	De	años	Familia/	Lugares	Codigo de	Nombre 1	Nombre 2	Nombre 3	Re	laci	ion	Notas
#	donde	aqui	amigo antes	donde vivio-#	bienes/ occupacion				1	2	3	Rel.
											-	
											-	
-												

# Appendix 4.1. Interview Protocol for Villages' Networks Sample.

**Appendix 4.2. Data used in Construction of Village Networks, Nodelist.** Leftmost number is case number (node), and three following numbers are people named by that individual. Missing data is denoted by 9999.

<u>La Te</u>	<u>Zapallo</u>	<u>El Recreo</u>	10 de Agosto
1 4 3 2	1678	1678	1678
2516	291011	291011	29610
3641	3 12 13 14	3 12 13 14	3 11 12 13
4137	4 15 16 17	4 13 15 16	4 14 15 16
5 60 1 3	5 18 19 20	5 17 18 19	5 17 18 19
6 61 7 59	68121	6 20 8 21	692021
7 62 59 6	7 22 1 8	7 20 19 22	7 22 9 18
8 9 10 11	8 18 1 23	8 23 11 24	861012
981012	9 24 13 20	9 2 11 25	92618
10 8 1 11	10 31 2 29	10 26 27 2	10 12 23 24
11 15 13 14	11 28 30 32	11 2 9 28	11 12 23 24
12 9 14 10	12 33 47 39	12 19 8 29	12 10 24 8
13 63 8 11	13 40 41 25	13 30 12 31	13 25 20 26
14 13 12 63	14 26 27 42	14 60 32 38	14 27 28 29
15 11 27 64	15 4 27 43	15 33 34 35	15 14 30 31
16 17 18 19	16 44 9999 34	16 36 37 38	16 5 15 14
17 20 16 21	17 35 8 36	17 5 39 40	17 18 5 32
18 22 23 16	18 37 5 32	18 5 68 41	18698
19 24 25 65	19 45 18 2	19 9999 9999 9999	19 15 27 18
20 21 17 16	20 38 32 34	20 7 42 43	20 33 6 34
21 66 18 22	21 48 6 22	21 20 44 45	21 6 3 20
22 67 68 18	22 7 49 50	22 46 47 48	22 35 36 37
23 69 70 18	23 51 52 42	23 8 23 49	23 38 8 39
24 19 25 23	24 2 12 5	24 8 9999	5024 10 12 40
25 71 19 24	25 53 13 20	25 2 9 51	25 11 41 18
26 7 28 27	26 14 54 55	26 10 52 53	26 25 12 42
27 29 31 30	27 56 15 57	27 10 54 55	27 14 19 43
28 26 29 31	28 58 5 59	28 11 2 56	28 44 27 14
29 72 27 28	29 23 12 30	29 12 19 18	29 25 45 46
30 73 72 27	30 3 60 28	30 57 58 18	30 9999 9999 9999
31 74 75 29	31 13 61 19	31 67 38 59	31 15 47 14
32 33 34 35	32 30 2 40	32 14 60 54	32 33 21 17
33 32 36 37	33 12 62 47	33 34 61 1	
34 32 38 39	34 52 18 42	34 61 33 1	
35 32 33 40	35 16 27 1	35 61 55 62	
36 37 76 77	36 17 57 18	36 16 38 63	
37 36 34 32	37 18 63 58	37 16 36 64	
38 34 32 78	38 15 13 61	38 65 43 63	
39 79 34 80	39 10 64 23	39 24 66 50	
40 35 81 82	40 32 13 30	40 9999 60 38	
	41 32 65 62	41 18 67 23	
	42 18 3 66		
	43 67 27 15		
	44 52 16 68 45 0000 0000 0000		
	45 9999 9999 9999		
	46 9999 9999 9999		

Appendix 4.3. Visual Presentation of Village Networks.



La Te Network. Individuals 1, 8, 15, 16 and 32 were the first people interviewed in the snowball sample.



Zapallo Network. Individuals 1-5 were the first people interviewed in the snowball sample.



El Recreo Network. Individuals 1-5 were the first people interviewed in the snowball sample.



**Diez de Agosto Network.** Individuals 1-5 were the first people interviewed in the snowball sample.

# Appendix 5.1. Interview Protocol for Cooperatives' Networks Sample.

Nombre	Cuando asocio?	¿Qué desea que sea el proximo proyecto de su cooperativa?	

¿Que cursos, libros y folletos sobre el cooperativismo ha recibido Usted?

¿Que cargas oficiales ha tenido Ud. dentro de ésta cooperativa? Cuantos años?

Los problemas mas fuertes del cooperativismo son?

	que tan confiable es? (100%, 75%,	se interesa mas de la tecnica,	es mas, menos,	Se platican de
	mas o menos)	insumos, credito, mercadeo,	o igual de	ag. cada cuanto
		procesamiento, o transporte?	recursos que Ud?	de tiempo?
Febres Cordero				
MA				
LA				
ТА				
НМ				
LB				
JA				
MM				
FN				
СР				
FE				
GO				
GG				
MG				
IH				
MP				

Nombre	¿Donde vive?	¿Cuando llego ahi?	Edad	Sexo	Entrevistador

Lugares dor el presente,	nde ha vivio para atras	do. (come )	nzar con	Familia	Familia	Amigo s	Amigo s	Ocupació n	Que fuc; ۲	eron las razones oor salir?	# de anios
Provincia	Cantón	Parroqui a	Comunida d	antes?	ahora?	antes?	ahora?		En	umere dos.	vivio ahi

¿Para que Ud ha sacado algún crédito?	Cúanto de dinero?	¿Cuando?	¿Cuanto tiempo?	¿Con quien?	¿Que % de interés anual?

Bienes	Cúanto
1. tierra	
2. casa	
3. ganado	
4. taller	
5. chanchos	
6. auto	
7. otro	
8. motosierra	
9. motocicleta	
10. refrigeradora	
11 hostic	
12 pollos	-
12. pullus	
Vivo oco o	uión2
vive con qu	

# Appendix 5.2. Data used in Construction of Cooperative Networks, Full Matrix. (diagonal present; node not included in list).

# Jaime Ordoñez

0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	0	1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
0	0	1	0	0	1	0	0	0	1	1	0	0	1	1
0	0	1	1	0	0	1	0	0	0	1	0	0	1	1
1	1	1	1	0	0	0	0	1	0	0	0	1	1	0
1	1	1	1	1	0	0	1	1	1	1	0	1	1	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	0	1	1	1	1	1	1
1	1	1	1	0	0	0	1	0	0	0	1	1	1	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	1	1	1	0	0	1	0	0
1	0	1	1	0	1	0	1	1	1	0	1	0	1	1
1	1	1	1	1	1	1	1	1	0	0	0	1	0	0
1	1	1	0	1	0	1	0	0	0	0	0	1	0	0

#### 12 de Octubre

# Febres Cordero

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	1	0	1	1	0	0	1	0	0	0	0
1	1	0	0	0	0	1	0	1	0	0	0	0	0	0
0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
1	1	0	1	0	0	1	1	1	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	1	1	0	0	1	1	1	0	0	0	0	0
1	1	1	1	1	0	1	0	0	0	1	0	0	0	0
0	0	1	1	1	0	1	1	0	0	1	0	0	0	0
1	0	0	1	1	0	1	1	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	1	1	0	1	1	0	1	1	0	0	0	0
1	1	1	1	0	0	0	1	1	0	1	1	0	1	0
1	1	0	0	1	0	1	0	1	0	1	0	0	0	0
1	1	0	1	1	0	1	1	1	0	1	0	0	1	0

#### 6 de Diciembre

_							_							
0	1	0	0	1	0	0	0	0	1	0	0	0	0	0
1	0	1	1	1	1	0	0	1	0	0	1	1	1	0
0	0	0	0	1	0	0	0	1	0	1	0	0	1	0
0	1	0	0	0	0	0	0	0	1	0	0	1	0	0
1	1	1	0	0	0	0	0	0	1	1	0	1	1	0
0	1	0	0	1	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	0	1	1	0	0	1	1	0	1	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	1	0	0	0	1	1	1	0
1	0	0	0	1	0	0	1	1	0	0	0	1	1	0
0	1	1	1	1	0	0	0	0	1	0	0	0	1	0
1	1	0	0	1	1	0	1	1	0	1	0	0	0	0
1	1	1	1	1	1	0	0	0	0	0	1	0	0	0
0	0	0	0	1	0	0	1	0	0	1	0	1	1	0

# Los Limones

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	1	1	1	0	0	0	1	1	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	1	1	0	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	1	1	1	0	1	1	1	0	0
1	1	0	0	0	0	0	1	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
0	0	0	0	0	0	0	1	0	0	1	0	0	1	0
1	1	1	0	1	0	1	1	0	0	0	1	0	0	0
0	1	0	1	1	0	0	1	1	1	0	0	1	1	0
0	1	0	0	0	0	0	1	0	0	1	0	0	0	0
0	1	0	1	1	1	1	1	1	1	0	0	0	0	0
1	1	1	0	0	1	1	1	1	0	1	1	0	0	0
0	0	0	0	0	0	0	1	0	1	1	1	0	1	0