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Hirotooshi Yoshioka

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The Dissertation Committee for Hirotoshi Yoshioka
certifies that this is the approved version of the following dissertation:

**The Impact of International Migration on Ethnic
Relations and Ethnic Identity Shift
in Guatemala and Nicaragua**

Committee:

Bryan R. Roberts, Co-Supervisor

Peter M. Ward, Co-Supervisor

Cynthia J. Buckley

Stephen A. Jessee

Thomas W. Pullum

Néstor P. Rodríguez

**The Impact of International Migration on Ethnic
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by

Hirotoishi Yoshioka, B.A., M.A.

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Dedicated to my mother.

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**The Impact of International Migration on Ethnic
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in Guatemala and Nicaragua**

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Hirotohi Yoshioka, Ph.D.

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Supervisors: Bryan R. Roberts
Peter M. Ward

Over the past few decades, the volume of international migrants has increased considerably. As a result, impacts of international migration on migrants' communities of origin have become much more prevalent and diverse. Using both quantitative and qualitative methods, this dissertation investigates a little studied aspect of such diverse impacts: the impact upon ethnic structures and relations in migrants' communities of origin. More specifically, I examine to what extent international migration affects the level of socioeconomic inequality across ethnic groups and how such impacts influence indigenous people's ethnic identity in two Central American countries: Guatemala and Nicaragua. I contend that ethnic identity shift is one of the most significant changes that international migration brings to these countries because such a shift can even endanger the existence of the indigenous population. I

have found that international migration reinforces ethnic identity shift from indigenous to Mestizo in both countries. At the same time, the pace of such a shift differs by a community's characteristics including its demographic composition and definition of indigenusness. While it is hard to deny the fact that international migration provides indigenous people in both countries economic opportunities that are hard to obtain through other ways, it can also have unexpectedly negative effects on ethnic minorities and their cultures in the long run. Since indigenous people in both countries face a tough economic reality, it is difficult to prevent them from migrating to other countries. In such a situation, to conserve indigenous cultures and prevent more indigenous people from abandoning their ethnic identities, we need to assure that indigenous people can feel pride in their cultures while they participate in national economy and politics under the strong pressure caused by changes originating from international migration and multicultural reforms. Understanding how the definition of indigenusness is constructed and transformed as well as a mechanism of ethnic identity shift is an essential step to finding solutions to the dilemma related to international migration among indigenous people and achieving a robust multicultural society.

Table of Contents

Acknowledgments	v
Abstract	vii
List of Tables	xiii
List of Figures	xv
Chapter 1. Introduction	1
1.1 Research Problem and Objectives	1
1.2 Aims	5
1.3 Research Design	6
1.4 Organization of Dissertation	7
Chapter 2. Theoretical Overview	10
2.1 Indigenous Peoples of Guatemala and Nicaragua	11
2.2 International Migration from Guatemala and Nicaragua	19
2.2.1 Factors Affecting International Migration	20
2.2.2 Impacts of International Migration on Sending Communities	27
2.3 International Migration, Multicultural Reforms, and Ethnic Identity Change	41
2.4 Hypotheses	49
Chapter 3. Methodology	52
3.1 Mixed-Methods Approach	52
3.2 Statistical Analysis	54
3.2.1 Data Sets	54
3.2.2 Principal Component Analysis	55

3.2.3	Bayesian Statistics	58
3.3	Primary Data Collection	59
3.3.1	Research Locations	60
3.3.2	Survey Questionnaire	66
3.3.3	Focus Group	68
3.3.4	In-Depth Interview	69
3.4	Agent-Based Modeling	70
Chapter 4. Ethnic Differentials in the Selectivity of Migrants and Remittance Recipient Households		73
4.1	Objectives	73
4.2	Data	74
4.3	Modeling Strategy and Explanatory Variables	76
4.4	Results	80
4.4.1	The Selectivity of Migrant Households	80
4.4.2	Migrant Household Selectivity in Cantel and Bilwi	91
4.4.3	The Selectivity of Economic Remittance Recipient Households	100
4.5	Discussion	108
Chapter 5. Ethnic Differentials in Effects of Economic Remittance on Recipient Households		111
5.1	Objectives	111
5.2	Data	114
5.3	Modeling Strategy	114
5.3.1	Economic Remittances and Income Inequality	114
5.3.2	Economic Remittances and Children’s Schooling	118
5.4	Results	120
5.4.1	Economic Remittances and Income Inequality	120
5.4.2	Economic Remittances and Children’s Schooling	127
5.5	Discussion	140

Chapter 6. Impacts of International Migration on Ethnic Structures in Cantel and Bilwi	143
6.1 Objectives	143
6.2 Data and Methods	144
6.3 Results	149
6.3.1 Impacts of International Migration on Socioeconomic Structures and Social Networks	150
6.3.2 Migrant Household as Social Status	153
6.3.3 Ethnic Markers	157
6.3.3.1 Residential Location	157
6.3.3.2 Language	160
6.3.3.3 Traditional Clothes and Skin Color	162
6.3.4 Image of Indigenusness	163
6.3.5 Inter-ethnic Interactions	165
6.4 Discussion	168
Chapter 7. International Migration and Ethnic Identity Shift in Guatemala and Nicaragua	170
7.1 Objectives	170
7.2 Ethnic Identity as Social Process	171
7.3 Methods	176
7.3.1 Model Description	177
7.3.2 Modeling Ethnic Identity Mechanism: Transmission on the Network	178
7.3.3 Ethnic Image Transformation and Rewiring Process	184
7.3.4 Limitations	186
7.4 Simulation Results	187
7.5 Discussion	201
Chapter 8. Conclusions	205
8.1 Impacts of International Migration on Inhabitants of Sending Communities	205
8.2 A Review of the Findings	207
8.3 Impacts of International Migration on Ethnic Identity	214

Appendices	221
Appendix A. Results from Multilevel Probit Regression	222
Appendix B. Survey Questionnaire	223
Bibliography	232
Vita	253

List of Tables

4.1	Percentage Distribution of Demographic Characteristics of Households in Guatemala, 2002	81
4.2	Percentage Distribution of Demographic Characteristics of Households in Nicaragua, 2005	83
4.3	Multilevel Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Guatemala, 2002	84
4.4	Multilevel Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Nicaragua, 2005	89
4.5	Percentage Distribution of Demographic Characteristics of Households in Cantel, 2002 and Bilwi, 2005	93
4.6	Binomial Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Cantel, 2002	94
4.7	Binomial Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Bilwi, 2005	99
4.8	Percentage Distribution of Demographic Characteristics of Households in Guatemala, 2006	101
4.9	Percentage Distribution of Demographic Characteristics of Households in Nicaragua, 2005	102
4.10	Multilevel Logistic Regression Predicting the Logged Odds of Becoming an Economic Remittance Recipient Household in Guatemala, 2006	106
4.11	Multilevel Logistic Regression Predicting the Logged Odds of Becoming an Economic Remittance Recipient Household in Nicaragua, 2005	107
5.1	Descriptive Statistics of Demographic Characteristics of Households, Guatemala, 2006 and Nicaragua, 2005	122
5.2	Multilevel Linear Regression Predicting Non-Remittance Income among Non-Recipient Households in Guatemala, 2006 and Nicaragua, 2005	123
5.3	Gini Indices Comparisons: Observed vs. No Remittances and No Migration Scenarios	126

5.4	Descriptive Statistics of Demographic Characteristics of School Attendance among Children of Household Heads in Guatemala, 2006 and Nicaragua, 2005	128
5.5	Cox Hazard Models Predicting the Risk of School Dropout among Guatemalan Households, 2006	131
5.6	Cox Hazard Models Predicting the Risk of School Dropout among Nicaraguan Households, 2005	132
5.7	Cox Hazard Models Predicting the Risk of School Dropout among Guatemalan Indigenous Households, 2006	135
5.8	Cox Hazard Models Predicting the Risk of School Dropout among Guatemalan Non-Indigenous Households, 2006	136
5.9	Cox Hazard Models Predicting the Risk of School Dropout among Nicaraguan Indigenous Households, 2005	138
5.10	Cox Hazard Models Predicting the Risk of School Dropout among Nicaraguan Non-Indigenous Households, 2005	139
7.1	Description of States	181
7.2	Description of Parameters	182
7.3	List of Parameter Values Fixed in the Current Chapter	189
A.1	Multilevel Probit Regression Predicting Households' Remittance Recipient Status in Guatemala, 2006 and Nicaragua, 2005	222

List of Figures

7.1	Scheme of Indigenous Ethnic Identity Shift	180
7.2	Two Distributions of Images of Indigenous Groups at Population Level	190
7.3	Results from Simulation Runs with a Narrow Image Distribution at the Population Level	197
7.4	Results from Simulation Runs with a Wide Image Distribution at the Population Level	198

Chapter 1

Introduction

1.1 Research Problem and Objectives

Over the past few decades, the volume of international migrants has increased considerably. Ostensibly, their migration patterns have become much more diverse and complex. As a result, impacts of international migration on sending societies (migrants' communities of origin) have become much more prevalent and diverse. This dissertation investigates a little studied aspect of such diverse impacts brought by international migration: the impact upon ethnic structures and relations in sending societies. More specifically, I analyze to what extent international migration affects the level of socioeconomic inequality across ethnic groups and importantly, how such impacts influence indigenous people's ethnic identity among indigenous groups in two Central American countries: the K'iche' group in Guatemala and the Miskitu group in Nicaragua.

Although classical sociological theorists such as Karl Marx and Max Weber suggested that the importance of ethnicity would decline through modernization and social changes, ethnicity has become a key concept in explaining the formation of nation-state, political and social movements, and inter-

national migration patterns in various Latin American countries. However, despite the increasing volume and importance of the Latin American international migration stream, especially to the United States, and the severe level of inequality and discrimination in the region that are largely defined by ethnicity, few studies have examined what international migration tells us about ethnicity-related issues including unequal ethnic relations and changes in ethnic identity in sending communities.

On the other hand, ethnic identity shift among migrants and their families has been discussed extensively in research on international migration in terms of assimilation in receiving countries (Alba and Nee 1997; Portes and Zhou 1993; Rumbaut 1994). One reason for the lack of such research focusing on migrant sending communities can be attributed to the fact that research on assimilation in receiving countries mainly examines the second and later generations of migrants. In addition, it is rare to observe ethnic identity shift among people left behind in European countries that sent a number of migrants to the New World. This is not the case in Guatemala and Nicaragua where changes in ethnic identity may occur over the course of a person's life. I posit that ethnic identity shift is especially relevant in various Latin American countries including Guatemala and Nicaragua where ethnic boundaries, especially between the mainstream Mestizo group and ethnic minorities have rarely been clear.

Ethnic identity shift, I contend, is one of the most significant changes that international migration brings in Guatemala and Nicaragua because such

a shift can transform these countries' ethnic structures and even endangers the existence of the indigenous population in these countries. Additionally, the decrease in the proportion of ethnic minorities in these countries can obscure social problems closely tied to one's ethnic background. In this regard, international migration and multicultural reforms, which have also influenced Guatemala and Nicaragua's ethnic structure drastically over the past decade, may have a very similar impact on indigenous groups in these countries. As Hale (2002) argues on multicultural reforms, both international migration and multicultural reforms offer indigenous people unprecedented opportunities and perils at the same time. The author argues that such a paradoxical phenomenon takes place because multiculturalism in Latin America has emerged "in the general context of neoliberal political and economic reforms" (2002:493). As a result, even though changes that took place under the current neoliberal agenda may seem drastic, the majority of indigenous peoples cannot benefit from these changes. Rather, since Guatemalan and Nicaraguan indigenous peoples belong to the poorest group in their countries, the increase in the gap between the rich and the poor that took place under the neoliberal multiculturalism suggests that indigenous peoples can be socioeconomically more vulnerable today.

I argue that international migration may exacerbate the situation that surrounds indigenous people because it is unlikely that international migration equally benefit the whole population due to its selective nature. Hence, rather than reinforcing indigenous ethnic identities among migrant households, inter-

national migration may lead them to abandon their ethnic identities. Such a shift will be easier when Mestizo cultural patterns including food consumption and costume are introduced into traditionally indigenous communities. For example, Popkin (2005) has observed in Guatemala that international migration has resulted in the establishment of new ethnic boundaries within the municipality of Santa Eulalia. The author has found that some migrants and their household members adopted behaviors that people in the municipality associate with Ladino (mixed-blood) Guatemalans.

Therefore, while we cannot negate the fact that both international migration and multicultural reforms do offer indigenous groups opportunities, without resolving fundamental problems such as the very high ethnic inequality level, the majority of indigenous people cannot take advantage of these new opportunities. As a result, both multicultural reforms and international migration may simply widen the gap between and within ethnic groups that may weaken community cohesion. Given the increasing importance of international migration on country's economy and culture in both Guatemala and Nicaragua, a failure to examine the relationship between international migration and ethnic identity in these countries constitutes a deficiency in knowledge to construct true and robust multicultural society that would encourage Guatemalan and Nicaragua indigenous people to preserve their ethnic identities and cultures.

There are various reasons why international migration can affect ethnicity-related factors in Guatemala and Nicaragua. By focusing on Guatemala and

Nicaragua, the two countries that share various similarities (e.g. severe socioeconomic difficulties and discrimination that indigenous groups face) but also present fundamental differences (e.g. different degrees of multicultural reforms, collective memory of the civil war that took place in these countries, and the average level of educational attainment) from each other, I will be able me to test my hypotheses and answer research questions. By comparing the two cases, I aim to identify factors that are most likely affected by international migration and what changes in such factors mean for ethnic identity and relations as well as multicultural society that both Guatemala and Nicaragua endorse today.

1.2 Aims

To examine impacts of international migration on ethnic identity shift in sending societies, it is essential to first examine how international migration affects ethnicity-related factors. Therefore, the aims of this dissertation are:

1. To evaluate ethnic differentials in the selectivity of international migrants and economic remittance recipient households.
2. To examine the extent to which international migration affects the overall level of poverty and inter- and intra-ethnic socioeconomic inequality.
3. To evaluate impacts of international economic remittances on households' wealth and their children's educational attainment.

4. To identify factors leading to different impacts of international migration on Guatemalan and Nicaraguan populations.
5. To analyze impacts of international migration on ethnic relations in sending communities.
6. To examine and verify a mechanism of ethnic identity shift and make a prediction of impacts of international migration and multicultural reforms on inter-ethnic relations.

1.3 Research Design

These aims will be achieved applying a mixed-methods approach. To analyze the selectivity of migrants and remittance recipient households as well as impacts of economic remittances on income inequality and children's educational attainment, I use demographic censuses from the two countries and nationally representative data sets from the ENCOVI 2006 (Encuesta Nacional de Condiciones de Vida) for Guatemala and ENMV 2005 (Encuesta Nacional de Hogares Sobre Medición del Nivel de Vida) for Nicaragua. Findings from statistical analysis of these data will be complemented by fieldwork undertaken in two indigenous communities in Guatemala and Nicaragua. The fieldwork is aimed at understanding what findings from the statistical analysis of the secondary data suggest for Guatemalan and Nicaragua indigenous groups as well as their perception of various socioeconomic factors, indigenusness, and ethnic relations. In addition, due to the lack of available secondary data, the

information collected in the field is the only data for studying impacts of international migration on ethnic identity shift and exploring similarities between international migration and multicultural reforms in terms of their impacts on indigenous cultures that I hypothesize.

Finally, based on findings from both the statistical analysis and field observations, I propose a mathematical model of ethnic identity shift. One purpose of the mathematical model is to rigorously analyze and verify findings from Guatemalan and Nicaraguan research communities to understand similarities and differences in impacts of international migration on these communities. In addition, with the proposed model, I will make predictions relating to ethnic relations and indigenous cultures in both Guatemala and Nicaragua and present policy recommendations for preserving indigenous cultures in these countries.

1.4 Organization of Dissertation

Since people's ethnic identity is closely related to their socioeconomic status, relative positions in society, and circumstances that surround them, the relationship between international migration and ethnic identity shift falls under two larger theoretical frameworks: 1) impacts of international migration on sending communities and; 2) the relationship between people's ethnic identity and socioeconomic situations. In the literature of international migration, I will especially focus on the following three sub-areas: 1) the socioeconomic selectivity of migrants; 2) assimilation of international migrants in receiving

countries, particularly in the US, and; 3) impacts of economic and social remittances on migrant sending communities. Additionally, in discussing indigenous groups in Guatemala and Nicaragua, it is fundamental to understand reasons for drastic changes that took place in these two countries: the end of the civil wars accompanied by the establishment of democratic government, changes in state's attitude toward indigenous and other ethnic minority groups, and the increasing pace of indigenous people shifting their ethnic identity from indigenous to Mestizo.

Chapter 2 provides a theoretical overview of these three topics and similarities between international migration and multicultural reforms. I also provide historical backgrounds related to the above-noted topics specific to Guatemala and Nicaragua. The discussion of previous literature ends with the exploration of possible links between these seemingly different and unrelated topics and how international migration can affect ethnic identity among indigenous people. Chapter 3 presents a review of the methodology that is used in this dissertation. Since I apply the mixed-methods approach, this chapter will be divided into three sections: 1) description of the secondary data sets and statistical methods used to analyze these data; 2) the primary data collection efforts, description of the two research communities, criteria used to select respondents for in-depth interviews and participants in focus groups and; 3) introduction of agent-based modeling and computational simulation in the social sciences.

Chapters 4 and 5 present findings from the quantitative analysis of

the secondary data sets. While findings from the fieldwork will complement my findings and arguments throughout the dissertation, Chapter 6 will be exclusively devoted to findings from my field observations. The mathematical model of ethnic identity change and results from computational simulation will be presented in Chapter 7. Chapter 8 is the concluding chapter in which I highlight key findings from the dissertation research. This chapter will be complemented by policy recommendations for the preservation of indigenous groups and their cultures. Finally, I will propose a direction for future research and show how this dissertation projects brings new insights to research on international migration by emphasizing impacts of international migration on ethnic identity shift and ethnic relations in migrants' communities of origin.

Chapter 2

Theoretical Overview

This chapter starts with an overview of Guatemalan and Nicaraguan indigenous groups and the situations they face. This overview will also explore primary reasons that have motivated a number of indigenous people from these countries to migrate internationally. In the second section, I introduce previous literature on international migration focusing on two topics that are especially relevant to this dissertation: migrant selectivity and impacts of international migration on sending communities. The third section takes into account the discussions presented in the previous two sections and discusses why international migration may threaten ethnic identities among indigenous peoples in sending communities. In addition, the hypothesized similarities in impacts of international migration and neoliberal multicultural reforms on indigenous groups will be discussed extensively in this section. Finally, considering the review of previous literature and the above-noted hypothesized similarities, I present hypotheses that will be tested in this dissertation project.

2.1 Indigenous Peoples of Guatemala and Nicaragua

The circumstances that surround indigenous peoples in Guatemala and Nicaragua differ in various aspects. First, the proportion of indigenous population in Guatemala and Nicaragua differs considerably. The latest national demographic census (2002) shows that about 41% of Guatemalans are indigenous today, the proportion only surpassed by Bolivia (Layton and Patrinos 2006). On the other hand, according to the 2005 population census, only about 8% of Nicaraguans are considered as indigenous or other ethnic minorities such as Creoles. This difference can easily be felt in these countries. In Guatemala, it is hard not to encounter an indigenous woman wearing her traditional clothes (corte and huipil) even in large cities including Guatemala City. On the other hand in Nicaragua, the presence of indigenous and other ethnic minorities is hardly visible in Managua and other parts of the country, except for the Atlantic Coast region where the majority of ethnic minorities reside.

Guatemala and Nicaragua differ in terms of several other characteristics. For example, a large difference in Gross National Income (GNI) exists between these two countries: while GNI per capita was approximately US\$2,590 in Guatemala in 2006, it was a mere US\$930 in Nicaragua during the same year (World Bank 2007). The following figures also highlight Nicaragua's poverty: about 79.9% of people and 45.1% of people live with less than \$2 and \$1 per day respectively. These figures are considerably high even compared to those in Guatemala where about 16% of people live with less than \$1 per

day and 37.4% with less than \$2 (United Nations Development Programme 2005). At the same time, it is worth noting that while the average economic level of Guatemala is much better Nicaragua's, this fact alone does not tell us the whole story about economic situations that Guatemalans and Nicaraguans face. Guatemala is the most unequal country in income distribution in Central America with a Gini index of .55 in 2000. Camus (2002) argues that the Guatemalan social structure is very polarized. Guatemala's socioeconomic structure suggests a sharp contrast with the Nicaraguan case. While the level of economic inequality is not low as compared to various developed countries such as Japan and the U.S., Nicaragua (the Gini index was .43 in 2001) is the least unequal country in the region (World Bank 2007).

In spite of the above-noted differences between the two countries, indigenous peoples in Guatemala and Nicaragua share various common characteristics and face very similar socioeconomic situations. First of all, indigenous people in both countries were severely affected by these countries' civil wars, violence and political conflicts in the late 20th century (Hale 1994; Jonas 2000). For instance, since 1960, Guatemala experienced the Latin America's longest and bloodiest civil war that did not end until the signing of peace accords in 1996 (Chase-Dunn 2000). In the Guatemalan highlands where indigenous peoples concentrate, it was not uncommon to find entire villages empty because their former residents had been either massacred or forced to flee (Wynia 1990). Similarly during the 1980s under the Sandinista government (1979-1990), indigenous peoples of Nicaragua, such as the Miskitu and

Mayangna groups who concentrate in the Nicaraguan Atlantic Coast, were unfairly treated by the national government, and their villages in rural areas were repeatedly attacked by army units (Dennis 1993; Hale 1994).

Furthermore, similar to their counterparts in other parts of Latin America, indigenous peoples in both Guatemala and Nicaragua are more disadvantaged than their non-indigenous counterparts in most areas including income, housing, education, occupation, and health when compared to non-indigenous people (Hall et al. 2006). Indeed, as Camus (2002) suggests, there are two profound divisions in Latin America that are closely related: the poor and the rich and indigenous and non-indigenous peoples and these divisions have affected indigenous peoples' socioeconomic situations. For example, using the 2005 demographic census, Yoshioka and Esparza Ochoa (2009) have found that indigenous children in Nicaragua face a significantly higher risk of early death than their non-indigenous counterparts, which holds true even after taking into account socioeconomic differentials between the two groups. Similarly in Guatemala, indigenous people also lag behind their non-indigenous counterparts in a number of socioeconomic indicators (Bastos and Camus 1995; Camus 2002; Shapiro 2006).

Indigenous peoples' disadvantaged socioeconomic status in Guatemala and Nicaragua today is at least in part the consequence of the repression of and discrimination against them that were present since the onset of the colonial period. In the colonial period, both countries developed relatively strong, largely Hispanic ruling classes (Booth et al. 2006). The division of classes

largely defined by the ethnicity implies that the region has been multicultural for a long time (Sieder 2002). Indeed, the term “indígena” (indigenous) is the proof of the existence of multicultural society as there was no such social category as indigenous until it was “invented” by European colonizers (Warren and Jackson 2002). As a result, indigenous peoples were suffering not only from a severe inequality in income distribution and access to basic social services such education and health, but also ethnocide, institutionalized discrimination and prejudice against their existence and cultural rights (Davis 2002; Jonas 1991). However, the problems that indigenous people faced have been largely ignored and ethnic differences have not reflected the region’s politics or legal and administrative arrangements (Hall et al. 2006). Rather, such problems were regarded as a class-based issue by the state. Therefore, Yoshioka and Esparza Ochoa (2009) postulate that the much higher level of socioeconomic inequality in Guatemala as compared to that in Nicaragua can be attributed in part to a higher proportion of the indigenous population in Guatemala.

As discussed above, indigenous peoples in both Guatemala and Nicaragua have suffered from centuries-long poverty and discrimination. Since the late 1980s, however, several events such as the adoption of ILO Convention 169 in 1989, the 1992 Nobel Prize, when Guatemalan activist Rigoberta Menchú won the peace prize, the Zapatista’s revolt against the inauguration of the NAFTA, Alejandro Toledo Manrique and Evo Morales’s victory as the first indigenous presidents in Peru and Bolivia respectively and the United Na-

tions' decision to call for the International Decade of the World's Indigenous People (1995-2004), took place leading the world to pay unprecedented attention to indigenous populations in Latin America. Not only did indigenous populations attract more attention, they have also been pressing rights that were not recognized by states for a long time. For example, indigenous peoples in both Guatemala and Nicaragua have succeeded in gaining rights there were difficult to imagine over the past two decades.

The proportion of the indigenous population in Guatemala and Nicaragua did not have much influence on the shift in the state's attitude toward the indigenous groups. Despite its small proportion of ethnic minorities, the significance of these minority groups in Nicaragua is as great as that of the indigenous groups in Guatemala. For example, People on the Atlantic Coast of Nicaragua also won the right to autonomy in the Atlantic coast region of the country under the Sandinista rule, which is now called *Región Autónoma del Atlántico Sur* (RAAS) and *Región Autónoma del Atlántico Norte* (RAAN). The Nicaraguan government also began to recognize the rights of indigenous groups, their distinctive characteristics and autonomy. The precedent that the Nicaraguan government set in its relation with its ethnic minority groups has profoundly influenced liberation struggles across Latin American countries (Bourgeois 1981). In addition to the above-noted changes, under the Violeta Chamorro administration (1990-1997), the Nicaraguan Government initiated the efforts to give back the land to those who have been unfairly expropriated under the Sandinista rule (Deere and León 2001; Díaz-Polanco 1997).

Similarly in Guatemala, a large number indigenous people who lost their land during the civil war gained it back during the 1990s. Following the 1994 Accord on the Displaced Population (Acuerdo para el Reasentamiento de las Poblaciones Desarraigadas por el Enfrentamiento Armado), the 1995 Accord on the Identity and Rights of Indigenous Peoples (Acuerdo sobre Identidad y Derechos de los Pueblos indígenas) was signed. In this accord, the Guatemalan government promised to take measures to recognize, title, protect, provide restitution to, and compensate indigenous people, and it recognized the right to individual, communal, or collective land tenancy (Deere and León 2001). Along with the 1996 Socio-Economic Accord (Acuerdo sobre Aspectos Socio-Económicos y Situación Agraria), the peace accords guarantee the rights of indigenous people to freely show and practice their cultures such as languages and religion (Montejo 2005).

At the same time, despite these new and drastic changes, indigenous peoples in both Guatemala and Nicaragua continue to face tough socioeconomic realities. The continuing socioeconomic difficulties that indigenous peoples in these countries encounter in the presence of such dramatic and observable changes may appear paradoxical, especially if we regard the rapid growth of indigenous activism as the result of empowerment among indigenous peoples. Hale (2002) attempts to explain this paradoxical phenomenon using the concept of “neoliberal multiculturalism.” The author argues that neoliberal multiculturalism took place in Latin America “in the general context of neoliberal political and economic reforms” (2002:493). It is not a coincidence that

neoliberal multiculturalism and the recognition of indigenous cultural rights emerged around the same time indicating that these two do not contradict.

For example, Evans (2001) suggests that one important factor that led to the introduction of financial liberalization programs in Central America during the 1990s is the electoral defeat of the 1990 Sandinista government in Nicaragua. It was then the first time in many years that all states in Central America shared a similar, pro-business attitude and the neoliberal agenda. As Hale (2002) contends, advances in the recognition of indigenous cultural rights are also in part a result of the democratization in the region. Furthermore, the author states that the recognition of indigenous rights serve as a means to resolve the neoliberal agenda. His argument is consistent with that of Gustafson (2002) who argues that through the inclusion of indigenous issues in policy reform, the proponents of the neoliberal agenda insulate elite interests from popular forms of political participation. As a result, multicultural reforms affirm new rights without rectifying past injustice through the establishment of citizenship rights and resolving socioeconomic inequalities (Hale 2002; Hamel 1994).

Therefore, even though changes that took place under the current neoliberal agenda may seem drastic, the majority of indigenous peoples cannot benefit from these changes. Rather, the situations that surround indigenous peoples have deteriorated since the emergence of the neoliberal agenda. Morley (1995:vi) states that “[e]ven before the severe adjustment of the 1980s, Latin America had the most inequitable income distribution and the highest level

of poverty relative to its income of any area in the world.” However, over the past two decades, the inequality level increased in almost all Latin American and Caribbean countries (Portes and Hoffman 2003). Since Guatemalan and Nicaraguan indigenous peoples belong to the poorest group in their countries, the increase in the gap between the rich and the poor under the neoliberal multiculturalism suggests that indigenous peoples can be socioeconomically more vulnerable today.

Hence, even though at least some of indigenous rights are now recognized, indigenous peoples in Guatemala and Nicaragua continue to be socially excluded and face more serious socioeconomic difficulties. As Wood (2005) argues, social exclusion takes place in several dimensions and therefore, inclusion in one dimension does not necessary mean that a group is included in society. The current situation in which indigenous peoples in Guatemala and Nicaragua find themselves reflects the author’s point. Indeed, indigenous people’s chance to achieve socioeconomic upward mobility appears to be scarce because the high level of inequality in income and access to needed services segregates citizens by their social class (Roberts 2005) and social class continues to be largely correlated with ethnic backgrounds. This situation is especially the case in Latin America where social provision is very low in part due to very low tax rate relative to its GDP (Huber and Solt 2004). For instance, as of 1996, Guatemala’s overall tax ratio was the lowest in the hemisphere—merely 8%, which was far below the average (14%) for developing countries as a whole (Jonas 2000).

Additionally, since the indigenous population in Guatemala and Nicaragua did not move in significant numbers to the cities, they could not participate in the structural mobility that urbanization brought in these countries (Roberts 2011). As a result, the probability of indigenous upward mobility is quite limited in both Guatemala and Nicaragua today. As Jonas (2000) states, the only resources for many Guatemalans—both indigenous and non-indigenous—will be international migration to the U.S., which many Guatemalans have chosen during the past two decades. The author suggests that the social networks formed during the war now serve the social infrastructure for new migrants. In a similar vein, a number of Nicaraguans left their country in search of better economic opportunities mainly to the US and Costa Rica (Funkhouser 1992; Lundquist and Massey 2005). In fact, the number of international migrants from both Guatemala and Nicaragua has grown considerably over the few decades and so do impacts of international migration on these countries. Impacts of international migration extend well beyond a country and household's socioeconomic status. One such impact, I contend, is ethnic identity shift. To show how international migration can influence migrant sending societies, in the following section, I present a review of aspects of international migration that are relevant to factors influencing ethnic identity shift.

2.2 International Migration from Guatemala and Nicaragua

Because of pessimistic economic situations that a number of Guatemalans and Nicaraguans face, many people from these countries have migrated abroad.

At the same time, migration is an expensive and risky process, especially for Guatemalans and Nicaraguans as compared to Mexicans due to these two countries' geographical location. For example, to migrate to the US via land, Guatemalan and Nicaraguan migrants must take an additional trip going through Mexico. As a result, the amount paid to a coyote (smuggler) in the case of undocumented migrants is much higher than the case among Mexicans. For example, according to my field observations in Cantel, as of April 2009, people in the western highland of Guatemala, which is close to Mexico, must expect to pay as high as US\$6,000 to a coyote for their trips. Therefore, those who can actually migrate are selected based on various criteria. Due to such selectivity, households that benefit from international migration are not drawn randomly from a community's population. As a result, a community's socioeconomic structure may be transformed due to international migration. To closely explore these points, in this section, I present previous literature focusing on factors that influence people's decisions to migrate and impacts of international migration on sending communities focusing on economic remittances.

2.2.1 Factors Affecting International Migration

Various theories of migration aim to explain why people migrate. For example, neoclassical economics theory and theory of new economics of migration posit that economic factors influence people's decision to migrate. At the same time, these theories differ in reasoning how economic factors affect a

migration flow as well as units of analysis. Those who support neoclassical economics theory argue that it is differentials in wages, employment conditions, and costs of migration between sending and receiving societies that encourage or discourage migration. That is, an individual analyzes his or her expected income in a receiving society and decides to migrate if the expected income is high enough taking into account both his or her income in the current place of residence and the risk of migration.

On the other hand, new economics of migration theory posits that migration decisions are typically made by households instead of individuals to minimize risks to household income (Massey et al. 1993). Minimizing risks to household income is especially important in developing countries including both Guatemala and Nicaragua because poor households cannot count on “institutional mechanisms for managing risk [since these] are imperfect, absent, or inaccessible” (Massey et al. 1993:436). Unlike neoclassical theory, this theory suggests that a wage differential between sending and receiving societies is not a necessary condition for households to send migrants abroad. New economics of migration theory also focuses on the concept of relative income. Hence, not only households’ absolute income, but also their income relative to other households’ income is important to take into account in studying international migration (Stark and Bloom 1985).

The above discussions suggest that indigenous peoples in both Guatemala and Nicaragua tend to be more motivated to migrate internationally than non-indigenous groups. As noted, indigenous people are much more likely to be

poor than their non-indigenous counterparts and lag far behind them in terms of various measures including educational attainment and health. Therefore, a wage differential tends to be higher among indigenous peoples than Mestizos. This is especially the case among people migrating to the US since the majority of migrants to the US from these two countries are undocumented and most of them can only obtain low-skilled jobs. Since indigenous peoples in both Guatemala and Nicaragua face numerous difficulties including discrimination and severe poverty, their expected income in the US tends to be much higher than that in their communities of origin.

However, despite a relatively high return that international migration can bring to indigenous peoples of Guatemala and Nicaragua, many of them have remained in their countries. While many people decide not to migrate on their own will, others stay in their communities even if they wish to migrate. For example, the extreme level of poverty may prevent a number of people—both indigenous and non-indigenous alike—from migrating abroad. Even though Guatemalans and Nicaraguans can migrate to the U.S. through land, the cost of migration to the U.S. from Guatemala and Nicaragua is much more expensive than taking a trip from Mexico. As a result, before leaving their communities, migrants need to prepare a certain amount of money. Therefore, migrants do not come from the lowest group of the income distribution who are most likely to be indigenous in both Guatemala and Nicaragua. While many indigenous people prepare money by putting up their assets, mostly home or land property as collateral, others cannot obtain

enough amount of money to take a trip, which is consistent with the fact that Mexico-US migration comes disproportionately from not-so-poor households and communities.

In addition to economic factors, individual and household's geographical location of residence also affects migration and this factor can also discourage indigenous peoples from migrating abroad. Findley (1987) posits that community characteristics can affect household decisions to send migrants abroad in various ways. Indeed, community characteristics themselves can affect the probability of migration uniformly for all members of a community. For instance, people in communities with better transportation and communication technologies enjoy greater access to urban or foreign labor markets than another. Hence, how individual and household characteristics affect household decision to send migrants are conditional on community characteristics such as accessibility, community's migration history and agricultural situation (Findley 1987).

It is also important to take into account that given different geographical locations where indigenous and non-indigenous groups tend to concentrate, the perception of relative deprivation may differ between ethnic groups because indigenous groups tend to reside in isolated areas and how much people feel about whether they are deprived or not is quite subjective. For example, indigenous people living in communities with a high proportion of the non-indigenous population might feel more deprived and therefore, are more motivated to migrate internationally to improve their relative position in a

community of origin. On the other hand, poor households who live in small communities inhabited mostly by indigenous people may be less motivated to migrate if most of households are also poor so their sense of relative deprivation is low.

Therefore, considering circumstances that surround indigenous peoples and their socioeconomic status, it seems that at least initially, indigenous households are much less likely to send migrants abroad than their non-indigenous counterparts. That is, they tend to be much poorer than non-indigenous people preventing them from migrating. In addition, the sense of relative deprivation is low among those living in indigenous communities since most of households are poor. Nevertheless, a large number of indigenous households in both Guatemala and Nicaragua have sent migrants to other countries. Hence, economic and geographical factors alone cannot explain international migration flows from these countries.

In addition to the above-mentioned two factors, social capital, in the form of migrant networks, has played an extremely important role in making a decision to migrate. Indeed, migrants usually do not arrive in their destinations as isolated individuals (Portes and Bach 1985). Migrant networks can reduce the difficulties and risks of international migration that the majority of indigenous migrants are expected to face. Previous research on internal and international migration have presented the importance of migrant networks (Browning and Rodriguez 1985; Hagan 1994; Lomnitz 1975; Palloni et al. 2001; Pérez Sáinz 2005; Taylor 1986). For instance, Palloni et al. (2001)

have found that the effect of migrant networks persists net of human capital, common household characteristics, and unobserved conditions. Similarly, Fussell (2004) and Massey and Espinosa (1997) argue that social capital is the most powerful factor in predicting initial, repeat, and return migration.

Migrant networks can reduce the migration cost and potentially, offers more benefits to migrants in several ways. First of all, migrant networks can reduce the cost of migration by providing information on safe and cheap routes (Choldin 1973; Curran and Rivero-Fuentes 2003) and when possible, by sharing the cost of trip with other migrants. Migrant networks can also reduce the non-money cost of migration such as emotional costs, language barriers, and assimilation shock, which is especially the case if migrants do not speak the language spoken in receiving societies (Curran and Rivero-Fuentes 2003). The language barrier is particularly relevant to many indigenous migrants from Guatemala and Nicaragua since many of them may not speak Spanish well. Furthermore, migrant networks can maximize the benefits of migration if these networks help migrants to find jobs and offer other essential information such as how to apply for legalization (Curran and Rivero-Fuentes 2003; Hagan 1994). Indeed, Granovetter (1995) has argued the capacity to secure jobs is best explained by personal contacts and networks explain the capacity to secure jobs more than individuals' education, training, or skill.

Previous research on international migration has suggested that migrant networks play a very important role. Among Nicaraguan migrants, migrant networks have influenced not only their decision to migrate, but also

their destinations, usually either Costa Rica or the U.S. That is, probably due to its more restricted access, migrant networks were found to be particularly important for Nicaraguans migrating to the US (Lundquist and Massey 2005). In a similar vein, several qualitative studies (Hagan 1994; Menjívar 2002) have emphasized the importance of migrant networks for Guatemalan migrants. For example, indigenous migrants from San Pedro, Totonicapán turn to the Pentecostal church and ask for pastors advice to make their decision and receive various forms of support including prayer (Hagan and Ebaugh 1999). Similarly, Menjívar (2002) has found that immigrant churches have played an important role linking the migrants' communities of origin and receiving communities for both indigenous and non-indigenous groups.

Since migrant networks derive from family, friends, acquaintances, co-workers and communities of origin (Massey et al. 1987; Tilly 1990), characteristics of these networks tend to differ and work differently across groups. For example, networks are neither identical nor function in the same way between men and women. Hagan (1994) has found that since both economic and social costs of migration are much higher for women than for men, migrant networks are especially important for female migrants. The author argues that in the US, Guatemalan female migrants' social networks are weaker and far less extensive than those of male migrants, in part because women encounter fewer opportunities for interacting with their co-workers, which is especially the case among those working as a domestic worker.

Given various notable differences between indigenous and non-indigenous

groups in both Guatemala and Nicaragua, migrant networks of indigenous migrants also tend to be different from those possessed by non-indigenous migrants. For example, Fussell and Massey (2004) argue social processes of migration are distinct between people living in rural and urban areas. As Fussell (2004) suggests, migrant networks are less pervasive in urban areas because of a larger size of population that yields greater anonymity. Therefore, feedback effects of migration have less influence on the population and local labor markets.

Socioeconomic, cultural, and geographical differences between indigenous and non-indigenous groups are likely to result in different migration patterns between the two groups in both Guatemala and Nicaragua. Such differences lead to distinct impacts of international migration on these populations that can change socioeconomic and ethnic structures of these countries. To examine types of changes in ethnic relations due to international migration that we can expect, I present a review of previous research that has explored impacts of international migration on individuals and households residing in migrants' communities of origin below.

2.2.2 Impacts of International Migration on Sending Communities

International migration affects migrants' communities of origin in various ways. One of the most visible and important consequences of international migration is economic remittance sent by migrants. In developing countries, economic remittances are extremely important as these resources compensate

for absent or poorly functioning local markets and the lack of government social programs (Sana and Massey 2005; Stark 1991). Since the tax rate in both Guatemala and Nicaragua is low relative to the gross domestic product, the provision of infrastructure and services is very limited in these countries, which is especially the case in rural areas where indigenous groups concentrate. As a result, even when people in rural areas earn similar incomes to those in urban areas, they are more likely to face more limited access to resources because of their locations (National Research Council 2003). Economic remittances often provide necessary resources that households otherwise do not have access to and it can provide more benefits to indigenous peoples as they are more likely to reside in rural areas.

At a household level, economic remittances usually mean the increase in total household income, relaxing the restriction on household budget. Economic remittance to developing countries has experienced a dramatic increase over the past few decades. According to the World Bank's *Global Economic Prospects 2006*, in 1990, remittances to middle and low income countries amounted to about US\$30 billion. Fifteen years later, they are estimated to have reached almost US\$170 billion. Remittances now account for about 30 percent of total financial flows to developing countries (Acosta et al. 2007; World Bank 2006).

Economic remittances play an extremely important role in both Guatemalan and Nicaraguan economies. During the past decade, the amount of remittance sent to Guatemala and Nicaragua has dramatically increased. The amount of

official inward remittance flow in 2006 was US\$3.6 billion in Guatemala and US\$656 million in Nicaragua. These amounts account for 12.2% of GDP in Guatemala and 10.3% of GDP in Nicaragua (Ratha and Xu 2008). Impacts of economic remittance are easily observable in migrant sending societies. For example, in one indigenous Guatemalan community, international migration resulted in a movement to convert the town's wiring from the original 220-volt European-style to 110-volt U.S.-style so that residents can use products sent by migrants residing in the U.S. (Rodriguez and Hagan 2000).

At the same time, we know little about whether there are any differences in patterns of receiving economic remittances across ethnic groups. Examining this point is important given the importance of economic remittances and migration patterns that are probably different between indigenous and non-indigenous groups. Various factors suggest that the propensity of migration among these two groups is likely to differ. In addition, as Roberts and his colleagues (1999) argue, people's decisions to migrate temporarily or permanently depends on the amount of investment opportunities in communities of origin. The duration of migration may also affect a migrant's propensity to remit. Indeed, supporting new economics of labor migration theory, Lindstrom (1996) has found that in Mexico, the absence of well-functioning capital and insurance markets encourages short-term, repeat migration, while productive investment opportunities lead to longer, singular trips.

Furthermore, since the presence and number of close relatives, especially children, reside in migrants' community of origin affect migrants' prob-

ability of sending remittances home (Menjívar et al. 1998), it is expected that indigenous migrants from Guatemala and Nicaragua send remittances because their households tend to be larger. Finally, how migrants are assimilated into receiving societies also influence the probability of sending migrants. For example, Rodriguez and Hagan (2000) have found that in the case of indigenous Mayan immigrants in Houston, migrants send remittances to their parents at first, but they are less likely to do so once they have their own child and start their own families in the US.

Another important issue in relation to impacts of economic remittances on sending communities is how households spend remittances they receive. Economic remittances can influence recipient households directly and indirectly. Remittances affect household directly since these resources boost households' purchasing power. Additionally, I contend that remittances can also have an effect on household's economic situation indirectly if the experience of migration and its related consequence changes a gender relation and intra-household resource allocation. In Latin America, there is also a growing body of evidence (Katz 2000) that women are more likely to spend any income they earn individually for the household's benefit (Deere and León 2001). Agarwal (1994:30) states that "the risk of poverty and the physical well-being of a woman and her children could depend significantly on whether or not she has direct access to income and not just access mediated through her husband or other male family members." Among poor households, female economic autonomy is "a necessary condition to guarantee shared consumption of the

family labor product” (Deere 1990:287).

International migration has a potential to modify the gender inequality at least to some degree. Hondagneu-Sotelo (1994) argues that in the process of migration, patriarchy in the family sphere is realigned, because out of necessity, women act automatically and assertively in managing household affairs. It is also possible that migrants themselves start viewing gender roles differently through the experience of migration. Such changes may result in more effective ways of using resources, resulting in improved health and human capital among households regardless of whether household receive remittances or not. Furthermore, even if the above-noted changes do not occur, migrant households may better manage their resources than their non-migrant households if male members of the household migrate and as a result, a female member of that household starts to manage the household resource.

Hence, economic remittances may influence a sending community’s socioeconomic structure in various ways. One probable change brought by these resources is the level of socioeconomic inequality. If we view economic remittances as an additional income, recipient households are likely to benefit from them. For example, in San Cristobal, Totonicapán, Rodriguez and Hagan (2000) have observed impacts of economic remittance on this community at different levels. At the individual level, remittances allow recipient households to purchase more food, especially meat and their children are more likely to attend school longer and wear more expensive clothes. At the municipality level, the impact of economic remittance can be seen through the emergence of

new businesses, new housing construction, and a growing presence of small imported trucks. In rural areas, these changes are especially visible and therefore, motivate more people to migrate. Along with migrant networks established by individuals already migrated, additional movement becomes more likely over time, a process recognized as cumulative causation (Massey et al. 1993; Myrdal 1957).

Previous studies that explored impacts of international migration on a sending community have encountered a mixed finding. Some studies have found that remittance can have a positive impact even on non-migrant household members. For instance, Kanaiupuni and Donato (2000) have found that while in its initial stages, migration is disruptive to community and households, with time and economic remittances, it eases household survival as it becomes part of local institutional and community life. Similarly, Taylor (2004) states that the increase in local consumption resulting from economic remittances benefits both migrant and non-migrant households. Orozco (2005) also argues that acquisition of land and property as well as the emergence of businesses funded by remittances can result in economic growth, especially in rural areas that have traditionally been neglected by both the private and public sectors.

On the other hand, several studies have found negative consequences of international migration. In the case of the Dominican Republic, for example, Grasmuck and Pessar (1991) state that impacts of migration differentially affect distinct social classes benefiting migrant households while hurting their non-migrant counterparts. The authors argue that migration does not im-

prove economic conditions of sending communities at the aggregate level. In some cases, unemployment has risen and productivity has declined as a result of migration (Grasmuck and Pessar 1991; Piore 1979), which is consistent with Taylor (2004) who posits that remittances do not substitute for sound macroeconomic policies and well-designed strategies. Similarly, Rodriguez and Hagan (2000) note that the prosperity brought by the U.S. migration has also produced certain economic restrictions including the shortage of workers and the increase in rural wages, slowing down local labor markets since the 1980s. In the case of Bluefields, Nicaragua, Barham and Boucher (1998) have found that international migration and remittances can exacerbate the city's income inequality.

Since the state does not have enough capabilities to provide social services in both Guatemala and Nicaragua, the private sector has invested in the health and education sectors. As a consequence, there are two-tier systems of social welfare in these countries. That is, while the upper and upper middle classes can afford private schools and health services, the poor, many of who are indigenous, can rely only on under-funded and low-quality public service (Gwynne and Kay 2000). Economic remittances may worsen such a problem if the poorest groups are least likely to migrate due to the shortage of economic resources. Therefore, we should be concerned that international migration can raise the level of socioeconomic inequality in sending communities.

Whether or not economic remittances increase or decrease the level of inequality depends at least in part on a community's history of international

migration. As noted, international migration is an expensive venture (Stahl 1982), especially the case for Central American migrants where GDP per capita is lower than that in Mexico, but the cost of the trip is much more expensive. Similarly, Massey and colleagues (1998) argue that because the first sending households in a community, who tend to have less social capital, are usually in the upper or middle income distribution, the remittances they receive will increase inequality at first. Yet, the level of inequality may decrease if more and more households send migrants as the result of structural changes in sending communities (Massey et al. 1994).

While impacts of international migration on income inequalities have been studied by various researchers, how the level of inequality is influenced by economic remittances within communities, across communities, and by the ethnicity of migrants has been little studied. Since the selectivity of migrants is likely to differ by the ethnicity of migrants due to such factors as different residential locations and history of international migration, how remittances impact ethnic groups is likely to differ across groups. In addition, if economic remittance recipient households spend household income more efficiently than non-migrant household as a result of changes in behaviors and customs, even taking into account income differentials, the level of inequality may be higher in terms of children's educational attainment.

As Acosta et al. (2007) state, remittances can also affect the long term welfare of recipients by means of affecting human capital formation. The authors claim that the net impact of migration and remittances on human

capital accumulation is *a priori* unclear. While it is possible that migrant remittances can help overcome economic limitations, leading to more human capital investments among poor households, it is equally possible that migration of household members that precedes the receipt of remittances can have disruptive impacts on household life including potentially negative consequences on migrants' children's educational attainment. Furthermore, since most migrants from Guatemala and Nicaragua work in occupations that require little schooling, children of migrant households may not value education, especially if they also aim to migrate.

Previous research on remittances and children's schooling has also faced mixed findings. For example, López-Córdova (2005) finds that higher remittance flows are associated with lower illiteracy rates in Mexican municipalities. At the same time, in terms of schooling, positive impacts of migration hold true only for 5-year old children, insignificant among 6-14 years old and even negative for children of ages 15 to 17. In the case of El Salvador, Cox Edwards and Ureta (2003) argue that children from remittance recipient households are less likely to drop out of school, which, according to the authors, is because remittances relax budget constraints affecting poor recipient households. Using data from 11 countries, Acosta and others (2007) have studied the impact of economic remittances on accumulated schooling among children of ages 10-15. The authors have found that in 6 out of these 11 countries, economic remittances are significantly related to a higher educational attainment including Guatemala and Nicaragua.

In the case of Guatemala and Nicaragua, Acosta and his colleagues (2007) have found the significant correlation between remittances and children's schooling. However, it remains unclear whether these relationships hold true across ethnic groups. It is essential to explore this point given the fact that there is a large discrepancy in educational attainment between indigenous and non-indigenous groups, especially in Guatemala. If indigenous children of migrant households receive significantly higher years of schooling than those in non-recipient households, and the impact of remittances differs across ethnic groups, then, it is possible that ethnic relations change due to international migration.

While economic remittance is one of the most visible consequences that international migration can bring to migrants' communities of origin, it is not the only resources brought by these migrants. In addition to economic remittances, migrants usually transfer social remittances from receiving societies to their communities of origin. According to Levitt (1998), social remittances are the ideas, behaviors, identities and social capital that transmit from receiving societies to migrants' communities of origin that are a local-level, migration-driven form of cultural diffusion. Social remittances reflect the new type of transnationalism. While transnationalism existed for a long time, the new type of transnationalism is a relatively new phenomenon because of the ease of travel and communication, an increasingly important role that migrants play in sending economy and increased connection between sending and receiving societies (Levitt 1998). In fact, what characterizes today's immigrants

unique is “the high intensity of exchanges, the new modes of transacting, and the multiplication of activities that require cross-border travel and contacts on a sustained basis” (Portes et al. 1999:219). Hence, the increase in the frequency and amount of economic remittances sent to Guatemala and Nicaragua is most likely to be accompanied by the increase in the amount and influence of social remittances transferred to these countries. Social remittances can affect various aspects of sending communities (Funkhouser 1995) such as health behavior (Lindstrom and Muñoz-Franco 2005; 2006), gender relations (Hondagneu-Sotelo 1994) and migratory behavior (Kandel and Massey 2002).

I contend that in the case of Guatemala and Nicaragua, social remittances have stronger impacts on indigenous people than on non-indigenous populations due to fewer years of formal education indigenous people receive and the fact that indigenous groups are socioeconomically and culturally more marginalized and isolated. In fact, Lindstrom and Muñoz-Franco (2005; 2006) have found that Maya women, who tend to be socially insular, are more likely to listen to a trusted peer than to professionals from outside their communities. The authors posit that it is because social remittances are sent by former residents of the communities where women reside, these women feel less reluctant to accept the advice by the migrants.

Social remittances suggest that migrants’ customs, ideas, and behaviors can change through their experience in receiving societies. Such experience does not always have a positive impact on migrants and their household members. For example, Landale and her colleagues (2000) argue that assimila-

tion can negatively affect migrants showing that the duration of US residence among Puerto Rican mothers is positively correlated with infant mortality among their children. Similarly, Smith et al. (2003) have found that while immigration from rural Guatemala to the U.S. improves child health in terms of children's height, migrants' children are considerably heavier and at a higher risk of overweight and obesity, suggesting a different eating behavior. In addition, unlike the European second and third generations who followed the "straight-line path" of assimilation in the past, today's immigrants may follow a "bumpy road path" to reach socio-economic attainment (Gans 1992a; b) or a pattern of "segmented assimilation," in which second-generation youth do not assimilate equally to a homogeneous American culture (Portes and Zhou 1993). Therefore, results of assimilation and social remittances can differ across distinct groups.

One possible impact that economic and social remittances can make in Guatemala and Nicaragua is changes in ethnic relations in these countries. Such changes may occur through several mechanisms. First, indigenous and non-indigenous migrants may interact with each other more frequently in receiving societies, especially among long-term migrants. For example, while Guatemalan indigenous migrants tend to reside in areas separated from other Latinos and they interact mainly among themselves (Rodriguez 1987), for immigrants' long-term incorporation in receiving societies, it is essential that migrants develop an expansive network of weak ties (Granovetter 1973) with migrants of different ethnicities (Hagan 1998), other Hispanic groups and na-

tive people.

Extensive social networks are particularly important for migrants since the late 1980s, when restrictive national immigration policies began to appear such as the Immigration Reform and Control Act of 1986, the Personal Responsibility and Work Opportunity Reconciliation Act and the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 as well as California's Proposition 187 (Donato et al. 2005; Massey et al. 2002). These initiatives led to intensified fear and insecurity within both the legal and undocumented immigrant communities (Popkin 2005). Furthermore, pan-ethnic movements in receiving societies may empower indigenous groups that can modify ethnic relations. Several authors discuss this type of movements among Guatemalan indigenous groups. For example, indigenous Mayans exiled in Mexico between 1982 and 1996 developed a consciousness of belonging to and sharing the same base Mayan culture using Spanish as the common language (Montejo 2002; Smith 1990; Warren 1993).

Although there exist various ways through which international migration may influence the relationship between indigenous and non-indigenous groups, whether or not international migration improves ethnic relations in Guatemala and Nicaragua is not clear. For example, Popkin (2005) has found that in the municipality of Santa Eulalia, Guatemala, economic remittances may reinforce class stratification and establish new ethnic boundaries. Non-migrant households in the municipality regarded migrants and their family members as 'Ladinos' due to their increasing wealth and also adoption of be-

haviors associated with non-indigenous people. Such behaviors can include fashion and purchasing behavior. Therefore, while changes deriving from international migration may increase the level of interactions between indigenous and non-indigenous groups, it is possible that socioeconomic and class segregation worsen, isolating and marginalizing the most disadvantaged indigenous people.

The above review of previous research on international migration suggests that because international migration is a selective and expensive process, it is likely that migrants do not represent a community's population. As a result, international migration most likely affects distinct social classes differently. Therefore, to understand impacts of international migration on migrant sending communities in countries where ethnic backgrounds and socioeconomic classes are very closely related, it is essential to study how international migration influence ethnic relations. However, as compared to the number of studies that focus on impacts of international migration on sending communities, few such studies exist.

Overlooking this point prevents us from correctly evaluating actual impacts of international migration on sending communities and ethnic relations because international migration has a potential to lead individuals to shift their ethnic identities. In the following section, I present a review of literature relevant to ethnic identity shift and explore factors influential on such a shift that can be affected by international migration. In doing so, I present hypothesized similarities in impacts of international migration and multicultural

reforms on ethnic identity shift and argue how the combination of international migration and multicultural reforms can threaten indigenous peoples and their cultures.

2.3 International Migration, Multicultural Reforms, and Ethnic Identity Change

In the previous section, we have explored various factors that can influence migration flows. Since indigenous and non-indigenous people in both Guatemala and Nicaragua differ considerably in terms of these factors, their migration patterns are expected to be different. I have also presented several examples from the previous studies that can affect inter-ethnic relations among migrants in receiving societies as well as those left in migrants' communities of origin. While a change in ethnic relations due to international migration itself merits serious attention, impacts of international migration can extend beyond such a change. It is my contention that international migration can influence individuals' ethnic identity.

Max Weber (1978:389) defines ethnic groups as “those human groups that entertain a subjective belief in their common descent because of similarities of physical type or of customs or both, or because of memories of colonization and migration; conversely, it does not matter whether or not an objective blood relationship exists.” The author also argues that it is the social contact with others rather than cultural difference per se that leads to definition of “us” and “them.” Weber’s position implies that group identities

including ethnic identities are always defined in relation to non-members of a group (Malešević 2004). Weber's argument is consistent with a post-structural view of ethnic identity. Rather than regarding ethnic identity as fixed, primordial, or instrumental in nature, social conditions and individual's negotiation have an impact on one's ethnic identity (Yashar 2005) and other ethnicity related factors. For example, Yoshioka (2010) has found that individuals' educational attainment is negatively correlated with their use of indigenous languages. In a similar vein, Smith (1995) argues that gender may also affect one's ethnic identity. For instance, in the case of Guatemala, while it is very easy to identify the majority of indigenous women because of their traditional clothes, indigenous men often appear indistinguishable from Ladino men since most of men do not wear traditional clothes anymore. Macro factors can also influence ethnicity. For example, in the case of the US, the state has played a fundamental role in formulating and maintaining racial categories (Rodriguez 1995). In the case of Latin America, since the onset of colonialism, the ethnic and cultural diversity have been utilized by colonizers and the dominant class to justify the exploitation of the indigenous population (Camus 2002).

Both micro and macro factors can influence the concept of ethnicity and we must look at both types of factors. For example, regarding ethnicity simply as "a personal choice runs the risk of emphasizing agency at the expense of structure" (Nagel 1994:156). The post-structural view of ethnic identity seems especially relevant in Latin America where the boundary between indigenous and non-indigenous has never been static (Wolf 1986) or

clear. Taking into account this nature of ethnicity in Latin America is fundamental in designing social policies and programs for the region's indigenous peoples because what appears beneficial to indigenous people, including new indigenous cultural rights, may actually threaten their cultures.

Let us take an example of bilingual education. While many Latin American countries endorse bilingual education today, bilingual education has often been found to actually discourage children from mastering their parents' languages. In Guatemala, indigenous languages are often associated with the negative values of the "traditional": ignorance, lack of education, and poverty. On the other hand, people associate the dominant language-Spanish-with the positive values of the "modern" (England 2003). As a result, while bilingual education is encouraged, many indigenous children do not learn indigenous languages today because many parents believe it is more useful to teach their children Spanish rather than their native languages. Such a belief often derives from their own traumatic experiences as a result of their inability to speak Spanish well at school (Brown 1996; England 1996). In other word, Spanish is seen as one of the power symbols of the mainstream society (Hill and Hill 1980). Therefore, bilingual education cannot succeed in Latin America unless we realized that children of ethnic minorities learn Spanish in the context of a serious socio-cultural inequality (Lewin 1986).

The Guatemalan and Nicaraguan cases are especially interesting to consider given Guatemala's geographic location and Nicaragua's relatively small proportion of the indigenous population: while Guatemala shares its borders

with Mexico, El Salvador, and Honduras, where the proportion of the indigenous population is less than 10% of the total population, almost half of Guatemalans are indigenous. In the case of Nicaragua, while only about 8% of Nicaraguans self-identify themselves as indigenous, the majority of indigenous peoples in the country have maintained their indigenous languages such as Miskitu and Mayangna.

One reason why many indigenous peoples in Latin American countries maintained their languages and ethnic identities despite the strong pressure of castellanización and large socioeconomic discrepancies between indigenous and non-indigenous groups is that there were few opportunities for indigenous people. As a result, little incentive existed for them to learn Spanish (Garzon 1998; Richards 2003). This is especially the case in Guatemala where bilingual education started much later than in Mexico (Hall et al. 2006) and lacked an official discourse of *mestizaje* (Hale 2002). A very low level of educational attainment among Guatemalan indigenous people today reflects few opportunities that indigenous people in this country have enjoyed.

In the case of Nicaragua, indigenous and other ethnic minority groups in the Atlantic region have maintained their identities due to various factors. One of such factors is the geographical location of the Atlantic region. As Adams (1981) states, Spanish colonials had determined that the Atlantic region of Nicaragua inhospitable and unrewarding and left largely intact. It was British that were in close touch with the region's indigenous groups, mainly the Miskitu people (Dennis 2004). Since the late 1800s, as with other Central

American countries with the Atlantic Coast including Guatemala, the Atlantic region was penetrated by US multinational corporations (Bourgeois 1986). In addition, before the Catholic Church, the Moravian Church had worked on the Atlantic Coast of Nicaragua since 1849 (Hawley 1997). Miskitu indigenous people kept fairly close and positive relationship with the English and later North Americans. These relationships and the strong influence of Moravian Church resulted in what Hale (1994) calls “Anglo affinity” among the Miskitu people. These factors helped those living in the Atlantic region to hold an identity that is different from Nicaraguans in the rest of the country.

Since the 1980s there have been several drastic changes in the factors that affected ethnic relations in both Guatemala and Nicaragua. For example, the civil wars in these countries ironically increase the level of interaction between indigenous and non-indigenous groups, especially in Nicaragua. For example, Hawley (1997) notes that the establishment of government schools results in more frequent contacts between Mestizos and Miskitus due to an increase of Mestizos in Miskitu villages. According to the author, such increased contacts resulted in the development of local class relations, motivating Miskitu merchants to give up their Miskitu identity and to start identifying themselves as Mestizo in order to achieve upward social mobility.

Other notable drastic changes are an increase in the number of international migrants from Guatemala and Nicaragua and multicultural reforms in both countries. Why these changes affect ethnic relations and identities? To answer this question, we need to consider social boundaries attached to

each ethnic group. Since ethnicity is a social constructed concept, as Barth (1969) argues, there are different ways in which ethnic boundaries are maintained. According to the author, ethnic groups only persist as significant units if they imply marked difference in behavior, which is persisting cultural differences. Yet where persons of different culture interact, one would expect these differences to be reduced, since interaction both requires and generates a congruence of codes and values. Following Barth's argument, as discussed, two factors significantly contributed to the maintenance of indigenous groups in Guatemala and Nicaragua: 1) less frequent contacts between indigenous and non-indigenous groups and; 2) a significant socioeconomic and cultural differences between the two groups.

The civil war in these countries is one factor that made inter-ethnic contacts much more frequent. Another important is domestic migration of a number of indigenous people to urban areas in these countries since indigenous people living in urban areas are much more likely to encounter with Mestizos. Indeed, Bastos and Camus (1995) state that indigenous people living in urban in Guatemala City more likely to lose their ethnic identity than those in rural areas. Why can increased contacts between indigenous and non-indigenous groups threaten indigenous ethnic identity if multicultural reforms endorse indigenous cultural rights? This is because despite multicultural reform's attitude toward indigenous rights, indigenous people continue to face tough socioeconomic realities and discrimination. As a result, while today's multicultural reforms certainly help some indigenous people to overcome hard-

ships and to be included in the mainstream society, the changes that seem apparently beneficial to indigenous people can be detrimental to their cultures. For instance, Garzon (1998) states on Guatemalan Mayan groups, indigenous population's integration into mestizo or Ladino society has often resulted in the internalization of negative images attached to indigenous groups among indigenous people themselves.

In addition, while indigenous groups still lag behind their non-indigenous counterparts in most of socioeconomic measures, we have also seen various socioeconomic advances among indigenous groups such as educational attainment. For example, Baracco (2004) states that Planning for the Literacy Project under the Sandinista Administration that began in 1980 had taught 12,500 people in the Atlantic region to read and write in Sumu, Miskitu, and English. I argue that along with the increased contacts between indigenous and non-indigenous groups, such advances can also threaten indigenous peoples' cultures. Obviously, socioeconomic advancements of indigenous peoples in both Guatemala and Nicaragua should be welcomed. At the same time, without rectifying the past injustice and improving fundamental socioeconomic problems that both Guatemala and Nicaragua face, such advancements can be a double edge sword for indigenous groups and cultures. This is especially the case under today's multicultural reforms that tend to widen the socioeconomic gap between the poor and the rich as the majority of indigenous groups in both countries belong to the lowest strata in their countries.

I contend that international migration can exacerbate ethnicity related

issues because it is unlikely that international migration equally benefit the whole population because of its selective nature. As a result, it may be the case that rather than reinforcing indigenous ethnic identities among migrant households, international migration may encourage them to abandon their ethnic identities. For example, although they do not directly refer to ethnic identity shift, Alba and Nee (1997) state referring to migrants in the US that those members of minority groups who succeed in American labor markets tend to leave behind their less successful counterparts and try to assimilate themselves into the mainstream culture. Migrants and those households that benefit from economic remittances may improve their relative positions in their communities and such changes lead to the transformation of individuals' images of social structure, including images of ethnic groups. As Davis et al.(1941) and Lindenberg (1977) argue, those who are placed lower in a rank-order of society distinguish fewer categories in this rank order. In fact, Popkin (2005) has observed in Guatemala that international migration has resulted in the establishment of new ethnic boundaries within the municipality of Santa Eulalia: some migrants and their household members adopted behaviors that people in the municipality associate with Ladino Guatemalans.

Therefore, along with multicultural reforms, international migration has a potential to affect ethnic relations in various ways. Without understanding such impacts, it is difficult to evaluate what changes international migration can bring to Guatemala and Nicaragua. Hence, it is essential to examine what international migration can tell us about ethnic relations and

structures in migrant sending communities. To achieve this goal, it is imperative to analyze both qualitative and quantitative data. This is why this dissertation entails a mixed-method strategy that includes statistical analyses of secondary data sets and field observations. The dissertation culminates with the introduction of mathematical models that aim to explain mechanism of ethnic identity shift and impacts of international migration on such a shift. In the following section, I present hypotheses that will be tested in this project.

2.4 Hypotheses

In this dissertation, I first conduct statistical analyses of publicly available secondary data sets that will be discussed more in detail in the following chapter. In these quantitative analyses, I test the following hypotheses.

Hypothesis 1:

The ethnicity of individuals will be significantly related to the propensity of migration in both Guatemala and Nicaragua net of their socioeconomic and geographic characteristics. However, in Nicaragua, the correlation will be less significant when we take into account households' geographic locations.

Hypothesis 2:

Economic remittances increase the income inequality level, especially within the same ethnic groups.

Hypothesis 3:

The impact of remittance on children's schooling is larger among indigenous households than non-indigenous households.

In addition, based on analyses of primary data collected during my fieldwork in Guatemala and Nicaragua, I test the following hypotheses.

Hypothesis 4:

Impacts of socioeconomic upward mobility on changes in ethnic identities will be more visible in Cantel, Guatemala than in Bilwi, Nicaragua.

Hypothesis 5:

Both indigenous and non-indigenous people who have achieved socioeconomic upward mobility through international migration will be more sensitive to images and boundaries of ethnic groups and ethnic relations.

Hypothesis 6:

International migration creates new social boundaries that separate people by other means including migration status, religious affiliations, and socioeconomic positions.

Finally, findings from both quantitative and qualitative analyses will be considered when I test the following hypothesis using the complex adaptive systems approach and mathematical models.

Hypothesis 7:

Wide definition of indigenesness will reinforce more indigenous people to shift their ethnic identity.

Chapter 3

Methodology

This chapter describes the methodology used in this dissertation. Since impacts of international migration on sending communities and ethnic identity shifts involve complex processes and thus require us to explore various aspects of international migration, my dissertation has employed a mixed-methods approach. The mixed-methods approach applied in this dissertation entails quantitative analyses of secondary data sets, primary data collection in research communities, and agent-based modeling that takes into account findings from both quantitative and qualitative analyses. In addition to the description of these methods, I will also introduce the project's research communities and present rationales for conducting my fieldwork in these particular communities.

3.1 Mixed-Methods Approach

To closely analyze various impacts of international migration on sending communities and determine what international migration tells us about the ethnic identity shift and relations, the use of only one method does not suffice since no single method can deal with all aspects of international migra-

tion discussed in this dissertation. For example, to my knowledge, there is no quantitative data set out there that covers all aspects of international migration explored in this project. Even if such a data set exists, variable-oriented research such as regression analysis that primarily explores a correlation between factors alone is insufficient to fully understand processes that are as complex as those leading to changes in ethnic identity and relations.

According to Creswell and Clark (2003), when one research method is inadequate by itself to explore a research problem, it is preferred to apply the mixed-methods research design. The combination of qualitative and quantitative data and methods helps researchers to obtain a more complete answer. My dissertation project fits perfectly into such a situation. In fact, my fieldwork has several easily recognizable benefits. For example, using a questionnaire designed exclusively for this dissertation project, I could gather necessary information for exploring my research questions. At the same time, the project could not be completed solely with the qualitative method either since it would not tell us much about how international migration affects sending communities' macro socioeconomic structures. Therefore, I have used both quantitative and qualitative methods in this dissertation. In the rest of this chapter, I present and describe each method applied in this dissertation and explain how these methods could contribute to the project.

3.2 Statistical Analysis

In this dissertation, I have analyzed several publicly available quantitative data sets from Guatemala and Nicaragua. I have explored two topics relevant to international migration using these data sets: 1) selectivity of international migrants and economic remittance recipient households and 2) impacts of economic remittances on recipient households' socioeconomic status and on the income inequality level. Below, I briefly introduce the data sets and then, describe each of the statistical methods used in the dissertation.

3.2.1 Data Sets

I have used two data sets for each country: demographic census and survey data sets. These data sets were collected by the Guatemalan National Institute of Statistics (INE) and by the Nicaraguan National Institute of Statistics and Census (INEC). I have first examined the latest national demographic censuses for both Guatemala (2002) and Nicaragua (2005). These data are 100% data and contain a very large number of cases (11,237,196 individuals for Guatemala and for Nicaragua, 5,142,098 individuals). Therefore, these data sets have enabled me to explore various ethnicity-related issues, which is difficult with small data sets. This point is especially important for Nicaragua where the population size is much smaller than Guatemala's and also, where the proportion of ethnic minorities is very small. Since the census data from both countries have a question on whether or not a household has at least one member currently living abroad, I have analyzed if migrant

selectivity differs across ethnic groups using these data sets. In addition, the large number of cases also has enabled me to create reliable aggregate level data at the municipality level as well as to estimate regression models limiting a sample to those households living in my research communities.

In addition to the census data, I have used recently collected nationally representative survey data. The Guatemalan's data (National Survey of Living Conditions, ENCOVI) were collected in 2006 while the data collection took place for Nicaragua's National Survey Living Measurements (ENMV) in 2005. Although the sample size for these survey data sets are much smaller (13,693 households for Guatemala and 6,594 households for Nicaragua) than that of the demographic censuses, these surveys provide much more information that is useful for this dissertation including more detailed information on households' conditions and importantly, households' remittance recipient status, the amount of such remittances that are absent in the census data, and a household's spending behavior. Furthermore, since these survey data sets report information on household members' income, I could use these data sets to examine whether or not economic remittances would affect the level of income inequality between migrant and non-migrant households as well as within and across ethnic groups in both Guatemala and Nicaragua.

3.2.2 Principal Component Analysis

While the census data used in the dissertation are very useful, they do not report any income. Hence, it is not possible to directly observe each

household's economic status from the data sets. Nevertheless, to examine the association between ethnic background and migration, we must control for a household's economic status since in both Guatemala and Nicaragua, one's economic status is strongly correlated with his or her ethnic background.

To overcome the above-noted difficulty, have I used principal component analysis to construct an asset index that is used as a proxy for a household's economic status. Principal component analysis determines and assigns weights for each asset possessed by a household used to construct the index. The application of principal component analysis to construct an asset index was introduced by Filmer and Pritchett (2001). In principal component analysis, we try to maximize the variance of a linear combination of a set of variables, in our case, assets and resources reported in the census data sets. In another word, in principal component analysis, we seek for "a dimension along which the observations are maximally separated or spread out" (Rencher 2002:380).

Let us suppose that we have a data set with a set of N variables a_{1i}^* to a_{Ni}^* , which represent the ownership of N assets by each household i . Principal components analysis first normalize each of these variables by its mean and standard deviation. We must normalize a_{1i}^* to a_{Ni}^* (let us call normalized variables as a_{1i} to a_{Ni}) in order to make the principal components scale invariant. We can express these normalized variables as linear combinations of a set of underlying components for each household i :

$$\begin{aligned}
a_{1i} &= \nu_{11}A_{1i} + \nu_{12}A_{2i} + \dots + \nu_{1N}A_{Ni} \\
\dots & \\
a_{Ni} &= \nu_{N1}A_{1i} + \nu_{N2}A_{2i} + \dots + \nu_{NN}A_{Ni},
\end{aligned}
\quad i = 1, \dots, I$$

where the A s are the components and the ν s, which do not vary across households, are the coefficients on each component for each variable. These coefficients are referred to as component scores.

Note that we can observe only the left-hand side of the above equations. To find the linear combination of the variables with maximum variance (i.e., A_{nj}), we need to solve the equations $(\mathbf{R} - \lambda_n \mathbf{I})\mathbf{v}_n = 0$ for λ_n and \mathbf{v}_n , where \mathbf{R} is the matrix of correlations between the scaled variables and \mathbf{v}_n is the vector of coefficients on the n th component for each variable. Solving the equation yields the characteristic roots of \mathbf{R} , λ_n , which are also known as eigenvalues, and their associated eigenvectors, \mathbf{v}_n . The final set of estimate is produced by scaling the \mathbf{v}_n s so the sum of their squares sums to the total variance.

We can obtain the “scoring factors” from the model by inverting the system implied by the above equations and yield a set of estimates for each of the N principal components:

$$\begin{aligned}
A_{1i} &= f_{11}a_{1i} + f_{12}a_{2i} + \dots + f_{1N}a_{Ni} \\
\dots & \\
A_{Ni} &= f_{N1}a_{1i} + f_{N2}a_{2i} + \dots + f_{NN}a_{Ni}
\end{aligned}
\quad i = 1, \dots, I$$

The first principal component, expressed in terms of the unnormalized variables, is therefore an index for each household based on the expression. The

crucial assumption for the use of this asset index is that household long-run wealth explains the maximum variance (and covariance) in the asset variables. There is no way to test this assumption directly (Filmer and Pritchett 2001). However, various studies (e.g., Filmer and Pritchett 2001; McKenzie 2005) have shown the usefulness of the asset index constructed by the procedure noted above.

3.2.3 Bayesian Statistics

Regression analysis is one of the two statistical methods used to analyze the secondary data sets and explore the research questions of this dissertation. I have estimated all regression models using Bayesian statistics instead of the classical (or frequentist) statistics. The popularity of Bayesian statistics has grown considerably in the social sciences over the past decade thanks to advances in the computational capacity and the development of Markov Chain Monte Carlo (MCMC) sampling methods. Detailed descriptions of models estimated in the dissertation were given in the following two chapters where I present analyses of the secondary data sets. Instead, I discuss reasons why I used Bayesian statistics here.

Unlike the classical statistics, Bayesian statistics takes into account a prior distribution for parameters in a model. Therefore, regression models based on Bayes' Theorem can be expressed as:

$$\underbrace{p(\theta|y)}_{\text{posterior}} \propto \underbrace{p(y|\theta)}_{\text{likelihood}} \times \underbrace{p(\theta)}_{\text{prior}}$$

While the inclusion of prior distribution in a model has been criticized on several grounds, there are various important advantages. First, Bayesian interval estimates (credential intervals) “have a clearer and more direct interpretation than classical confidence intervals” (Lynch 2007:71). In addition, due to the large sample size that the data sets contain, the prior’s influence on the posterior distribution (i.e. parameter values) is negligible. Finally and most importantly, models based on Bayesian statistics give us more detailed summaries of parameters.

3.3 Primary Data Collection

This dissertation project has also involved fieldwork to collect primary data. The information collected in the field and findings from qualitative analyses of these primary data complement results of the statistical analyses presented in Chapters 4 and 5. Additionally, along with findings from the statistical analyses, the field observations provide the invaluable information for exploring the research questions and constructing proposed mechanisms of ethnic identity shift presented in Chapter 7.

I conduct the fieldwork in two communities: Cantel in Guatemala and Bilwi in Nicaragua. Both of these communities have a very high proportion of indigenous people and other ethnic minorities. At the same time, these two communities differ in various important ways making the comparison of these communities important and rewarding. These differences, along with socio-economic and demographic differentials between Guatemala and Nicaragua at

the national level, have helped me to sort out factors affecting ethnic identity changes in these countries.

3.3.1 Research Locations

In Guatemala, I conducted my fieldwork in Cantel, an indigenous municipality located approximately 20 minutes from Guatemala's second largest city Quetzaltenango, popularly called Xela. According to the 2002 census, there are 30,376 inhabitants in this municipality and the vast majority of these people (95.73%) identify themselves as indigenous, most as K'iche'. The name "Cantel" probably either derives from "Cantil", a common name of *Agkistrodon bilineatus* or from ki'che words of "can" or "k'an" (yellow) and tel (rocks) (SOCODEVI et al. 1994). Today's Cantel was founded around 1580, when residents encountered under an cypress tree an image of the Virgin Asunción and as a result asked for their own church. In a document published in 1689, Cantel is mentioned as Asunción Cantel. Today's Cantel is a closed population in terms of migration from outside of the municipality (SOCODEVI et al. 1994). The municipality's ethnic composition is quite homogeneous and many find their spouses in the same municipality.

The above description of Cantel may give us an impression that it is just like many other indigenous communities and municipalities that exist in the western highland of Guatemala, including Cantel's own neighboring communities such as Zunil. However, Cantel is radically different from other indigenous communities in Guatemala in one very important aspect: the presence of once

Central America's largest cotton textile mill within its municipality (Nash 1967). In 1876, the Spanish firm of Sanchez y Hijos brought a cotton textile mill into the municipio of Cantel. The factory was installed in Cantel because of the municipality's geographic location: The flow of the Samalá River gave enough power to run a turbine needed for powering the spinning machines and other machines in the factory (Nash 1967).

The Fábrica (factory) drastically changed various aspects of Cantel. For example, as Garrard-Burnett argues (1998), at the time that the Fábrica was built, the traditional economy in the region was intact. However, the Fábrica came to control the important resources of the municipality such as a school and a clinic. Nash (1967) also states that at the time of his fieldwork in the 1950s, the Fábrica employed about one fourth of Cantel's economically active population. Despite the presence of the Fábrica, which was shut down in July, 2008, many characteristics of the municipality remained unchanged for years. For example, Nash (1967) found that people in Cantel and other parts of the western highland region of Guatemala continued to speak K'iche' and the women wore their traditional clothes. The author argues that the study of Cantel tells of the way this particular community evolved mechanisms enabling it to adjust to a new mode of production with relatively little cultural loss or social disorganization. Nash (1967:145 & 148) states the principal reasons for Cantel's cultural maintenance as follows:

*Cantel made its greatest changes during a revolutionary decade,
but it never surrendered control of its affairs to a central govern-*

ment. The most revolutionary of ideas and activities can be handled by a small society like Cantel if local people, without absolute political and economic power, are the agents and adherents of the new ways. Cantel worked out its adjustment to an influx of new ideas in an arena where local people could make the ultimate choice. Unlike China, the factory was not the government, and the government was not specifically committed to the success of the factory...[changes in Cantel], like the factory itself, came into a community in which there had been ethnic continuity. People who were to work in the factory or join the new political parties had already worked out a set of social understandings and personal relationships prior to the factory or the revolution. The physical sameness of the population meant that no imported and alien population or cultural tradition came into the local society to compete with and perhaps undermine it.

The description of Cantel presented by Nash more than 40 years ago still holds true in many aspects. For example, the majority of women continue to wear indigenous clothes today. At the same time, there are some notable changes including the loss of the K'iche' language among young generations. Nash has stated that the Fábrica brought some drastic changes to the municipality of Cantel. I argue that international migration from this municipality brings the most drastic changes and impacts to Cantel since the establishment of the Fábrica. Indeed, international migration affects the municipality in more

numerous ways than did the Fábrica. As a consequence, indigenous ethnic identities and indigenous cultures in the municipality, which have survived under the strong influence of the Fábrica, are at risk today. During field observations in this municipality, I have explored sources of differences in the impacts of the Fábrica and international migration on Cantel and consequences of international migration we should expect in this municipality.

In Nicaragua, I conducted the fieldwork in Puerto Cabezas, locally called Bilwi where a large number of Miskitu indigenous people reside. Bilwi is the urban center of the North Atlantic Autonomous Region (RAAN). According to the 2005 demographic census, there are 66,166 people in this municipality and about 70% of them identify themselves as Miskitu while approximately 20% of people are Mestizos and 2.31% Creoles. There are several other ethnic minority groups in the municipality including the Mayangna group. Therefore, unlike Cantel, Bilwi is a quite multicultural society.

According to Dennis (2004), one possible etymology for the word “Miskitu” is the English word “musket.” Helms (1971) points out that it was through acquiring muskets that the Miskitu subjugated other indigenous groups and spread up and down the Coast from Cape Gracias a Dios and up the Río Coco (Coco River). As this possible influence of English on the name of the ethnic group suggests, the Miskitu group has been strongly influenced by British and American cultures. In fact, the Miskitu language contains a lot of English words that have become traditional Miskitu words (Dennis 2004). As Dennis (2004) argues, it was probably the flexibility and adaptability of Miskitu

culture that allowed it to survive and prosper.

The attitude of the Miskitu group toward foreign cultures is very different from the Mayangna indigenous people who are relatively isolated from other ethnic groups of Nicaragua and maintain a closed attitude toward relations with strangers. The Mayangna group seems to have discouraged intermarriage and attempts to live with them and learn their culture and language (Dennis 2004). Indeed, in Puerto Cabezas, many people believe that the Mayangna is totally endogamous. While this is not true, to my knowledge, only a small number of Mayangna women marry those of a different ethnicity.

Like Cantel, many people from Puerto Cabezas have left there and migrated to other countries. For example, a number of Miskitu immigrants reside in various parts of the US such as Port Arthur, TX, and Miami today (Dennis 2004). At the same time, there are several differences between Bilwi and Cantel. In addition to Bilwi's ethnic composition that is much more multiethnic than that of Cantel, one important characteristic of Bilwi that differentiates it from Cantel is the fact that there are a number of migrants into this municipality from other indigenous communities, mainly those located in RAAN. This migration flow affects various characteristics of the Miskitu people including their attitude toward the Sandinista administration. For example, while many Miskitu people maintain what Hale (1994) calls Anglo affinity, this is not usually the case among those Miskitus living in the Rio Coco region.

Unlike Miskitu communities in other areas of the RAAN, the Moravian church, the traditional provider of such services on the Coast, failed to effec-

tively penetrate the area (Baracco 2004). As a result, Anglo affinities among these Miskitus are weak. Therefore, there was a room for the Sandinistas to establish a friendly relationship with Miskitu people in the Rio Coco region. The social closeness between Sandino's soldiers who were mainly poor landless peasants and those in the Rio Coco helped both groups to have a good relationship. In addition, under the crisis caused by the Great Depression, Sandino's social program of providing schools, hospitals, and land seemed to offer an alternative to the Miskitu group, especially for those in the Rio Coco region (Baracco 2004).

As a consequence of the Rio Coco's geographic location, we can observe several important differences between Miskitus in the Rio Coco region and those living outside of the region. First, the Miskitu people in the Coco River region are much more likely to support the Sandinista. Second, probably because of the Sandinista influence, they are much more likely to speak Spanish well than Miskitus in other parts of the RAAN. Third, because of the relative absence of the Moravian church, the Miskitus in the Coco River region are Catholics rather than Moravians. Since a large number of Miskitus in the Coco River region have migrated into Puerto Cabezas over the past few decades, we have observed various changes among the Miskitus in Bilwi. Today, international migration seems to have accelerated these changes and also, initiated other drastic changes that may have led to changes in ethnic identity among Miskitu people in Puerto Cabezas.

Even though the majority of residents in both Cantel and Bilwi are

ethnic minorities of Guatemala and Nicaragua, these two municipalities differ in various important ways. Cantel is an ethnically very homogenous society that is very different from Bilwi's multiethnic society. While Cantel is a very closed municipality in terms of its population in-flow, Spanish is much more commonly spoken there than in Bilwi. That is, while the majority of people do speak Spanish in Bilwi, there are two other languages spoken by many: Miskitu and Creole English and this multi-linguistic nature of Bilwi makes its residents always sensitive to ethnicity-related issues that is not the case in Cantel. Despite these differences, I have observed that some people, especially young people in Cantel, start showing preference for identifying themselves as Mestizos or Ladinos rather than indigenous. Furthermore, in both municipalities, it seems that international migration is a major influential factor on this trend. Why do two municipalities that seem to differ from each other so much present very similar patterns of impacts of international migration? The main purpose of my dissertation fieldwork is to collect necessary information to answer this question and further our understanding of international migration's impacts on ethnic identity and relations.

3.3.2 Survey Questionnaire

The survey questionnaire, which can be found in Appendix B, contains a relatively small number of basic demographic questions and those related to international migration. The survey questionnaire has had two main purposes. First, with this questionnaire, I collected information that was not available in

the secondary data sets used in the statistical analyses. For example, the survey contains questions regarding possible changes in household behaviors due to international migration and the frequency of contacts between international migrants and their household members in Guatemala or Nicaragua.

In addition to asking these questions, the survey questionnaire has also served to select candidates for in-depth interviews and focus groups. While I had certain criteria for choosing key-informants such as religious leaders and those individuals who work at municipality or regional governmental offices, to determine who are likely to provide valuable information in an in-depth interview, we need to have at least a certain amount of information about respondents such as their households' migration status and ethnic backgrounds. The survey questionnaire has provided me with an opportunity to collect such information.

I began the survey questionnaire with various initial criteria. In Cantel where the vast majority of inhabitants are indigenous, I first categorized the population into four groups by the following two factors: the sex of household heads and their households' migration status. In Puerto Cabezas, Nicaragua, in addition to the sex of respondents and their households' migration status, I also included respondents' religious affiliation in terms of Moravian or other religions including Catholic and Evangelical since the affiliation with the Moravian Church is a very important factor in determining one's indigenous identity in Nicaragua. In a similar way, I found that the distinction between evangelical and Catholic was important in Cantel. Therefore, I considered

households' religious affiliation in Cantel too. The sample size for Cantel is 60 households while it is 120 households for Puerto Cabezas.

3.3.3 Focus Group

During the survey data collection, I recruited people who may participate in focus groups. I conducted three kinds of focus groups for this dissertation, each with five to eight participants: 1) members of migrant households; 2) non-migrant household members and; 3) female members of both migrant and non-migrant households. By conducting different focus groups between migrant and non-migrant households, I examined whether migrant and non-migrant household members have different ideas and attitude toward migration and changes brought by it.

Goals of the focus groups were to learn what participants feel about their ethnic images, boundaries, and relations and how these factors are affected by international migration. I also expected that these open discussions would clarify participants' reactions to and interpretations of changes brought by international migration, impacts on ethnicity-related factors. In doing so, I tried to sort out those factors that were most likely affected by international migration and those that are not. The focus groups were conducted during the same period when I visited respondents for in-depth interviews. If I encountered any interesting and/or important points in the focus groups that had not been explored before, such a point was included in subsequent interviews. Furthermore, I aimed to identify factors that were likely to impact one's ethnic

identity.

3.3.4 In-Depth Interview

I conducted in-depth interviews with those individuals who meet criteria as key-informants and those who seem particularly interesting in terms of topics related to international migration and ethnic identity shift. Following the IRB guidelines, I explained that their participation was voluntary and that their answers would remain confidential. The interviews were conducted in either Spanish or local indigenous languages (i.e. K'iche' in Cantel and Miskitu in Bilwi) and were digitally recorded.

Key informants in this dissertation are religious leaders, local government officials who are familiar with the history of Cantel or Bilwi and topics relating to ethnic identity shift and relations in these municipalities. I also addressed questions regarding the history of international migration and ethnic relations in these municipalities and whether or not religious affiliations had affected the propensity of international migration, especially during the time of the political conflicts. Additionally, I asked them if there were any other notable factors or events that impacted the community's socioeconomic and ethnic structures.

I also had interviews with return migrants, their household members, and members of current migrant households. In these interviews, I asked respondents regarding their migration experience, possible changes in their ethnic identities as indigenous and if they admitted any changes, why such changes

took place. I also talked about respondents' relationship with their household members and people in their communities, how they saw their communities, and their inter-ethnic relationship before and after migration experiences.

3.4 Agent-Based Modeling

The main purpose of the dissertation is to understand processes of ethnic identity shift among indigenous peoples in Guatemala and Nicaragua and what international migration tells us about such a shift. This purpose is built on two important assumptions: one's ethnic identity as indigenous in these countries is conditional on both individual- and structural-level factors and also, international migration influences these factors. The comparison of Guatemala and Nicaragua is done to facilitate identifying influential factors and differential consequences of international migration in terms of ethnic identities in these countries.

However, identifying these factors itself does not lead us to understand processes of ethnic identity shift. According to Cederman (2005:870), “[s]ociological process theory requires explanations to specify theoretical entities, relations, and mechanisms that together generate the social forms to be explained.” Therefore, to achieve this goal, even the combinational use of the statistical analyses and field observations is not sufficient. It is true that the statistical analyses are helpful in identifying factors that influence migration patterns and those that are likely to be affected by international migration. Similarly, the field observations and the analyses of the primary

data collected in the field are aimed at understanding changes brought by international migration and how individuals perceive such changes. At the same time, the information we can obtain from these methods alone cannot help us verify mechanisms of ethnic identity shift since doing so requires us conducting the fieldwork in a number of communities in various different settings in terms of both individual and structural characteristics, which appears unpractical or impossible. For example, since processes of impacts on social and economic remittances on changes in images and boundaries of ethnic groups can concatenate in complex ways over time conditional on initial and parametric conditions, two individuals who are socioeconomically very similar to each other can end up holding totally different ethnic identities. This is why agent-based modeling is applied in this dissertation.

Agent-based modeling is a computational method that enables a researcher to create, analyze and experiment with models composed of agents that interact within an environment. In the past agent-based computational models have generated various social phenomena such as right skewed wealth distribution (Epstein and Axtell 1996). Therefore, agent-based modeling can be a complementary tool for analysis and explanations that are impossible to formulate using solely mathematical models (Moretti 2002).

According to Cederman (2005), agent-based modeling allows us to conduct research that is generative. The author states that “[i]nstead of subsuming observations under laws, the main explanatory goal is to make a puzzling phenomenon less puzzling” (2005:868). In a similar vein, Barth (1981) dis-

tinguishes generative explanations from the mere discovery of emergent social forms. The author argues that it is not sufficient to identify the associations. Instead, what we need is a deeper explanatory reconstruction of how the social forms of interest were generated. Agent-based models can be designed to be generative so that they by specified operations and can generate social forms in which we are interested. In fact, Axelrod (1997:3) argues that the agent-based method “is a third way of doing science,” that is different from both induction and deduction as agent-based modeling is a way of doing thought experiments.

I conducted agent-based modeling research based on findings from both quantitative analyses of the secondary data sets and qualitative analyses of the primary data collected in the field. Taking into account these findings, I examine mechanisms and processes of ethnic identity shift by changing parameter values included in the models. In doing so, I aimed to understand how ethnic identity shift is being generated and how international migration affects processes of ethnic identity shift. Therefore, both quantitative and qualitative methods as well as the comparison between Guatemala and Nicaragua and Cantel and Bilwi are necessary to understand processes that generate social forms of interest in this dissertation: ethnic identity shift. Hence, each method used in this dissertation complements other methods. That is why the mixed-methods approach has been appropriate in this dissertation.

Chapter 4

Ethnic Differentials in the Selectivity of Migrants and Remittance Recipient Households

4.1 Objectives

This chapter tests the hypothesis presented in Chapter 2 related to the selectivity of migrants and economic remittance recipient households (i.e. Hypothesis 1). While a number of studies that explored these points, we know little about how an individual's ethnic background relates to migration patterns. To my knowledge, one of few quantitative studies that has considered migrants' ethnicity is done by Adams (2006). However, his main focus is not the migrant's ethnic background and therefore, he does not elaborate on this point. The evaluation of the relationship between one's ethnicity and migration patterns is important in countries where social classes are closely correlated with one's ethnicity including Guatemala and Nicaragua.

In this chapter, I examine if there are considerable differentials in migration patterns between indigenous and non-indigenous groups. Thanks to the very large data size of the Guatemalan and Nicaraguan census data, I can analyze possible ethnic differentials in the selectivity of migrant households using both the whole national sample and the sample limited to the research

communities (Cantel and Bilwi). The quantitative analysis based solely on the research communities is extremely useful since it has allowed me to see if patterns of migrant household selectivity differ between the whole national and research community samples. Such knowledge is essential to analyze primary data obtained in my fieldwork, propose mechanisms of ethnic identity shift, and to make conclusions about impacts of international migration on ethnic relations in Guatemala and Nicaragua.

In addition, I study if the selectivity of remittance recipient households differs between indigenous and non-indigenous households. While the evaluation of migrant households' selectivity across ethnic groups is essential, it alone cannot tell us how international migration influences sending societies' economic and ethnic structures. As Popkin (2005) states, changes in a community's economic structure by international migration can also affect ethnic relations. Hence, identifying types of households that are most likely to benefit from international migration and exploring any notable ethnic differences is also fundamental in this project.

4.2 Data

To study the selectivity of migrants and economic remittance recipient households, I use both of the two data sets (i.e. census and survey data) presented in the previous chapter. The analysis of the migrant household selectivity is based on the 2002 Guatemalan census and the 2005 Nicaraguan census. Since these data sets were collected by the national statistics institute

of each country, they differ in several ways. For example, the number of variables that give us information on a household's access to resources that are used to calculate the asset index differs between these censuses. Nevertheless, these two data sets report various comparable information, including the information on an individual's ethnic identity enabling us to estimate regression models for each data set with the identical number and kinds of explanatory variables. Since neither the census nor the survey used in this chapter was designed for the analysis of international migration, only limited information on the topic is available. Yet, the combination of the two data sets enable us to examine the two types of selectivity related to international migration.

The unit of analysis is the household and in the Guatemalan census data, there are 2,171,633 households and in the Nicaraguan census, 997,374 households. For the municipality of Cantel, Guatemala, the data set contains 5,988 households while for Bilwi, 10,382 households. A household's migration status is the outcome variable in this analysis. By migration status, I mean whether a household has at least one of its members living abroad. Note, however, that the way the Guatemalan and Nicaraguan censuses asked the household's migration status differs slightly from each other. The Guatemalan census asked whether any member from a household permanently left Guatemalan during the ten years before the census was taken in 2002. On the other hand, the Nicaraguan census's question was if any ex-members of a household currently live abroad and not limited to the past 10 years before the census was taken.

In the evaluation of the selectivity of international economic remittance recipient households, the unit of analysis is also households. However, instead of the census data, I use the survey data collected in Guatemala and Nicaragua. The survey data (ENCOVI for Guatemala and ENMV for Nicaragua) include households' economic remittance recipient status. The final data sets include 13,638 households for Guatemala and 6,859 households for Nicaragua. Unlike the census data, these data sets contain a small proportion of missing cases in explanatory variables, amounting to less than one percent for each data set. Instead of deleting cases with missing data, I have included these cases in the regression models and imputed missing values while I estimated the Bayesian regression models.

4.3 Modeling Strategy and Explanatory Variables

The two outcome variables for the regression analyses presented in this chapter are: 1) a household's migration status and; 2) economic-remittances recipient status. The above information was reported by household heads when the data were collected. The outcome variables are coded as dummy variables and I assign the value of 1 if a household is a migrant or economic remittance recipient household and 0 otherwise. Since the outcome variables are dichotomous, the assumption of normality is clearly violated. Therefore, we need to transform the outcome variable and use an appropriate error distribution for it. I use binomial models with the logit transformation. That is, assuming the distribution of the outcome variable is binomial with mean μ , we

estimate p , the probability that the event (i.e. the probability of a household to be a migrant household or economic remittance recipient household) occurs. Using the logit model, p is transformed as follows:

$$Pr(Y_i = 1) = \text{logit}^{-1}(\mathbf{x}'\beta)$$

To take into account the regional variability, except for the models limited to the Cantel and Bilwi samples, I use multilevel logistic regression treating municipalities as the second-level units. In the case of individual-level data, the classical, single-level model takes for granted that the binary response y is representative of the response of a particular respondent who is taken from a set of independent observations. Hence, we assume that observations are independently and identically distributed (i.i.d.). However, as Powers and Xie (2008) argue, this assumption seldom holds true in social science settings. That is, it is likely that lower-level units (households in this dissertation) of analysis are nested within higher-level units (municipalities). As a result, households within the same municipality tend to be socio-demographically more similar to each other than those across municipalities, and therefore, the i.i.d. assumption is likely to be violated. Since indigenous and non-indigenous groups differ not only in terms of individual-level socioeconomic and demographic characteristics but also community-level factors such as their places of residence as discussed previously, the use of multilevel modeling instead of single-level regression is necessary to examine ethnic differentials in migration patterns among households in Guatemala and Nicaragua.

The multilevel models presented in this chapter allow the intercept to vary at the municipality level. More specifically, the model is expressed as:

$$\text{logit}(p_{ij}) = \mathbf{x}'_{ij}\beta + u_j$$

where p_{ij} denotes the probability of being a migrant or remittance recipient household for the i th household from the j th municipality. u_j is the municipality level (level-2) residual and is assumed to be normally distributed with mean 0 and variance σ_u^2 , and independent of \mathbf{x} (Powers and Xie 2008).

Since I have estimated the random-intercept model, a more detailed expression of the model is as follows:

$$\begin{aligned}\text{logit}(p_{ij}) &= \beta_{0j} + \beta_k z_{ij} \\ \beta_{0j} &= \beta_{00} + \beta_{0h} x_j + u_j\end{aligned}$$

The above expression suggests that z varies by households within municipalities while x varies by municipalities. It also indicates that only the random intercept β_{0j} varies among level-2 units. Note that β_{0j} has a mean β_{00} that is the mean of the intercept of the municipality level units conditional on x . As the above expression shows, there are h municipality level variables. In all multilevel models presented in the current chapter, the second level variables include regions of households' residence. The municipalities are nested within these regions and in the Guatemalan case, there are eight regions while there

are four regions in Nicaragua. In the analyses based on the census data, I also include one additional second-level variable: the percentage of the indigenous population in each municipality.

To clarify if the ethnicity of household heads relates to the propensity of becoming migrant or economic remittance recipient households and how the correlation is affected by socioeconomic factors, I use a series of nested models. In addition to the second-level explanatory variables, I have chosen independent variables included in the models taking into account the previous literature. First of all, I include a household's urban-rural status. One's residential location has been found as an influential factor on international migration in various previous studies. Indeed, in both Guatemala and Nicaragua, not only socioeconomic status of individuals differs by urban-rural status, but also their social networks. Therefore, controlling for this factor is important. In addition, since indigenous groups are more likely to reside in rural areas than their non-indigenous counterparts, controlling for this factor is fundamental to determine the correlation between one's ethnic background and the selectivity of migrant households.

Other independent variables included in the models are: the age of household heads, their level of educational attainment, the household size and the number of individuals of ages 15 and up in the household. Since the census data do not report an individual or household income, I have constructed the asset index as a proxy for the household's wealth. The asset index is then divided into quintiles and the first quintile (i.e. the poorest group) is treated

as a reference group.

4.4 Results

4.4.1 The Selectivity of Migrant Households

Table 4.1 below presents the descriptive statistics of the Guatemalan households from the 2002 census used in the analysis of the selectivity of migrant households. In 2002, about 6% of Guatemalan households were migrant households. The table also reports the descriptive statistics by ethnic groups and we can observe several notable differences between indigenous and non-indigenous households. For example, more than half of indigenous household heads have received none or little formal education while among non-indigenous households, almost 70% of household heads have received at least some primary education.

Furthermore, there is an obvious ethnic difference in households' wealth status. While only about 12.6% of non-indigenous households find themselves in the poorest 20% of the Guatemalan households, more than 33% of indigenous households belong to this group. We can also see that non-indigenous households are much more likely to reside in urban areas than their non-indigenous counterparts. Finally, the table suggests that non-indigenous households (6.44%) are more likely to be migrant households than indigenous households (5.40%).

Table 4.1: Percentage Distribution of Demographic Characteristics of Households in Guatemala, 2002

	Total Sample	Non-Indigenous	Indigenous
Indigenous	36.14	—	—
Region			
Metropolitan Area	25.79	35.94	7.85
North	7.97	2.14	18.28
Northeast	8.86	12.32	2.73
Southeast	8.50	12.68	1.10
Central	11.41	11.24	11.71
Southwest	21.57	11.19	39.90
Northwest	12.83	11.05	15.96
Peten	3.09	3.44	2.46
Lives in Urban Area	50.23	59.31	34.20
Female Head	22.68	25.12	18.36
Household Head's Age			
< 30	17.90	17.00	19.51
30 - 44	36.38	35.84	37.35
45 - 64	32.43	33.04	31.35
65+	13.28	14.13	11.79
Household Head's Education			
None or less than Primary	33.58	23.89	50.72
Primary Education	45.92	47.77	42.65
Post-Primary Education	20.50	28.34	6.64
Household Size			
1 - 3	27.89	31.46	21.56
4 - 6	46.27	48.50	42.34
7+	25.84	20.04	36.10
Male Members Aged 15+			
None	9.50	10.35	7.99
1 - 2	78.42	78.37	78.50
3+	12.09	11.28	13.51
Female Members Aged 15+			
None	3.86	4.49	2.74
1 - 2	82.01	82.07	81.92
3+	14.13	13.44	15.35
Spouse's Ethnic Status			
No Spouse	26.21	28.75	21.73
Non-Indigenous	45.88	70.00	3.26
Indigenous	27.91	1.25	75.01
Household's Asset Index			
1st Quintile	20.02	12.58	33.18
2nd Quintile	20.05	15.33	28.39
3rd Quintile	19.95	20.05	19.76
4th Quintile	19.99	24.32	12.33
5th Quintile	19.99	27.71	6.34
Migrant Household	6.06	6.44	5.40

N: 2,171,633

I also present the descriptive statistics of the Nicaraguan census data below (Table 4.2). Although we need to take into account the fact that the Nicaraguan census used in the dissertation was collected three years after the

Guatemalan data, Nicaraguan households (10.18%) are more likely to have at least one household member living abroad than Guatemalan households (6.06%). It seems that this is in part because of the two main receiving countries for Nicaraguan migrants. That is, in addition to the US, Nicaragua's neighboring country Costa Rica also receives a large number of Nicaraguan migrants.

Similar to the Guatemalan cases, we can find various ethnic socio-demographic differences in the Nicaraguan census. The most notable difference is households' residential locations. Nicaragua's ethnic minority groups concentrate in the Atlantic region and the data reflect this fact. While less than 9% of the Nicaraguan households live in the Atlantic region, almost 40% of households headed by indigenous individuals reside in this region. In addition, as was the Guatemalan case, non-indigenous heads tend to have received longer years of formal education than indigenous heads. At the same time, the difference is not as large as was the case in the Guatemalan sample. A part of the smaller ethnic difference can be attributed to a generally higher level of educational attainment in Nicaragua as compared to Guatemala. Additionally, indigenous households tend to be larger than non-indigenous households but tend to be poorer, both of which are consistent with the Guatemalan case. Finally, Nicaraguan indigenous households were also less likely to be a migrant household (8.24%) than non-indigenous households (10.31%).

Table 4.2: Percentage Distribution of Demographic Characteristics of Households in Nicaragua, 2005

	Total Sample	Non-Indigenous	Indigenous
Indigenous	6.28	—	—
Region			
Managua	25.70	27.05	5.52
Pacific	30.82	31.42	21.87
Central	33.07	32.95	34.86
Atlantic	10.41	8.58	37.75
Lives in Urban Area	55.80	56.48	45.57
Female Head	30.02	30.14	28.26
Household Head's Age			
< 30	18.32	18.38	17.42
30 - 44	36.51	36.58	35.50
45 - 64	32.48	32.43	33.36
65+	12.68	12.61	13.72
Household Head's Education			
None or less than Primary	27.18	27.13	27.95
Primary Education	41.69	41.40	46.02
Post-Primary Education	31.13	31.48	26.03
Household Size			
1 - 3	30.47	30.82	25.28
4 - 6	47.86	48.12	44.01
7+	21.67	21.06	30.71
Male Members Aged 15+			
None	10.06	10.14	8.82
1 - 2	75.29	75.39	73.73
3+	14.65	14.46	17.45
Female Members Aged 15+			
None	4.42	4.43	4.27
1 - 2	79.76	79.88	77.99
3+	15.82	15.69	17.74
Spouse's Ethnic Status			
No Spouse	33.16	33.34	30.51
Non-Indigenous	62.67	66.08	11.73
Indigenous	4.17	0.58	57.76
Household's Asset Index			
1st Quintile	20.04	19.13	33.63
2nd Quintile	20.03	19.77	23.95
3rd Quintile	20.00	20.18	17.23
4th Quintile	20.03	20.40	14.48
5th Quintile	19.90	20.52	10.71
Migrant Household	10.18	10.31	8.24

N:997,374

Table 4.3: Multilevel Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Guatemala, 2002

Explanatory Variables	Model 1				Model 2				Model 3			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Individual-Level												
Indigenous	-0.381	0.011	(-0.402 -0.359)		-0.250	0.011	(-0.273 -0.228)		0.007	0.013	(-0.019 0.031)	
Lives in Urban Area					-0.025	0.008	(-0.041 -0.010)		-0.381	0.008	(-0.397 -0.365)	
Female Head					0.893	0.006	(0.880 0.905)		0.396	0.010	(0.375 0.415)	
Household Head's Age												
(< 30)												
30 - 44					0.037	0.009	(0.019 0.056)		-0.088	0.011	(-0.108 -0.067)	
45 - 64					0.576	0.009	(0.557 0.593)		0.407	0.010	(0.388 0.426)	
65+					0.541	0.011	(0.520 0.562)		0.369	0.012	(0.346 0.393)	
Head's Education												
(None or less than Primary)												
Primary Education					0.226	0.008	(0.211 0.240)		0.032	0.008	(0.017 0.046)	
Post-Primary Education					0.334	0.011	(0.313 0.354)		-0.048	0.011	(-0.069 -0.027)	
Household Size												
(1 - 3)												
4 - 6									0.179	0.008	(0.164 0.195)	
7+									0.267	0.010	(0.246 0.287)	
Male Members Aged 15+												
(None)												
1 - 2									-0.498	0.010	(-0.518 -0.477)	
3+									-0.561	0.014	(-0.586 -0.534)	
Female Members Aged 15+												
(None)												
1 - 2									0.097	0.020	(0.058 0.137)	
3+									0.200	0.022	(0.159 0.245)	
Spouse's Ethnic Status												
(No Spouse)												
Non-Indigenous									-0.305	0.011	(-0.325 -0.284)	
Indigenous									-0.528	0.013	(-0.554 -0.503)	
Household's Asset Index												
(1st Quintile)												
2nd Quintile									0.592	0.012	(0.569 0.616)	
3rd Quintile									1.047	0.012	(1.024 1.071)	
4th Quintile									1.342	0.013	(1.316 1.368)	
5th Quintile									1.681	0.015	(1.652 1.709)	
Municipality-Level												
% Indigenous	-0.002	0.002	(-0.005 0.001)		-0.003	0.002	(-0.006 0.001)		-0.002	0.002	(-0.005 0.001)	
Region												
(Metropolitan Area)												
North	-0.881	0.290	(-1.453 -0.328)		-0.803	0.309	(-1.412 -0.223)		-0.551	0.272	(-1.104 -0.017)	
Northeast	0.207	0.261	(-0.300 0.722)		0.190	0.263	(-0.325 0.691)		0.384	0.246	(-0.112 0.875)	
Southeast	-0.116	0.260	(-0.614 0.402)		-0.108	0.261	(-0.626 0.422)		0.144	0.245	(-0.357 0.615)	
Central	-0.614	0.250	(-1.079 -0.132)		-0.607	0.255	(-1.139 -0.105)		-0.597	0.232	(-1.059 -0.111)	
Southwest	0.280	0.241	(-0.189 0.725)		0.284	0.240	(-0.220 0.769)		0.370	0.222	(-0.038 0.835)	
Northwest	0.863	0.244	(0.392 1.359)		0.892	0.245	(0.419 1.382)		1.087	0.226	(0.628 1.532)	
Peten	-0.433	0.323	(-1.069 0.208)		-0.335	0.332	(-0.999 0.286)		0.062	0.316	(-0.550 0.657)	
Intercept	-2.841	0.216	(-3.283 -2.440)		-3.601	0.217	(-4.016 -3.132)		-3.790	0.199	(-4.209 -3.402)	
Deviance			918,426				890,505				868,081	

Table 4.3 presents results from the Bayesian multilevel logistic models using the Guatemalan demographic census data set described above. Note that in all regression models that I present in this dissertation, an approximate mixing of two parallel chains were achieved after 10,000 iterations and the first half of the iterations (i.e. 5,000 iterations) were discarded as a burn-in period. Model 1 suggests that indigenous households are less likely to be migrant households as compared to Ladino households. Overall, the odds of indigenous households to have at least one migrant living abroad is only about 68% of the odds among non-indigenous households. The difference is significant at the 95% high posterior density (HPD) level.

In addition, the model suggests the propensity to be a migrant household differs across regions within Guatemala. As compared to households in the metropolitan area, households in the north and central areas are less likely to have a migrant in outside of Guatemala. On the other hand, we can see that the percentage of indigenous households at the municipality level is not strongly correlated with a household's odds to be a migrant household.

In Model 2, I also control for three characteristics of household heads: their sex, age and level of formal education as well as urban-rural status. Both household heads' age and education are positively correlated with the odds of households having at least one of the household members living abroad. For example, the odds of households headed by those with some primary education to be migrant households is more than 25% higher than the odds of households headed by those with none or little formal education. In addition, as compared

to households headed by those of ages under 30, households with heads of ages 30 and up are more likely to be migrant households. This finding suggests that young people are more likely to migrate than older people. Note that while the indigenous households remain significantly less likely to be migrant households than non-indigenous households in this model, the difference is not as substantive as was the case in Model 1. Indeed, the exponentiated odds ratios change from 0.68 in Model 1 to 0.78 in Model 2. Hence, these models demonstrate that at least a portion of the ethnic difference in the propensity becoming a migrant household can be attributed to indigenous households' lower socioeconomic characteristics.

In Model 3, I include all the explanatory variables considered in this analysis. In this model, there is no statistically significant difference between the two ethnic groups at the 95% HPD level. On the other hand, most of the other explanatory variables have significant impacts on the propensity of a household to send a migrant. For example, households living in urban areas are less likely to have sent migrants. This is possibly due to the fact that in Guatemala, many rural people migrate to urban areas, especially Guatemala City and they may be less likely to have their ex-household members living abroad.

In addition, female headed households are more likely to be migrant households. According to my field observations, it is usually male members of the household who first migrate. In fact, we can find that households headed by those who have a spouse in the household are less likely to be migrant

households than households headed by those who do not have a spouse within the household. At the same time, we can also see that households headed by those individuals whose spouses are indigenous are less likely to be migrant households than those households headed by those with non-indigenous spouses. Since the current model controls for the household's socioeconomic condition, this point possibly reflects the importance of migrant networks and therefore, merits more consideration.

Another important finding from this model is that the household's economic status is positively correlated with its migration status. Economically advantageous households are significantly more likely to be migrant households than poor households. For example, the odds of households whose asset index is found in the second lowest quintile to be migrant households is more than 1.8 times as high as the odds among the poorest 20% households. Furthermore, the advantage increases among more wealthy households. Since the census data used in this study do not report any longitudinal information, it is difficult to infer from this finding the causal relationship between a household's wealth and migration status. At the same time, the fact that the household's economic status is strongly correlated with migration status indicates that migration is a very selective process at least in the economic sense among Guatemalans. Table 4.3 has demonstrated that international migrant households in Guatemala are very selective and this is one reason why indigenous households are less likely to be migrant households as compared to non-indigenous households.

We have seen that the socioeconomic disadvantage among indigenous households holds also true in Nicaragua. Then, we might expect that similar migration patterns can be found among Nicaraguan households. The results from regression models using the Nicaraguan census data are presented below (Table 4.4). Actually, indigenous households are more likely to be migrant households than their non-indigenous counterparts. Overall, the odds of indigenous households to be migrant households is about 1.2 times of the odds among non-indigenous households. At the same time, households in the Atlantic region, where a large number of indigenous peoples reside, are less likely to be migrant households than those households residing in Managua. On the other hand, households in the Pacific region are more likely to be migrant households than households in Managua. This is probably because the Pacific region is close to Costa Rica where many Nicaraguans choose as their destination country. In addition, the fact that indigenous households are more likely to be migrant households taking into account region of residence may indicate that indigenous households residing outside the Atlantic region is considerably different from other indigenous households.

The statistical difference in the odds of sending migrants between Managua and the Atlantic region disappears in Model 2 where various additional variables are included. Therefore, the disadvantage in sending migrants abroad among households in the Atlantic region can mainly be attributed to these characteristics. At the same time, interestingly, indigenous households continue to be more likely to be migrant households, but the difference is smaller.

Table 4.4: Multilevel Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Nicaragua, 2005

Explanatory Variables	Model 1				Model 2				Model 3			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Individual-Level												
Indigenous	0.173	0.018	(0.139	0.206)	0.155	0.018	(0.120	0.191)	0.185	0.021	(0.143	0.225)
Lives in Urban Area					0.470	0.009	(0.453	0.488)	-0.036	0.010	(-0.056	-0.016)
Female Head					0.729	0.007	(0.716	0.742)	0.352	0.011	(0.330	0.374)
Household Head's Age												
(< 30)												
30 - 44					0.003	0.012	(-0.018	0.026)	-0.217	0.013	(-0.242	-0.191)
45 - 64					0.872	0.011	(0.850	0.893)	0.484	0.013	(0.458	0.509)
65+					1.276	0.013	(1.252	1.303)	0.819	0.015	(0.791	0.848)
Household Head's Education												
(None or less than Primary)												
Primary Education					0.314	0.009	(0.297	0.330)	0.067	0.010	(0.047	0.085)
Post-Primary Education					0.599	0.010	(0.579	0.620)	0.053	0.012	(0.030	0.076)
Household Size												
(1 - 3)												
4 - 6								0.149	0.009	(0.131	0.166)	
7+								0.449	0.013	(0.424	0.473)	
Male Members Aged 15+												
(None)												
1 - 2								-0.238	0.012	(-0.260	-0.215)	
3+								-0.170	0.016	(-0.200	-0.138)	
Female Members Aged 15+												
(None)												
1 - 2								-0.071	0.020	(-0.109	-0.030)	
3+								-0.183	0.023	(-0.227	-0.138)	
Spouse's Ethnic Status												
(No Spouse)												
Non-Indigenous								-0.506	0.012	(-0.528	-0.484)	
Indigenous								-0.445	0.030	(-0.505	-0.385)	
Household's Asset Index												
(1st Quintile)												
2nd Quintile								0.491	0.017	(0.460	0.524)	
3rd Quintile								0.943	0.017	(0.909	0.976)	
4th Quintile								1.401	0.017	(1.368	1.434)	
5th Quintile								2.075	0.018	(2.040	2.111)	
Municipality-Level												
% Indigenous	-0.008	0.003	(-0.013	-0.002)	-0.009	0.003	(-0.014	-0.005)	-0.009	0.003	(-0.014	-0.004)
Region												
(Managua)												
Pacific	0.748	0.227	(0.315	1.200)	0.777	0.212	(0.377	1.180)	0.937	0.205	(0.559	1.328)
Central	0.037	0.225	(-0.406	0.482)	0.280	0.203	(-0.110	0.700)	0.603	0.200	(0.210	0.977)
Atlantic	-0.687	0.260	(-1.173	-0.139)	-0.372	0.251	(-0.840	0.128)	0.068	0.241	(-0.437	0.517)
Intercept	-2.633	0.210	(-3.039	-2.239)	-4.035	0.194	(-4.433	-3.656)	-3.852	0.192	(-4.214	-3.476)
Deviance			629,268				590,301				569,226	

This point merits serious attention since educational works in the same way as in Guatemala and as we have seen, indigenous household heads in Nicaragua also lag behind their non-indigenous counterparts in terms of various socioeconomic measures including the level of educational attainment.

Finally in Model 3, I control for additional household characteristics. Indigenous households are more likely to be migrant households. Interestingly, the exponentiated odds of indigenous households to be migrant households is slightly larger in this model (1.20) than in Model 1 (1.17). Since indigenous households' socioeconomic characteristics that tend to promote more migration are less favorable as compared to those of non-indigenous households as shown in Table 4.2, this point is puzzling. It is possible that factors other than those included in this model influence the propensity of migration among Nicaraguan households. For example, in one of the interviews I conducted in Bilwi, I found that among households in the Atlantic region, Creole households are most likely to migrate to the US because of their English ability and this was true during the 1980s when the civil war was severe.

Urban households are less likely to be migrant households and female headed households are more likely to be migrant households, which is consistent with findings from the Guatemalan models. The ethnicity of the spouse is also important but unlike Guatemala, those households headed by individuals whose spouses are indigenous are more likely to be indigenous than households headed by those with spouses who are not indigenous. Household's economic status works in the same ways as in the Guatemala's case. Note also that in

this model, households in the Pacific and Central regions are more likely to be migrant households than those living in Managua. However, such a statistically significant difference does not exist between households in Managua and those living in the Atlantic region.

4.4.2 Migrant Household Selectivity in Cantel and Bilwi

Taking advantage of the censuses' large data size, I also conduct regression analyses of the Cantel and Bilwi data using the Bayesian binomial logistic regression. Table 4.5 describes socioeconomic characteristics of households in both Cantel and Bilwi. The table shows that while the majority of inhabitants in both Cantel and Bilwi are indigenous, there are various notable socioeconomic and demographic differences between the two municipalities. First of all, more than 96% of households in Cantel are headed by those people who identify themselves as indigenous. On the other hand, about one fourth of the population in Bilwi can be identified as non-indigenous. Note that since Creole people are categorized as indigenous in this table, we can see that Bilwi is a very multi-cultural and linguistic society as compared to Cantel's quite homogeneous and indigenous population.

Indigenous households in Cantel are less likely to reside in urban areas, while the opposite is true in Bilwi. That is, indigenous households are slightly more likely to be found in urban areas than non-indigenous households although the difference is small. Overall, in both Cantel and Bilwi, non-indigenous household heads have received more formal education than in-

digenous heads. Furthermore, the ethnic difference in households' asset index exists in both Cantel and Bilwi. Note that the asset index is based on the national sample presented in Table 4.1 and therefore, the Cantel and Bilwi population is not distributed evenly across the quintiles.

We can infer that Cantel's economic level is close to the average national level. About 40% of the households are found in the third quintile of the wealth distribution and 12% of the households find themselves in either the poorest or richest households. At the same time, the table also shows the obvious economic advantage of Ladino or non-indigenous households as compared to indigenous households. For example, while less than 1% of non-indigenous households in Cantel find themselves in the lowest national quintile, more than 6% of indigenous households belong to the same category. Hence, although most of indigenous households in Cantel may not be found themselves among the poorest households in Guatemala, the economic advantage among non-indigenous households is hard to deny.

Unlike the households in Cantel, the economic status among households in Bilwi is worse than that of the average Nicaraguan household. About 53% of Bilwi households are found in the poorest two quintiles of the wealth distribution. This is consistent with various previous studies that focus on the Atlantic Region (Jamieson 1999). At the same time, we can also find non-indigenous group's economic advantage over indigenous households in this municipality.

Table 4.5: Percentage Distribution of Demographic Characteristics of Households in Cantel, 2002 and Bilwi, 2005

	Cantel			Bilwi		
	Total	N.I.	Indigenous	Total	N.I.	Indigenous
Indigenous	96.08	—	—	75.15	—	—
Lives in Urban Area	54.61	76.17	53.73	61.51	60.66	61.79
Female Head	19.04	28.09	18.67	32.27	26.05	34.32
Household Head's Age						
< 30	17.33	15.74	17.40	19.58	22.17	18.73
30 - 44	37.99	37.45	38.01	40.41	40.43	40.40
45 - 64	32.57	34.47	32.49	28.90	28.10	29.16
65+	12.11	12.34	12.10	11.12	9.30	11.71
Household Head's Education						
None or less than Primary	16.18	7.66	16.53	18.67	18.57	18.70
Primary Education	66.00	47.23	66.77	43.24	36.36	45.51
Post-Primary Education	17.82	45.11	16.70	38.09	45.08	35.79
Household Size						
1 - 3	26.22	34.04	25.90	19.79	22.71	18.83
4 - 6	48.65	53.19	48.46	42.06	46.20	40.69
7+	25.13	12.77	25.64	38.14	31.09	40.48
Male Members Aged 15 +						
None	7.80	10.21	7.70	8.54	7.83	8.78
1 - 2	81.00	82.13	80.95	71.29	75.00	70.06
3+	11.21	7.66	11.35	20.17	17.17	21.16
Female Members Aged 15+						
None	2.40	5.96	2.26	2.85	3.68	2.58
1 - 2	84.72	82.13	84.83	75.54	80.04	74.06
3+	12.88	11.91	12.92	21.60	16.28	23.37
Spouse's Ethnic Status						
No Spouse	20.62	30.64	20.22	28.46	25.78	29.35
Non-Indigenous	3.49	53.19	1.46	16.72	54.77	4.14
Indigenous	75.89	16.17	78.32	54.82	19.46	66.51
Household's Asset Index						
1st Quintile	6.08	0.43	6.31	26.20	25.97	26.28
2nd Quintile	26.27	9.36	26.96	26.80	18.29	29.61
3rd Quintile	40.06	25.96	40.64	17.79	14.92	18.74
4th Quintile	20.76	37.87	20.06	18.25	22.52	16.84
5th Quintile	6.83	26.38	6.03	10.96	18.29	8.54
Migrant Household	4.98	9.79	4.78	6.28	7.67	5.82

Cantel N: 5,988; Bilwi N: 10,382

Note: N.I. = Non-Indigenous

Table 4.6: Binomial Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Cantel, 2002

Explanatory Variables	Model 1			Model 2			Model 3			
	Mean	S.D.	95% HPD	Mean	S.D.	95% HPD	Mean	S.D.	95% HPD	
Individual-Level										
Indigenous	-0.748	0.231	(-1.181 -0.277)	-0.511	0.258	(-0.968 0.042)	-0.255	0.285	(-0.758 0.335)	
Lives in Urban Area				-0.035	0.123	(-0.267 0.200)	-0.187	0.127	(-0.429 0.049)	
Female Head				1.449	0.126	(1.213 1.696)	0.736	0.209	(0.300 1.133)	
Household Head's Age										
(< 30)										
30 - 44				0.162	0.195	(-0.214 0.545)	-0.006	0.205	(-0.409 0.389)	
45 - 64				0.413	0.196	(0.056 0.809)	0.312	0.206	(-0.090 0.718)	
65+				0.231	0.238	(-0.241 0.688)	0.159	0.260	(-0.370 0.664)	
Household Head's Education										
(None or less than Primary)										
Primary Education				0.274	0.166	(-0.058 0.603)	-0.025	0.171	(-0.340 0.314)	
Post-Primary Education				0.525	0.218	(0.097 0.940)	-0.038	0.221	(-0.465 0.384)	
Household Size										
(1 - 3)										
4 - 6							0.251	0.158	(-0.041 0.577)	
7+							0.249	0.210	(-0.144 0.677)	
Male Members Aged 15+										
(None)										
1 - 2							-0.551	0.207	(-0.958 -0.133)	
3+							-0.507	0.279	(-1.090 0.054)	
Female Members Aged 15+										
(None)										
1 - 2							0.712	0.587	(-0.348 1.876)	
3+							0.584	0.623	(-0.576 1.801)	
Spouse's Ethnic Status										
(No Spouse)										
Non-Indigenous							-0.700	0.404	(-1.519 0.064)	
Indigenous							-0.723	0.218	(-1.161 -0.296)	
Household's Asset Index										
(1st Quintile)										
2nd Quintile							1.726	0.715	(0.551 3.433)	
3rd Quintile							2.639	0.705	(1.467 4.229)	
4th Quintile							2.906	0.713	(1.743 4.560)	
5th Quintile							3.519	0.728	(2.341 5.183)	
Intercept	-2.246	0.224	(-2.702 -1.816)	-3.414	0.385	(-4.242 -2.719)	-5.428	0.968	(-7.682 -3.697)	
Deviance			2,362			2,237			2,140	

Table 4.6 above suggests that indigenous households in Cantel are significantly less likely to be migrant households than non-indigenous households. Overall, the odds of indigenous households in Cantel to be migrant household is only about 47% of the odds among non-indigenous households. This odds ratio is much smaller than that presented in Model 1 using the whole census data. Therefore, the model indicates that the disadvantage of indigenous households in terms of international migration is much more profound in Cantel than in Guatemala as a whole. In Model 2, we can see that part of indigenous households' lower odds of sending migrants abroad is attributable to their lower educational attainment. As was the case in the analyses of the migrant selectivity using the whole census data, Model 2 indicates that households headed by individuals with a higher level of formal education are more likely to be migrant households. In addition, we can observe that the odds ratios of the two educational factors (i.e. some and post-primary education as compared to none or less than primary education) are larger in the Cantel case than the whole Guatemalan case, highlighting the importance of one's educational attainment in this particular municipality.

In addition, the statistically significant difference in the odds of sending migrants abroad between indigenous and non-indigenous households disappears in this model. Furthermore, the odds of female headed households to be migrant households is more than 4 times as high as that of households headed by men. Therefore, male members in Cantel are much more likely to migrate than female members and migrants are likely to leave their spouses.

This point is consistent with my own observations in Cantel.

The fact that the disadvantage in socioeconomic characteristics among indigenous households as compared to non-indigenous households is correlated with the lower odds of sending a migrant abroad among indigenous households becomes more explicit in Model 3. In addition, we can encounter some other interesting findings in this model. For example, a household's economic status measured by its asset index is strongly correlated with a household's odds to send migrant abroad. At the same time, when we control for this factor, the statistically significant correlation between household heads' educational attainment and the odds of being migrant households disappears. Since one's educational attainment and economic status are positively correlated, this finding again emphasizes the socioeconomic selectivity of migrant households in Cantel. The model also suggests that households with the larger number of male members are less likely to be migrant households while the opposite is true for the number of female household members.

Another important finding from this model is that while households where both a head and a spouse are present are less likely to be migrants, the difference is statistically significant at the 95% level only for the odds of households headed by those whose spouses are indigenous. As discussed, people in Cantel are likely to leave their spouses in the municipality when they migrate. At the same time, as was the case in the whole Guatemalan sample, households whose heads' spouses are indigenous are least likely to be migrant households taking into account for other factors. Again, this point may reflect

the difference in migrant networks between indigenous and non-indigenous households and as well as some additional factors affecting migration patterns thus, I will return to this point in Chapter 6.

Results from the regression models based on the Bilwi data are presented in Table 4.7. As was the case of Cantel, overall, indigenous households are less likely to be migrant households than Mestizo households. At the same time, the gap between these two ethnic groups is smaller in the Bilwi case as compared to households in Cantel. Model 2 shows that household head's level of education is strongly correlated with the household's odds of sending international migrants. This is probably because even though non-indigenous people tend to receive longer years of formal education, the difference in educational attainment between indigenous and non-indigenous individuals is not as large as that found in Cantel and Guatemala as a whole. Note also that the substantive correlation between heads' educational attainment and the propensity of sending migrant is stronger in Bilwi than in Cantel. Furthermore, the model suggests that those households living in urban areas are more likely to be migrant households than rural households. In addition, consistent with households in Cantel, households headed by females are more likely to send migrants abroad than male headed households.

In Model 3, we can find some other variables that are significantly correlated with the odds of being migrant households at the 95% HPD level. For example, as was the case in Cantel, a household's economic status is positively correlated with the odds of sending migrants abroad. In addition, one par-

ticularly important point is while households where both heads and spouses are present are less likely to be migrant households, the odds is actually lower among heads whose spouses are non-indigenous than those with indigenous spouses. That is, the odds of households headed by those with non-indigenous spouses is about 44% of the odds among households whose heads' spouses are absent, the odds of households with heads and indigenous spouses is about 50% of the odds among households where heads' spouses do not live within the household. Therefore, it is possible that the relationship between migrant networks and individuals' ethnic background work differently between Cantel and Bilwi.

Table 4.7: Binomial Logistic Regression Predicting the Logged Odds of Becoming a Migrant Household in Bilwi, 2005

Explanatory Variables	Model 1			Model 2			Model 3			
	Mean	S.D.	95% HPD	Mean	S.D.	95% HPD	Mean	S.D.	95% HPD	
Individual-Level										
Indigenous	-0.294	0.087	(-0.471 -0.128)	-0.261	0.091	(-0.442 -0.083)	-0.074	0.104	(-0.280 0.128)	
Lives in Urban Area				0.866	0.116	(0.646 1.087)	-0.195	0.150	(-0.496 0.087)	
Female Head				0.564	0.086	(0.387 0.726)	0.081	0.129	(-0.180 0.335)	
Household Head's Age										
(< 30)										
30 - 44				0.304	0.139	(0.045 0.581)	0.012	0.151	(-0.279 0.312)	
45 - 64				1.138	0.139	(0.864 1.422)	0.525	0.154	(0.219 0.839)	
65+				1.960	0.158	(1.665 2.287)	1.248	0.178	(0.903 1.593)	
Household Head's Education										
(None or less than Primary)				0.403	0.130	(0.156 0.658)	0.141	0.145	(-0.134 0.439)	
Primary Education				1.088	0.145	(0.789 1.366)	0.428	0.162	(0.103 0.749)	
Post-Primary Education										
Household Size										
(1 - 3)										
4 - 6							0.043	0.128	(-0.200 0.288)	
7+							-0.234	0.168	(-0.573 0.107)	
Male Members Aged 15+										
(None)										
1 - 2							0.229	0.158	(-0.091 0.533)	
3+							0.569	0.186	(0.190 0.928)	
Female Members Aged 15+										
(None)										
1 - 2							0.100	0.297	(-0.481 0.681)	
3+							0.452	0.322	(-0.211 1.056)	
Spouse's Ethnic Status										
(No Spouse)										
Non-Indigenous							-0.819	0.179	(-1.172 -0.472)	
Indigenous							-0.686	0.139	(-0.959 -0.411)	
Household's Asset Index										
(1st Quintile)										
2nd Quintile							0.497	0.199	(0.120 0.882)	
3rd Quintile							1.135	0.221	(0.708 1.560)	
4th Quintile							1.979	0.214	(1.554 2.405)	
5th Quintile							2.410	0.222	(1.984 2.835)	
Intercept	-2.489	0.071	(-2.628 -2.350)	-4.805	0.200	(-5.218 -4.398)	-4.434	0.343	(-5.118 -3.780)	
Deviance			4,862			4,470			4,210	

4.4.3 The Selectivity of Economic Remittance Recipient Households

We have explored the selectivity of international migrant households using the census data above. Now, let us shift our focus to the selectivity of economic remittance recipient households. Table 4.8 below presents the descriptive statistics of the Guatemalan ENCOVI data set used in the analysis. Since these data are sample data, I use the sampling weight provided in the data sets for the descriptive statistics in Tables 4.8 and 4.9.

About 16% of households receive economic remittances from outside of Guatemala. This is much higher than the percentage of migrant households (6.06%). There are a few possible reasons to explain this fact. First, some households left Guatemala taking all members and thus, they did not appear in the census data. At the same time, these households may send remittances to their parents, relatives, or friends. Hence, even when a household does not have any ex-members living abroad, that household may also receive economic remittances. In addition, since the Guatemalan census asked whether any member of the household left the country only during the 10 years before the census was taken, those households whose members left Guatemala earlier may not appear as migrant households in the census data. As was the case of migrant households, the table indicates that indigenous households (15.33%) are less likely to receive economic remittances than their non-indigenous counterparts (17.00%).

Table 4.8: Percentage Distribution of Demographic Characteristics of Households in Guatemala, 2006

	Total Sample	Non-Indigenous	Indigenous
Indigenous	35.58	—	—
Region			
Metropolitan Area	27.36	37.32	9.31
North	7.83	2.44	17.59
Northeast	8.43	11.54	2.79
Southeast	8.15	11.84	1.48
Central	11.29	11.56	10.80
Southwest	22.35	16.54	32.89
Northwest	11.61	5.18	23.26
Peten	2.98	3.58	1.90
Lives in Urban Area	53.74	62.55	37.78
Female Head	22.69	24.92	18.66
Household Head's Age			
< 30	17.49	18.05	16.48
30 - 44	35.38	34.26	37.42
45 - 64	33.74	33.71	33.80
65+	13.39	13.98	12.30
Household Head's Education			
None or less than Primary	30.86	22.13	46.67
Primary Education	44.39	45.00	43.29
Post-Primary Education	24.75	32.87	10.04
Household Size			
1 - 3	31.32	36.15	22.56
4 - 6	46.20	47.61	43.66
7+	22.48	16.24	33.78
Male Members Aged 15+			
None	63.35	65.31	59.81
1 - 2	33.24	31.56	36.29
3+	3.41	3.14	3.90
Female Members Aged 15+			
None	14.93	16.88	11.41
1 - 2	73.43	73.58	73.14
3+	11.64	9.54	15.45
Household's Asset Index			
1st Quintile	20.00	15.19	28.70
2nd Quintile	20.02	15.58	28.06
3rd Quintile	19.99	19.93	20.10
4th Quintile	20.12	23.17	14.59
5th Quintile	19.87	26.13	8.55
Receives International Remittance	16.40	17.00	15.33

N: 13,638

Table 4.9: Percentage Distribution of Demographic Characteristics of Households in Nicaragua, 2005

	Total Sample	Non-Indigenous	Indigenous
Indigenous	4.01	—	—
Region			
Managua	26.03	26.91	5.04
Pacific	29.64	30.39	11.62
Central	33.67	34.62	10.98
Atlantic	10.65	8.08	72.36
Lives in Urban Area	58.34	59.03	41.70
Female Head	31.43	31.56	28.40
Household Head's Age			
< 30	10.46	10.56	7.94
30 - 44	32.40	32.07	40.19
45 - 64	40.16	40.27	37.41
65+	16.99	17.09	14.46
Household Head's Education			
None or less than Primary	30.87	31.16	23.99
Primary Education	41.69	41.38	49.06
Post-Primary Education	27.44	27.46	26.95
Household Size			
1 - 3	21.13	21.46	13.09
4 - 6	44.08	44.28	39.35
7+	34.79	34.26	47.56
Male Members Aged 15+			
None	8.68	8.76	6.63
1 - 2	73.00	73.04	72.10
3+	18.32	18.20	21.27
Female Members Aged 15+			
None	4.64	4.63	4.80
1 - 2	75.22	75.41	70.64
3+	20.14	19.96	24.56
Household's Asset Index			
1st Quintile	20.07	19.71	28.61
2nd Quintile	20.33	19.97	29.05
3rd Quintile	20.01	20.07	18.58
4th Quintile	19.76	20.04	12.92
5th Quintile	19.82	20.20	10.85
Receives International Remittance	21.86	22.06	16.97
N:6,859			

A similar trend can be found in the Nicaragua's ENMV data (Table 4.9). As was the case in the census data, Nicaraguan indigenous households

lag behind non-indigenous households in terms of various socioeconomic characteristics. Overall, Nicaraguan households are more likely to receive international remittances (21.86%) than Guatemalan households (16.40%). This is consistent with the higher proportion of Nicaraguan households that are migrant households as compared to that of Guatemalan households and also, my field observations in Bilwi that many households have long depended on remittances sent from outside of Nicaragua. Finally, as was the case of Guatemala, Nicaraguan indigenous households are less likely to receive international remittances (16.97%) than non-indigenous households (22.06%).

Results from multilevel logistic models predicting the logged odds of receiving international remittances in Guatemala are presented in Table 4.10. In all of the three models, indigenous households are less likely to receive economic remittances and the difference is statistically significant at the 95% high posterior density level. Therefore, the models in Table 4.10 suggest that international migration may increase the economic gap between indigenous and non-indigenous households since non-indigenous households are more likely to benefit from economic remittances. However, the difference shrinks as more socioeconomic characteristics are controlled (Model 1 to Model 3). For example, the odds ratio of indigenous households to receive international remittances is only about 66% of the odds among non-indigenous households in Model 1. Yet, in Model 3, while the odds ratio among indigenous households continues to be smaller than that of non-indigenous household, it is about 75% of the odds ratio among non-indigenous households.

In Model 2, we find that household heads' educational attainment is significantly correlated with the odds of receiving economic remittances. However, this factor is found insignificant in Model 3 in which additional factors are taken into account. Furthermore, as expected, the household's economic status is positively correlated with the household's odds of receiving economic remittances at the 95% HPD level. Another notable finding in these models is that in Models 2 and 3, we can see that rural households are more likely to receive international remittances than urban households and the gap is larger in Model 3 when all factors used in the analysis are controlled than in Model 2.

While rural households' advantage over urban households may seem to shrink the inequality level in the Guatemala's economic structure, this may not be necessarily the case. Since households' socioeconomic status is positively correlated with the odds of receiving remittances and rural households tend to lag behind urban households in these characteristics, it is possible that only socioeconomically very selective households in rural areas receive these resources. In addition, even though rural households may be more likely to receive economic remittances, indigenous households who tend to reside in rural areas are less likely to receive these remittances. The models based on the ENCOVI data above suggest that indigenous households are less likely to receive international remittances than their non-indigenous counterparts. While some of such a difference can be attributed to socioeconomic advantages of non-indigenous households, the regression results demonstrate that this ad-

vantage alone cannot explain the difference in odds of receiving remittances between these two groups.

In the case of Nicaragua, we can also find a statistically significant difference in the odds of receiving international remittances at the 95% level between indigenous and non-indigenous households in Model 1. However, contrary to the Guatemalan case, indigenous households are significantly more likely to receive economic remittances than Mestizo households. More specifically, the odds of receiving international remittances among indigenous households is about 1.66 times as much as the odds among non-indigenous households. However, the odds of households in the Atlantic region to receive remittances is only about 27% of the odds among households in Managua.

The regional difference continues to exist in Models 2 and 3 in which I control for additional factors. The sex and the educational level of household heads are correlated with the propensity of receiving remittances in the expected way. Unlike the Guatemalan case, urban households are more likely to receive remittances than rural households. The statistically significant ethnic difference, which continues to exist in Model 2, disappears in Model 3 when households' asset index is also controlled. Since households' economic status is positively correlated with the odds of receiving remittances, this is puzzling as indigenous households' socioeconomic status is generally lower than that of non-indigenous households. Therefore, it is probable that factors other than included in Model 3 can affect a household's odds to receive economic remittances in Nicaragua.

Table 4.10: Multilevel Logistic Regression Predicting the Logged Odds of Becoming an Economic Remittance Recipient Household in Guatemala, 2006

Explanatory Variables	Model 1				Model 2				Model 3			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Individual-Level												
Indigenous	-0.422	0.086	(-0.593	-0.257)	-0.364	0.084	(-0.522	-0.202)	-0.286	0.085	(-0.455	-0.122)
Lives in Urban Area	-0.200	0.092	(-0.390	-0.027)	-0.292	0.093	(-0.470	-0.121)	-0.865	0.105	(-1.067	-0.663)
Female Head	1.425	0.058	(1.316	1.540)	1.472	0.057	(1.356	1.582)	1.430	0.073	(1.294	1.578)
Household Head's Age												
(< 30)												
30 - 44					-0.181	0.081	(-0.346	-0.017)	-0.413	0.092	(-0.593	-0.231)
45 - 64					0.339	0.081	(0.196	0.496)	0.113	0.097	(-0.079	0.309)
65+					0.490	0.100	(0.300	0.684)	0.388	0.107	(0.177	0.592)
Household Head's Education												
(None or less than Primary)												
Primary Education					0.256	0.067	(0.113	0.385)	0.030	0.069	(-0.100	0.169)
Post-Primary Education					0.447	0.099	(0.258	0.637)	0.037	0.101	(-0.158	0.242)
Household Size												
(1 - 3)												
4 - 6								0.470	0.075	(0.315	0.617)	
7+								0.636	0.103	(0.429	0.837)	
Male Members Aged 15+												
(None)												
1 - 2								-0.256	0.063	(-0.380	-0.131)	
3+								-0.777	0.166	(-1.092	-0.457)	
Female Members Aged 15+												
(None)												
1 - 2								-0.405	0.088	(-0.574	-0.229)	
3+								-0.104	0.131	(-0.370	0.147)	
Household's Asset Index												
(1st Quintile)												
2nd Quintile								0.737	0.101	(0.539	0.931)	
3rd Quintile								1.282	0.112	(1.059	1.492)	
4th Quintile								1.674	0.121	(1.431	1.902)	
5th Quintile								2.062	0.137	(1.799	2.338)	
Municipality-Level												
Region												
(Metropolitan Area)												
North	-0.179	0.255	(-0.681	0.315)	-0.104	0.255	(-0.627	0.358)	0.152	0.250	(-0.324	0.664)
Northeast	0.415	0.178	(0.088	0.772)	0.455	0.184	(0.096	0.824)	0.484	0.185	(0.125	0.854)
Southeast	0.515	0.200	(0.098	0.893)	0.578	0.213	(0.177	0.996)	0.727	0.207	(0.342	1.124)
Central	-0.538	0.200	(-0.944	-0.149)	-0.508	0.197	(-0.907	-0.132)	-0.471	0.199	(-0.872	-0.093)
Southwest	0.802	0.180	(0.444	1.163)	0.855	0.190	(0.468	1.227)	0.963	0.182	(0.604	1.328)
Northwest	1.296	0.224	(0.857	1.722)	1.404	0.235	(0.938	1.856)	1.433	0.227	(0.999	1.861)
Peten	0.570	0.271	(0.043	1.085)	0.638	0.280	(0.093	1.166)	0.947	0.277	(0.422	1.512)
Intercept	-2.596	0.172	(-2.934	-2.254)	-2.995	0.201	(-3.381	-2.586)	-3.596	0.215	(-4.044	-3.171)
Deviance			9,651				9,566				9,184	

Table 4.11: Multilevel Logistic Regression Predicting the Logged Odds of Becoming an Economic Remittance Recipient Household in Nicaragua, 2005

Explanatory Variables	Model 1				Model 2				Model 3			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Individual-Level												
Indigenous	0.504	0.217	(0.066	0.906)	0.417	0.222	0.01	0.858	0.377	0.218	(-0.050	0.792)
Lives in Urban Area	0.855	0.084	(0.695	1.015)	0.342	0.085	0.179	0.512	0.221	0.104	(0.016	0.415)
Female Head	0.759	0.072	(0.618	0.907)	0.834	0.107	0.619	1.044	0.571	0.084	(0.397	0.727)
Household Head's Age												
(< 30)												
30 - 44					0.302	0.142	0.023	0.570	0.178	0.138	(-0.089	0.457)
45 - 64					0.926	0.138	0.663	1.197	0.680	0.143	(0.411	0.963)
65+					1.320	0.156	1.021	1.627	1.022	0.156	(0.710	1.306)
Household Head's Education												
(None or less than Primary)												
Primary Education					0.668	0.088	0.500	0.841	0.148	0.089	(-0.020	0.331)
Post-Primary Education					0.713	0.072	0.580	0.857	0.347	0.116	(0.129	0.582)
Household Size												
(1 - 3)												
4 - 6									0.043	0.096	(-0.132	0.240)
7+									0.103	0.120	(-0.136	0.336)
Male Members Aged 15+												
(None)												
1 - 2									-0.468	0.118	(-0.709	-0.237)
3+									-0.524	0.155	(-0.831	-0.221)
Female Members Aged 15+												
(None)												
1 - 2									-0.389	0.183	(-0.723	-0.020)
3+									-0.348	0.205	(-0.735	0.049)
Household's Asset Index												
(1st Quintile)												
2nd Quintile									0.404	0.127	(0.155	0.651)
3rd Quintile									0.550	0.128	(0.294	0.796)
4th Quintile									1.086	0.144	(0.800	1.358)
5th Quintile									1.536	0.158	(1.230	1.830)
Municipality-Level												
Region												
(Managua)												
Pacific	0.416	0.318	(-0.194	1.025)	0.404	0.323	(-0.257	1.005)	0.486	0.322	(-0.161	1.096)
Central	-0.412	0.312	(-1.041	0.179)	-0.312	0.322	(-0.950	0.326)	-0.187	0.313	(-0.796	0.409)
Atlantic	-1.324	0.358	(-1.999	-0.622)	-1.183	0.366	(-1.932	-0.474)	-0.938	0.367	(-1.662	-0.219)
Intercept	-2.169	0.304	(-2.760	-1.602)	-3.181	0.335	(-3.845	-2.508)	-2.521	0.403	(-3.343	-1.714)
Deviance			5,749				5,608				5,484	

4.5 Discussion

The statistical models presented in the current chapter have demonstrated various important findings. First of all, in the national level analysis, I found that migration is a socioeconomically selective process in both countries. Since none of the data sets used in this chapter are longitudinal data, we cannot make any conclusions about a causal relationship between a household's economic status and migration patterns. At the same time, the facts that these two factors are positively correlated and that indigenous households tend to be poorer than non-indigenous households indicate that it is probable that international migration can impact inter-ethnic relations in these countries.

The findings from the analyses of the Cantel and Bilwi samples have suggested that the disadvantage of indigenous households is much larger in Cantel than in Bilwi. Two possible explanations are: 1) the gap in educational attainment between the two ethnic groups is smaller in Bilwi than in Cantel, in part thanks to the Sandinista administration's literacy program during the 1980s (Baracco 2004) and; 2) the longer history of international migration from Bilwi as compared to Cantel, which will be discussed more in detail in Chapter 6. Nevertheless, we cannot negate that indigenous households are less likely to send migrants abroad in both of these municipalities. Furthermore, since the ethnic compositions of Cantel and Bilwi considerably differ, impacts of international migration can be very different despite the similar patterns of the migrant household selectivity.

Models presented in Tables 4.10 and 4.11 have shown that even though

the proportion of households that receive international economic remittances surpasses the proportion of migrant households in both Guatemala and Nicaragua, there also exists a notable ethnic gap in the odds of receiving economic remittances. At the same time, the gap exists in different ways between Guatemala and Nicaragua. In Guatemala, we found that overall, indigenous households are significantly less likely to receive economic remittances while the opposite is true among households in Nicaragua. Since Nicaraguan households in the Atlantic region, where many indigenous people reside, are less likely to receive these resources, at the national level, there may be no significant difference in the odds of being recipient households. Nevertheless, this is an important point that merits further attention.

In addition, Models presented in Table 4.10 show that even controlling for all the factors considered in these models, Guatemalan indigenous households are significantly less likely to receive economic remittances than non-indigenous households at the 95% HPD level. It is uncertain why the statistically significant advantage among indigenous households in the odds of receiving economic remittances between the two ethnic groups disappeared in Model 3 of Table 4.11 when controlling for various households' characteristics given that indigenous households lag behind these characteristics.

Hence, while the analyses in this chapter have led to various findings, they have also posed several new questions, which unfortunately cannot be answered using solely the secondary data sets. Finding answers for these questions is fundamental in understanding the impact of international migra-

tion on ethnic relations and ethnic identity shift. In the following chapter, I continue to use the survey data sets to explore another important issue related to international migration: its impact on socioeconomic structures with emphasis in the income distribution and children's schooling, both of which, I contend, strongly influence an individual's ethnic identity. Findings from this and the next chapters will then be analyzed and elaborated in Chapters 6 and 7 where I conduct the qualitative analysis of the primary data and propose a mechanism of ethnic identity shift using the agent-based modeling.

Chapter 5

Ethnic Differentials in Effects of Economic Remittance on Recipient Households

5.1 Objectives

In Chapter 4, we have found that a household's probability of sending international migrants and receiving economic remittances significantly differs between indigenous and non-indigenous groups in both Guatemala and Nicaragua albeit in different ways. In the case of Guatemala, indigenous households are less likely to become migrant households and to receive international economic remittances. While this is also true among Nicaraguan households, we have found that in Nicaragua, the geographical location seems to be a more influential factor on a household's probability of sending migrants abroad. Controlling for a household's residential location, indigenous households are more likely to have sent migrants abroad and to receive economic remittances than non-indigenous households. In addition, households in the Atlantic region, where the majority of indigenous people reside, are much less likely to send migrants than households in other areas of the country.

Limiting the sample to households in Cantel and Bilwi, we have found that indigenous households in both municipalities are less likely to be migrant

households than their non-indigenous counterparts. In addition, the regression analyses presented in Chapter 4 have indicated that the significant difference in the odds of sending migrants abroad and receiving remittances can usually be attributed to socioeconomic factors. Since a household's socioeconomic status is closely related to its migration status, the above findings indicate that indigenous households' lower socioeconomic status often prevents them from sending migrants abroad. What do these findings mean for economic structures in Guatemala and Nicaragua? Answering this question is essential in order to evaluate what international migration means for ethnic structures in Guatemala and Nicaragua given the assumption that individuals' socioeconomic status closely correlate with their ethnic identities.

To answer the above question, I explore two impacts that international economic remittances may have on migrant households and communities in Guatemala and Nicaragua: the level of household income inequality and children's schooling. I argue that these two factors can affect a person's ethnic identity since individuals' economic status and their educational attainment tend to affect interactions that people have with others and also, how an individual perceive others. One reason why there are few interactions between indigenous and non-indigenous peoples is that indigenous people lag far behind non-indigenous counterparts in most of socioeconomic indicators. Therefore, if international migration transforms socioeconomic structures in these countries, the interactions between the two ethnic groups may also change.

Previous studies that examined impacts of economic remittances on the

level of inequality in sending communities have encountered mixed-findings. For example, Barham and Boucher (1998) have found that migration increases the level of inequality in Bluefields, Nicaragua. On the other hand, Acosta et al. (2008) have shown that for both Guatemala and Nicaragua, economic remittances reduce the level of inequality. While Acosta and colleagues (2008) have provided important information on the effects of international migration on income structures in several Latin American countries, their study does not consider individuals' ethnic status. To my knowledge, no study has explored how international economic remittances can affect inter-ethnic economic structures. It seems that the lack of such research is due to the fact that the number of indigenous migrants is much smaller than that of non-indigenous migrants, especially in countries where the proportion of indigenous populations is small such as Mexico and Nicaragua. Hence, little attention has been paid to indigenous populations in the study of international migration. However, to closely examine impacts of economic remittances on income and socioeconomic structures in Guatemala and Nicaragua, we must take into account ethnicity since it is strongly related to socioeconomic structures in these countries.

In this chapter, I also examine whether or not international migration is related to children's schooling in these countries. It is well known that indigenous children lag behind their non-indigenous counterparts in educational attainment, especially in Guatemala. Since it is usually indigenous households' poor socioeconomic status that leads to a large differential in educational attainment between ethnic groups, households that receive international remit-

tances are more likely to send their children to school thanks to their additional economic resources. I argue that the two aspects (i.e. inequality level and school attendance) should be considered together when studying effects of migration on ethnic structures because these two factors strongly affect the ethnic identity shift in Cantel and Bilwi.

5.2 Data

In this chapter, I use the Guatemalan 2006 ENCOVI data and the Nicaraguan 2005 ENMV data used in Chapter 4. In the analysis of impacts of economic remittances on household income inequality levels, I have excluded households that did not report their incomes from the sample. The final data sets include 12,805 households for Guatemala and 6,522 households for Nicaragua. In the analysis of the effects of remittances on children's schooling, I limit the samples to household heads' children of ages between 7 and 20. The sample size for Guatemala is 20,373 children and for Nicaragua, 11,436 children.

5.3 Modeling Strategy

5.3.1 Economic Remittances and Income Inequality

To examine impacts of economic remittances on the level of inequality among Guatemalan and Nicaragua households, it is fundamental to obtain information on migrant households' income both before and after migration took place. However, the data sets used in the current chapter are cross-

sectional and do not provide any information on incomes before migration took place. Therefore, we must impute household incomes in a counterfactual scenario of no migration and no remittance.

As Acosta et al. (2008) and Adams (2008) argue, we cannot simply assume that migrant households are randomly drawn from the whole population. Findings presented in Chapter 4 have also indicated that migrant households differ from non-migrant households in terms of various socioeconomic indicators. Therefore, it is not feasible to simply predict household incomes of the counterfactual scenario using regression coefficients among non-migrant households because such an estimate will be biased. In order to examine the effect of migration and remittances on inequality, we need to estimate the counterfactual per capita income that a household would have had if a migrant had stayed at home.

To estimate the counterfactual per capital income, I use the selection model of Heckman (1976) that is used by Barham and Boucher (1998) and Acosta et al. (2008) who have predicted per capita income levels for households with remittances on the basis of a reduced-form specification for the determinants of income among households without remittances. Using the selection model, we suppose that non-remittance household income can be observed only among households that have not sent any migrants abroad.

$$\begin{array}{ll}
 Y_0 = \mathbf{X}\beta + u_1 & \text{receive only non-remittance income} \\
 \text{and} & \\
 Y_1 = \mathbf{X}\beta + u_2 & \text{also receive remittance}
 \end{array}$$

The above equations indicate that $Y = Y_0$ if households are households that do not receive international remittances and Y is missing or 0 otherwise. In the current case, our substantive equation of interest is:

$$Y = \mathbf{X}\beta + u_1,$$

along with a remittance recipient status equation,

$$R^* = Z\gamma + \beta + u_2,$$

in which a household non-remittance income (i.e., does not receive international economic remittances) if $R^* \leq 0$, and

$$Pr(R = 1|Z) = \Phi(Z\gamma).$$

In addition, it can be shown that:

$$E(u_1|R = 0) = E(u_1|u_2 > -Z\gamma) = E(u_1|u_2 < Z\gamma) = \sigma_{12} \left[\frac{\phi(Z\gamma)}{\Phi(Z\gamma)} \right].$$

By the symmetry of the normal distribution, we have:

$$\frac{\phi(-z)}{1 - \Phi(-z)} = \frac{\phi(z)}{\Phi(z)}$$

and

$$\frac{\phi(-z)}{\Phi(-z)} = \frac{\phi(z)}{1 - \Phi(z)}.$$

The ratio $\phi(z)/\Phi(z)$ is referred to as the inverse Mills ratio and this is included as a selection variable in the second-stage equation. From the modeling stand, we have:

$$R^* = Z\gamma + u_2, R = 1, \text{ if } W = 1, \text{ if } W^* \geq 0, 0 \text{ otherwise}$$

$$Y^* = \mathbf{X}\beta + u_1, Y^* = Y \text{ if } R = 0.$$

The selection model is identifiable if there is at least one independent variable in the first-stage choice function (in which we predict a household's remittance recipient status) that is not in the second-stage income function. Therefore, we need to choose at least one independent variable that is included only in the first-stage equation. That is, at least one variable that affects the receipt of remittances in the first-stage, but not the household income in the second stage equation. I use a household asset index as a variable that affects international migration status as the variable that identify the model. As Chapter 4 has shown, the asset index is closely related to international migration status. At the same time, I argue that it may not affect the amount of income a household currently receives as the income usually depends more on household members' educational attainment and the presence of their members living abroad than the asset index.

Using the household asset index as the variable that identifies the model, I calculate counterfactual incomes for migrant households based on regression coefficients obtained in the second-stage model. I then calculate

Gini indices for both observed and counterfactual incomes to analysis the effects of international migration on the income inequality level in Guatemala and Nicaragua. However, as Acosta et al. (2008) and Rodriguez (1998) have noted, the variance of the counterfactual income predicted on the basis of observable household characteristics (i.e., regression coefficients) is very small because it ignores unobserved determinants of income.

To overcome this problem, Barham and Boucher (1998) add to the predicted household income a random error component drawn from a distribution with the same properties (mean, variance) of the actual estimated errors. This chapter utilizes the same approach and obtains 1,000 different estimates of the imputed counterfactual non-remittance income for migrant households, and the same number of estimates for the inequality levels that would have been in the case of the above counterfactual scenario. In doing so, we can present both point estimates for the Gini indices and also, their confidence intervals. By comparing these Gini indices of the imputed counterfactual non-remittance income and actual observed incomes, we can examine whether these Gini indices are statistically different from one another.

5.3.2 Economic Remittances and Children's Schooling

Another objective in this chapter is to examine the correlation between households' economic remittance recipient status and children's school attendance. I use Cox proportional hazard model since this model enables me to make use of all the available information in observations that are right-

censored (i.e., children who were still enrolled in school at the time of survey). In addition, using the Cox regression, I can include those individuals who have already completed more than 12 years of schooling. Since the main interest of the study is school attainment in primary and secondary school, I focus on grades 1 through 12 by truncating an individual's completed schooling at 12 years if one has more than 12 years of completed schooling, treating him or her as right censored.

The sample is limited to children of household heads aged 7 to 20. I exclude those children of age six younger at the time of the survey because in Guatemala, the official age of entry for primary school is age seven, which is one year later than in most countries in Latin America. Following Cox Edwards and Ureta (2003), I regard children of school age who are not enrolled in school as those who have dropped out of school. Since the current sample also includes individuals who have never attended school, I regard "never enrolled" as the first stage of the schooling process in this study.

Using the proportional hazard model, the observed fraction of the population that dropped out after grade t relative to children who have completed grade t can be expressed as:

$$h_t = h_0(t)\exp(\mathbf{x}'\mathbf{b})$$

where $h_0(t)$ is the baseline hazard of leaving school after grade t , which is left unspecified. \mathbf{x}' is a vector of covariates, and \mathbf{b} is the vector of parameters to be

estimated. In the Cox proportional hazard model, the effect of the covariates is assumed to be proportional over the baseline hazard.

While we can make use of the current data sets using the Cox proportional hazard model, as Cox Edwards and Ureta (2003) argue, there are a few weaknesses of the use of cross-sectional data to study impacts of remittances on children's schooling. First, although it is reasonable to expect that decisions of parents on the schooling of older children depends on their school experience including whether or not they repeat a grade, the current data sets do not offer such information. In addition, the composition of the household such as the number of siblings and household budgets are likely to play a key role in parental decisions on children's schooling. Using the cross-sectional data, such information is not available.

5.4 Results

5.4.1 Economic Remittances and Income Inequality

Table 5.1 below presents descriptive statistics of variables used in the selection model. While both total and non-remittance per capita incomes are lower among indigenous households than non-indigenous households in Guatemala, which is expected, the opposite is true in the case of Nicaragua. This seems to be attributable to the way a per capita income is calculated in this chapter: the household per capita income is calculated as the sum of household income divided by household members. If a household member is 15 years old and up, he or she is considered as one person and for those under

the age of 15, I regard them as one half. Therefore, it is possible that the higher number of young people that indigenous households tend to have may lead to a higher per income among indigenous households as compared to that of non-indigenous households.

Tables 5.2 present results from the second-equation of the selection models.¹ The selection coefficient (λ) included in the model is statistically different from zero at the 95% level in both Guatemala and Nicaragua, which suggests that remittance recipient households are not randomly selected from the population and therefore, the selection coefficient actually corrects sample bias. Furthermore, the models suggest that in both Guatemala and Nicaragua, non-migrant households have higher per capita income levels than do migrant households. This point is consistent with the neoclassical theory of migration in the sense that potential migrants decide whether to migrate or not by comparing the returns at home and in their potential destination. At the same time, this point must be taken account carefully since poorest households usually face difficulties in sending migrants abroad. Indeed, in chapter 4, I have shown that migrant households tend to be economically more advantageous than non-migrant households.

¹Table for the first equation is provided in Appendix A.

Table 5.1: Descriptive Statistics of Demographic Characteristics of Households, Guatemala, 2006 and Nicaragua, 2005

Variables	Guatemala			Nicaragua		
	Total	Non-Indigenous	Indigenous	Total	Non-Indigenous	Indigenous
Indigenous (%)	36.54	—	—	4.18	—	—
Lives in Urban Area (%)	53.15	62.25	37.34	58.77	59.51	41.70
Female Head (%)	20.40	22.25	17.18	31.27	31.40	28.40
Household Head's Age	44.57	44.64	44.46	48.62	48.67	47.56
Household Head's Education (%)						
None or less than Primary	30.28	21.16	46.12	30.44	30.72	23.99
Primary Education	44.56	45.06	43.68	41.68	41.35	49.06
Post-Primary Education	25.17	33.78	10.20	27.88	27.92	26.95
No. of Male Members Aged 15+	0.57	0.55	0.62	1.61	1.61	1.66
No. of Female Members Aged 15+	1.41	1.34	1.54	1.73	1.73	1.83
No. of Male Members Under 15	1.08	0.93	1.35	0.95	0.93	1.42
No. of Female Members Under 15	1.05	0.89	1.31	0.92	0.90	1.35
Region (Guatemala) (%)						
Metropolitan Area	26.90	37.15	9.09	—	—	—
North	8.15	2.46	18.03	—	—	—
Northeast	8.30	11.49	2.75	—	—	—
Southeast	7.98	11.71	1.49	—	—	—
Central	11.24	11.53	10.75	—	—	—
Southwest	22.69	16.82	32.89	—	—	—
Northwest	11.73	5.20	23.08	—	—	—
Petén	3.01	3.64	1.91	—	—	—
Region (Nicaragua) (%)						
Managua	—	—	—	26.32	27.25	5.04
Pacific	—	—	—	29.24	30.01	11.62
Central	—	—	—	33.70	34.69	10.98
Atlantic	—	—	—	10.74	8.05	72.36
Receives International Remittances (%)	15.52	15.97	14.73	21.73	21.94	16.97
Non-Remittance per capita Income (amount)	1,881.12	2,535.87	988.12	1,808.23	1,790.60	2,211.96
Total per capita Income (amount)	1,970.40	2,430.89	926.11	1,903.88	1,886.35	2,305.14
N	12,805	8,307	4,498	6,522	6,051	471

Table 5.2: Multilevel Linear Regression Predicting Non-Remittance Income among Non-Recipient Households in Guatemala, 2006 and Nicaragua, 2005

Explanatory Variables	Guatemala				Nicaragua			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Indigenous	-0.274	0.018	(-0.308	-0.239)	-0.051	0.041	(-0.133	0.031)
Lives in Urban Area	0.422	0.019	(0.385	0.460)	-0.052	0.026	(-0.103	-0.003)
Female Head	-0.398	0.036	(-0.468	-0.328)	-0.406	0.030	(-0.461	-0.346)
Household Head's Age	0.032	0.003	(0.026	0.037)	0.021	0.005	(0.013	0.031)
Age Squared	0.000	0.000	(-0.000	-0.000)	0.000	0.000	(-0.000	-0.000)
Household Head's Education								
(None or less than Primary)								
Primary Education	0.308	0.020	(0.270	0.345)	0.077	0.026	(0.027	0.125)
Post-Primary Education	0.929	0.027	(0.874	0.981)	0.330	0.036	(0.266	0.401)
Male Members Aged 15+	0.032	0.010	(0.012	0.052)	-0.017	0.011	(-0.040	0.004)
Female Members Aged 15+	-0.135	0.011	(-0.156	-0.114)	-0.090	0.013	(-0.114	-0.066)
Male Members Under 15	-0.183	0.007	(-0.196	-0.169)	-0.078	0.010	(-0.097	-0.058)
Female Members Under 15	-0.176	0.007	(-0.191	-0.161)	-0.120	0.010	(-0.138	-0.100)
λ	1.354	0.095	(1.166	1.545)	1.826	0.096	(1.635	2.011)
Region								
(Metropolitan Area)								
North	-0.161	0.049	(-0.255	-0.071)				
Northeast	-0.129	0.039	(-0.206	-0.056)				
Southeast	-0.110	0.044	(-0.197	-0.027)				
Central	-0.065	0.042	(-0.145	0.017)				
Southwest	-0.125	0.039	(-0.202	-0.048)				
Northwest	-0.144	0.046	(-0.230	-0.050)				
Petén	-0.129	0.054	(-0.233	-0.021)				
Region (Nicaragua)								
(Managua)								
Pacific					-0.007	0.063	(-0.130	0.114)
Central					-0.096	0.061	(-0.228	0.022)
Atlantic					-0.084	0.064	(-0.226	0.033)
Intercept	6.257	0.067	(6.117	6.385)	6.624	0.125	(6.354	6.851)
Deviance			26,140				12,570	

The models also indicate that even controlling for socioeconomic and geographical factors, Guatemalan indigenous households' per capital income is significantly lower than that of non-indigenous households. On the other hand, while Nicaraguan indigenous households' per capita income is also lower than that of non-indigenous households, the difference is not statistically significant. However, controlling for other variables including household composition, the model shows that per capita income among indigenous households is slightly lower than that of non-indigenous households. Therefore, as I expected, a higher per capita income among indigenous households shown in Table 5.1. is likely to be attributable to the fact that there tend to be more children in indigenous households than in non-indigenous households. Most of other variables included in the models show predicted signs. For example, per capita income of households with household heads who have received longer years of formal schooling tends to be higher than that of households whose heads' education is low. Furthermore, while the more adult males reside in a household, the higher per capita income levels become, the opposite is true for the number of female adult members and children.

Table 5.3 presents Gini indices for observed non-remittance incomes, total incomes including remittances and imputed non-remittance incomes. The table also shows Gini indices each ethnic group. In the case of Guatemala, we can find that the Gini index for the observed non-remittance income (57.67) is higher than the Gini index for the imputed non-remittance income (56.45). This is also true for both indigenous and non-indigenous households. This

finding makes sense since observed non-remittance income levels among migrant households are usually low as these households often lack male members who may contribute to this part of household income due to their absence and therefore, heightens the Gini index. On the other hand, Gini indices (all households and by ethnic groups) for observed total income (that includes remittance) are lower than the Gini indices for the imputed incomes. Yet, for the whole population and indigenous households, the difference is not significant at the 95% level. While the Gini index for imputed non-remittance income is significantly higher than that of total income among non-indigenous households at the 95% level, the difference is very small. Therefore, the table indicates that while international migration and remittances sent by migrants slightly reduce the level of income distribution among Guatemalan households, its effects are not as significant as I have hypothesized. Hence, it is possible that even if economic remittances lower the income inequality level in Guatemala, the difference is so small that it may not affect income structures in the country so much.

The effects of international remittances on households in Nicaragua are somewhat different from the Guatemalan case. Among Nicaraguan households, Gini indices for imputed incomes are also lower than those for observed non-remittances incomes. The differences between these incomes are statistically significant at the 95% level. However, contrary to the Guatemalan households, remittances increase the income inequality level among Nicaraguan households and the difference between inequality levels is also statistically

Table 5.3: Gini Indices Comparisons: Observed vs. No Remittances and No Migration Scenarios

Country	Reported Income		Imputed Non-Remittance Income
	Without Remittance	With Remittance	
Guatemala			
Total	57.67*	56.25	56.45 (56.23-56.72)
Indigenous	51.36*	49.80	49.91 (49.60-50.33)
Non-Indigenous	57.13*	55.71*	56.00 (55.72-56.34)
Nicaragua			
Total	51.95*	52.45*	50.63 (50.37-50.94)
Indigenous	50.64*	51.78*	48.87 (48.11-49.92)
Non-Indigenous	52.04*	52.49*	50.74 (50.47-51.04)

Note: Numbers in parentheses are 95% confidence interval

Gini indices with * are statistically different from imputed non-remittance incomes at the 95% level.

significant at the 95% level. Overall, the Gini index for observed total income is about 3.6% higher (52.45) than the Gini index for the imputed non-remittance incomes (50.63). This tendency is true for both indigenous and non-indigenous households. The Gini index increases by about 6% among Nicaraguan indigenous households (48.87 to 51.78), the increase is about 3.44% among non-indigenous households (50.74 to 52.49). Therefore, the analysis shows that while the income inequality level increases for both indigenous and non-indigenous households in Nicaragua, the increase is larger among indigenous households. It seems that this is partly due to the fact that indigenous households in Nicaragua tend to concentrate in the Atlantic Coast region. As we have seen, households in this region are less likely to send migrants abroad in part due to their geographic disadvantage. Therefore, only socioeconomically selected households can send migrants abroad, which may result in a

higher inequality level among indigenous groups.

The examination of the effects of international economic remittances on the income inequality level has shown that while remittances reduce the income inequality in Guatemala—even though the decline is not statistically significant—these resources increase the inequality level in Nicaragua. An important question is how these changes affect indigenous households in these two countries and how they affect ethnic relations and identities. These points are discussed in detail in Chapters 6 and 7. In the following section, I examine how remittances affect children's schooling in the two countries.

5.4.2 Economic Remittances and Children's Schooling

The second point that I analyze in the current chapter is impacts of international migration on children's schooling. Given the assumption that ethnicity is a fluid concept, I argue that children's schooling can affect this concept in Guatemala and Nicaragua in a longer term.

Table 5.4: Descriptive Statistics of Demographic Characteristics of School Attendance among Children of Household Heads in Guatemala, 2006 and Nicaragua, 2005

Variables	Guatemala			Nicaragua		
	Total	Non-Indigenous	Indigenous	Total	Non-Indigenous	Indigenous
Indigenous (%)	45.30	—	—	5.25	—	—
Lives in Urban Area (%)	44.86	53.84	34.02	55.61	56.69	36.20
Female Head (%)	19.29	22.38	15.55	30.06	30.33	25.21
Household Head's Age	43.12	43.08	43.17	48.33	48.37	47.56
Female Child (%)	48.62	48.12	49.23	47.82	47.87	46.87
Household Head's School Year	3.91	5.10	2.48	4.56	4.55	4.70
Male Members Aged 15+	0.84	0.83	0.86	2.10	2.10	2.13
Female Members Aged 15+	1.64	1.53	1.79	2.15	2.14	2.23
Household's Asset Index (%)						
1st Quintile	20.01	15.47	25.49	14.87	14.26	25.90
2nd Quintile	20.00	17.02	23.61	18.36	17.73	29.67
3rd Quintile	20.00	18.08	22.30	20.95	21.16	17.12
4th Quintile	20.00	21.75	17.88	22.30	22.62	16.47
5th Quintile	19.99	27.68	10.71	23.52	24.22	10.84
Economic Remittance						
Receives International Remittance (%)	16.71	16.72	16.69	20.05	20.52	11.66
Receives Internal Remittance (%)	15.56	17.83	12.83	22.07	22.22	19.41
Amount International Remittance	626.21	723.46	508.79	3,255.93	3,255.00	3,272.74
Amount Internal Remittance	156.73	198.78	105.95	1,191.10	1,172.65	1,524.22
Region (Guatemala) (%)						
Metropolitan Area	20.18	31.01	7.10	—	—	—
North	9.06	2.31	17.21	—	—	—
Northeast	7.52	11.66	2.53	—	—	—
Southeast	8.04	13.51	1.44	—	—	—
Central	10.76	11.54	9.82	—	—	—
Southwest	25.58	18.36	34.30	—	—	—
Northwest	15.01	6.54	25.24	—	—	—
Peten	3.83	5.06	2.35	—	—	—
Region (Nicaragua) (%)						
Managua	—	—	—	24.63	25.77	4.11
Pacific	—	—	—	30.92	32.06	10.23
Central	—	—	—	33.39	34.80	7.83
Atlantic	—	—	—	11.06	7.36	77.83
Child's School Year	4.67	5.09	4.16	6.76	6.81	5.98
N	20,373	11,796	8,577	11,436	10,388	1,048

Table 5.4 presents descriptive statistics for variables used in the analysis. The table shows us various notable differences between indigenous and non-indigenous groups in the two countries. In Guatemala, on average, non-indigenous household heads have received more than twice as many years of formal education as their indigenous counterparts. On the other hand, the table indicates that in Nicaragua, indigenous household heads have actually received slightly longer years of education. At the same time, children's years of schooling is lower among indigenous children than non-indigenous children in both countries. Additionally, as we have seen previously, the economic status of indigenous households in both countries are lower than that of non-indigenous households.

Table 5.5 and 5.6 present estimates from the Bayesian Cox proportional hazard model for Guatemala (Table 5.5) and Nicaragua (Table 5.6). Model 1 shows that children in both countries, those who live in urban areas are significantly less likely to drop out of school than those in rural areas. In addition, we can find that while indigenous children's risk of dropping out of school is significantly higher than the risk among non-indigenous children in Guatemala, this is not the case in Nicaragua. As shown in Table 5.4, the average year of schooling among Guatemalan children (4.67) is much shorter than that of Nicaragua children (6.76). And Guatemalan indigenous children tend to receive much fewer years of education than their non-indigenous counterparts due to the severe poverty they face and also, the fact that they tend to live in rural areas where attending school may be difficult. The model reflects such a tendency.

In Guatemala, the risk of indigenous children to drop out of school is about 35% higher than the risk among non-indigenous children while in Nicaragua, indigenous children's risk is about 2.3% higher than that of non-indigenous children and the difference is not statistically significant at the 95% level. In both countries, children of households that receive international remittances are more likely to drop out of school than children of non-recipient households if we control for the amount of remittances a household receives. Hence, the risk of school drop out lowers as the amount of international remittances that households receive increases. Therefore, while remittances are an important household resource for households, to ensure that children to remain in school, households need to receive a certain amount of remittances.

In Model 2, I have added several household socioeconomic characteristics and their residential locations. The model indicates that parental education significantly and negatively correlates with children's risk of school drop out. In addition, households' economic status is strongly related to children's schooling in both Guatemala and Nicaragua. For example, in Guatemala, children in the highest quintile of households are only about 56.5% as likely as the poorest children to drop out of school. In the case of Nicaragua, richest children are only about 58.7% as likely as the poorest children to leave school.

Table 5.5: Cox Hazard Models Predicting the Risk of School Dropout among Guatemalan Households, 2006

Explanatory Variables	Model 1		95% HPD		Model 2		95% HPD	
	Mean	S.D.			Mean	S.D.		
Indigenous	0.300	0.028	(0.245	0.354)	0.032	0.033	(-0.030	0.096)
Lives in Urban Area	-0.825	0.031	(-0.889	-0.765)	-0.095	0.035	(-0.164	-0.029)
Female Head					-0.094	0.041	(-0.174	-0.016)
Household Head's Age					0.004	0.002	(0.000	0.007)
Female Child					0.266	0.03	(0.205	0.323)
Household Head's Education					-0.163	0.006	(-0.175	-0.152)
Male Members Aged 15+					0.088	0.014	(0.059	0.113)
Female Members Aged 15+					0.000	0.014	(-0.027	0.027)
Household's Asset Index								
(1st Quintile)								
2nd Quintile					-0.294	0.036	(-0.363	-0.229)
3rd Quintile					-0.571	0.040	(-0.647	-0.490)
4th Quintile					-0.852	0.045	(-0.936	-0.761)
5th Quintile					-1.425	0.065	(-1.556	-1.306)
Economic Remittance								
Receives International Remittance	0.820	0.291	(0.249	1.372)	0.614	0.303	(0.038	1.214)
Receives Internal Remittance	0.328	0.187	(-0.029	0.721)	0.301	0.185	(-0.070	0.652)
Amount International Remittance	-0.152	0.037	(-0.222	-0.078)	-0.114	0.039	(-0.189	-0.041)
Amount Internal Remittance	-0.055	0.029	(-0.115	0.001)	-0.065	0.029	(-0.120	-0.009)
Region								
(Metropolitan Area)								
North					-0.122	0.085	(-0.290	0.038)
Northeast					-0.076	0.073	(-0.208	0.075)
Southeast					-0.141	0.080	(-0.294	0.018)
Central					-0.005	0.075	(-0.150	0.136)
Southwest					-0.147	0.072	(-0.290	-0.007)
Northwest					0.192	0.080	(0.039	0.346)
Petén					-0.486	0.095	(-0.669	-0.304)
Deviance				38,158				35,630

Table 5.6: Cox Hazard Models Predicting the Risk of School Dropout among Nicaraguan Households, 2005

Explanatory Variables	Model 1				Model 2			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Indigenous	0.026	0.062	(-0.100	0.143)	-0.226	0.073	(-0.365	-0.094)
Lives in Urban Area	-1.217	0.043	(-1.299	-1.135)	-0.513	0.050	(-0.612	-0.421)
Female Head					-0.163	0.046	(-0.251	-0.069)
Household Head's Age					-0.004	0.002	(-0.008	-0.001)
Female Child					-0.178	0.039	(-0.253	-0.103)
Household Head's Education					-0.085	0.007	(-0.099	-0.071)
Male Members Aged 15+					-0.083	0.018	(-0.116	-0.048)
Female Members Aged 15+					-0.088	0.019	(-0.125	-0.051)
Household's Asset Index								
(1st Quintile)								
2nd Quintile					-0.196	0.045	(-0.289	-0.108)
3rd Quintile					-0.533	0.055	(-0.644	-0.424)
4th Quintile					-0.856	0.073	(-0.999	-0.713)
5th Quintile					-1.584	0.122	(-1.832	-1.348)
Economic Remittance								
Receives International Remittance	1.528	0.292	(0.949	2.118)	1.119	0.279	(0.556	1.648)
Receives Internal Remittance	0.335	0.198	(-0.049	0.729)	0.029	0.219	(-0.395	0.440)
Amount International Remittance	-0.240	0.035	(-0.309	-0.173)	-0.154	0.034	(-0.216	-0.085)
Amount Internal Remittance	-0.041	0.026	(-0.098	0.007)	0.002	0.029	(-0.053	0.058)
Region								
(Managua)								
Pacific					-0.454	0.106	(-0.662	-0.253)
Central					0.008	0.098	(-0.176	0.212)
Atlantic					0.292	0.102	(0.109	0.496)
Deviance			21,299				20,315	

When we control for households' socioeconomic status in Model 2, the amount of international remittances that a household receives remains significant for both Guatemalan and Nicaraguan households. This point implies that in both countries, remittances sent by migrants are more than just economic resources. It is possible that the importance of schooling is also transmitted to migrant households and the amount of economic remittances sent back home may reflect the frequency of contacts between migrants abroad and their households. Through frequent contacts between migrants and their household members left back home, household members may acquire new ideas about the value of schooling. To further explore why the effects of international remittances on children's schooling differs between Guatemalan and Nicaraguan households once other factors are controlled, I estimate the Cox models presented in Tables 5.5 and 5.6 for each ethnic group in both Guatemala and Nicaragua below.

Tables 5.7 and 5.8 present the Cox-proportional hazard models for Guatemalan indigenous (Table 5.7) and non-indigenous (Table 5.8) children. Model 1 presents similar coefficients for indigenous and non-indigenous children. For example, urban children tend to remain in school longer than rural children. Furthermore, the amount of international remittances negatively correlates with children's school dropout. One notable difference between indigenous and non-indigenous children in this model is that the correlation between the international remittance recipient status and children's school attendance is statistically different from zero only among indigenous children.

Since migration is a risky process and many migrants fail to reach their destination and to send money back home even if they pay a large amount of money to a coyote. To my knowledge, this is especially the case among indigenous households. As a result, it is probable that children of migrant households, especially poor children, are more likely to drop out of school unless these households improve their economic status through remittances.

In Model 2, controlling for other factors, the amount of economic remittances is significantly correlated with children's school attendance only among indigenous children. Guatemalan indigenous children lag far behind their non-indigenous counterparts in schooling. Since households' economic status (in terms of asset index) is also taken into account in this model, it seems likely that especially among indigenous households, international economic remittances means more than economic resources for these households. I argue that this point also makes sense considering the fact that a household head's educational attainment level is also negatively correlated with children's school attendance even when a household's economic status is taken into account.

Table 5.7: Cox Hazard Models Predicting the Risk of School Dropout among Guatemalan Indigenous Households, 2006

Explanatory Variables	Model 1				Model 2			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Lives in Urban Area	-0.572	0.043	(-0.660 -0.486)		0.004	0.051	(-0.095 0.104)	
Female Head					-0.114	0.064	(-0.246 0.010)	
Household Head's Age					0.013	0.002	(0.008 0.017)	
Female Child					0.410	0.042	(0.332 0.495)	
Household Head's Education					-0.166	0.010	(-0.186 -0.148)	
Male Members Aged 15+					0.051	0.022	(0.009 0.091)	
Female Members Aged 15+					-0.009	0.020	(-0.045 0.033)	
Household's Asset Index								
(1st Quintile)								
2nd Quintile					-0.291	0.054	(-0.395 -0.182)	
3rd Quintile					-0.495	0.060	(-0.612 -0.375)	
4th Quintile					-0.826	0.072	(-0.973 -0.682)	
5th Quintile					-1.354	0.103	(-1.558 -1.159)	
Economic Remittance								
Receives International Remittance	0.877	0.457	(0.014 1.744)		0.978	0.514	(0.054 1.971)	
Receives Internal Remittance	-0.166	0.291	(-0.707 0.390)		0.166	0.300	(-0.402 0.743)	
Amount International Remittance	-0.153	0.060	(-0.265 -0.038)		-0.166	0.067	(-0.297 -0.047)	
Amount Internal Remittance	0.016	0.047	(-0.075 0.104)		-0.047	0.047	(-0.140 0.044)	
Region								
(Metropolitan Area)								
North					0.080	0.150	(-0.203 0.363)	
Northeast					-0.002	0.165	(-0.310 0.335)	
Southeast					-0.050	0.211	(-0.474 0.354)	
Central					0.285	0.150	(0.003 0.579)	
Southwest					0.044	0.145	(-0.218 0.347)	
Northwest					0.460	0.148	(0.190 0.772)	
Peten					-0.212	0.180	(-0.558 0.141)	
Deviance			17,387				16,301	

Table 5.8: Cox Hazard Models Predicting the Risk of School Dropout among Guatemalan Non-Indigenous Households, 2006

Explanatory Variables	Model 1				Model 2			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Lives in Urban Area	-1.034	0.041	(-1.115 -0.953)		-0.181	0.049	(-0.274 -0.086)	
Female Head					-0.082	0.054	(-0.186 0.022)	
Household Head's Age					-0.002	0.002	(-0.007 0.002)	
Female Child					0.136	0.043	(0.052 0.222)	
Household Head's Education					-0.160	0.008	(-0.176 -0.144)	
Male Members Aged 15+					0.115	0.018	(0.079 0.153)	
Female Members Aged 15+					0.011	0.020	(-0.028 0.050)	
Household's Asset Index								
(1st Quintile)								
2nd Quintile					-0.318	0.049	(-0.414 -0.220)	
3rd Quintile					-0.666	0.058	(-0.778 -0.556)	
4th Quintile					-0.885	0.065	(-1.003 -0.752)	
5th Quintile					-1.503	0.088	(-1.669 -1.324)	
Economic Remittance								
Receives International Remittance	0.618	0.378	(-0.191 1.322)		0.386	0.395	(-0.358 1.133)	
Receives Internal Remittance	0.639	0.225	(0.194 1.074)		0.425	0.240	(-0.046 0.886)	
Amount International Remittance	-0.133	0.048	(-0.226 -0.030)		-0.082	0.050	(-0.176 0.013)	
Amount Internal Remittance	-0.099	0.035	(-0.164 -0.030)		-0.079	0.037	(-0.151 -0.010)	
Region								
(Metropolitan Area)								
North					-0.088	0.150	(-0.379 0.197)	
Northeast					-0.111	0.090	(-0.283 0.068)	
Southeast					-0.193	0.093	(-0.372 -0.012)	
Central					-0.153	0.095	(-0.342 0.027)	
Southwest					-0.208	0.093	(-0.391 -0.028)	
Northwest					-0.099	0.122	(-0.330 0.136)	
Peten					-0.609	0.123	(-0.861 -0.377)	
Deviance			20,702				19,237	

Tables 5.9 and 5.10 present model estimates for Nicaraguan indigenous (Table 5.9) and non-indigenous (Table 5.10) children. Model 1 indicates that as was the case among Guatemalan children, urban children are more likely to remain in school than rural children. International economic recipient status itself is not statistically different from zero among indigenous children while it is statistically significant among non-indigenous children. For both ethnic groups, the amount of international remittances that a household receives is negatively correlated with the risk of school drop out. In Model 2, we find that international remittances are not correlated with children's school attendance among indigenous children. On the other hand, the amount of international remittances received is negatively correlated with the risk of dropping out of school among non-indigenous children. For both indigenous and non-indigenous children, it seems that households' economic status is the most significant indicator of whether or not a child stays in school longer. This makes sense given the fact that most children in Nicaragua finish at least six years of education that is not the case in Guatemala. Since urban-rural status remains significant for both indigenous and non-indigenous children in this model, what affects children's schooling most in Nicaragua seems to be a household economic status and the availability of schools.

Table 5.9: Cox Hazard Models Predicting the Risk of School Dropout among Nicaraguan Indigenous Households, 2005

Explanatory Variables	Model 1				Model 2			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Lives in Urban Area	-1.065	0.147	(-1.364 -0.790)		-0.287	0.181	(-0.641 0.057)	
Female Head					0.026	0.146	(-0.272 0.311)	
Household Head's Age					-0.016	0.006	(-0.027 -0.004)	
Female Child					-0.015	0.130	(-0.262 0.229)	
Household Head's Education					-0.069	0.019	(-0.105 -0.033)	
Male Members Aged 15+					-0.238	0.060	(-0.348 -0.110)	
Female Members Aged 15+					-0.106	0.062	(-0.225 0.014)	
Household's Asset Index								
(1st Quintile)								
2nd Quintile					-0.189	0.138	(-0.444 0.083)	
3rd Quintile					-0.901	0.216	(-1.333 -0.469)	
4th Quintile					-1.371	0.310	(-1.972 -0.771)	
5th Quintile					-1.229	0.434	(-2.104 -0.415)	
Economic Remittance								
Receives International Remittance	3.249	1.951	(-0.410 7.445)		2.254	1.921	(-1.675 5.893)	
Receives Internal Remittance	1.130	0.884	(-0.481 2.950)		1.095	0.914	(-0.657 2.900)	
Amount International Remittance	-0.513	0.234	(-1.016 -0.089)		-0.356	0.233	(-0.842 0.095)	
Amount Internal Remittance	-0.097	0.104	(-0.307 0.102)		-0.121	0.109	(-0.336 0.083)	
Region								
(Managua)								
Pacific					-0.242	0.840	(-1.767 1.513)	
Central					0.314	0.761	(-1.031 2.111)	
Atlantic					0.116	0.730	(-1.133 1.871)	
Deviance			2,038				1,943	

Table 5.10: Cox Hazard Models Predicting the Risk of School Dropout among Nicaraguan Non-Indigenous Households, 2005

Explanatory Variables	Model 1				Model 2			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Lives in Urban Area	-1.235	0.045	(-1.320	-1.150)	-0.526	0.055	(-0.635	-0.420)
Female Head					-0.178	0.050	(-0.277	-0.084)
Household Head's Age					-0.178	0.050	(-0.277	-0.084)
Female Child					-0.003	0.002	(-0.007	0.000)
Household Head's Education					-0.197	0.042	(-0.281	-0.114)
Male Members Aged 15+					-0.086	0.007	(-0.101	-0.071)
Female Members Aged 15+					-0.070	0.018	(-0.106	-0.035)
Household's Asset Index					-0.083	0.021	(-0.125	-0.043)
(1st Quintile)								
2nd Quintile					-0.188	0.047	(-0.277	-0.094)
3rd Quintile					-0.513	0.058	(-0.632	-0.406)
4th Quintile					-0.822	0.075	(-0.971	-0.683)
5th Quintile					-1.603	0.133	(-1.854	-1.340)
Economic Remittance								
Receives International Remittance	1.443	0.290	(0.871	2.007)	1.102	0.298	(0.472	1.635)
Receives Internal Remittance	0.364	0.208	(-0.047	0.753)	0.028	0.222	(-0.392	0.452)
Amount International Remittance	-0.227	0.035	(-0.296	-0.159)	-0.152	0.036	(-0.218	-0.076)
Amount Internal Remittance	-0.049	0.027	(-0.101	0.005)	-0.001	0.030	(-0.058	0.056)
Region								
(Managua)								
Pacific					-0.462	0.111	(-0.678	-0.237)
Central					0.005	0.104	(-0.203	0.209)
Atlantic					0.315	0.109	(0.104	0.517)
Deviance			19,245				18,334	

5.5 Discussion

Findings from the current chapter indicate several important points regarding to the impacts of international remittances on Guatemalan and Nicaraguan children. First of all, the findings suggest that international remittance slightly decreases the income inequality level among Guatemalan households although the decrease is trivial and not statistically significant at the 95% level. This is also true among indigenous and non-indigenous households when considering them separately. However, since the difference is so small, we may say that at the national level, international migration does not influence a country's income structure as much as I have expected. On the other hand, we have encountered a quite different story among Nicaraguan households. That is, international remittances significantly increase the level of income inequality. Furthermore, the increase in the inequality level is more prevalent among indigenous households than their non-indigenous counterparts. I have argued that one reason why indigenous households' income inequality level increases more than that of non-indigenous households is that since the majority of indigenous households reside in the Atlantic region, migration is a quite expensive process. Hence, only selected households can send migrants abroad and as a result, the level of inequality further increases among this group.

The case of Nicaraguan households highlights an important point. Since the majority of indigenous people reside in the Atlantic region, it is possible that impacts of international economic remittances on income structure are more apparent among Nicaraguan households as compared to the Guatemalan

case when using the national level data set. On the other hand, because Guatemalan indigenous peoples are wide spread across the country and given the fact that rates of international migration seem to differ considerably by region, the national level data set may not be suitable to examine actual impacts of international migration on income inequality. However, using solely the publicly available data set, it is not feasible to conduct municipality-level analyses due to the small sample size. This makes sense given that people usually situate their socioeconomic position comparing themselves with those they normally interact with, who tend to be those people living in the same community. Therefore, it is important to conduct a close analysis of each community to understand what international migration means for economic structures in sending communities.

In the analysis of children's school attendance, we have found that in Guatemala and Nicaragua, the amount of international remittance that a household receives significantly reduces children's risk of school dropout net of other factors considered in the models. This result indicates that international migration is likely to bring migrant households in the two countries more than economic remittances. We need to take a close look at the importance of social remittances in examining the effect of international migration on these households. One point that seems particularly important is positive impacts of economic remittances on children's schooling is much stronger for indigenous children as compared to non-indigenous children in both countries when other factors are taken into account in Model 2 (Tables 5.7 to 5.10). I argue that

the above tendency is in part due to the fact that indigenous children tend to live in rural areas and also, they tend to be poorer, the importance of formal education is not widely understood among indigenous households as much as their non-indigenous counterparts. As a result, indigenous children tend to receive fewer years of schooling as compared to non-indigenous children in both Guatemala and Nicaragua as shown in Table 5.4. Since indigenous children are much poorer than non-indigenous children in Guatemala and Nicaragua, international migration is one way for many indigenous children to acquire more education. In this sense, international migration seems beneficial to indigenous children's education. At the same time, it is possible that indigenous children of non-migrant households may face even more difficulties in a long run since the gap in formal education among indigenous children may increase.

Due to the data limitation, I could not conduct statistical analysis of the two factors discussed in this chapter focusing only on households in Cantel and Bilwi. Even so, we have found that international migration, economic remittances in particular, affects both Guatemalan and Nicaraguan households in various and different ways. Do these effects are the same among households in Cantel and Bilwi? What do these effects mean for both indigenous and non-indigenous people and their ethnic identity in the two municipalities? In order to explore these questions, in the following chapter, I present a qualitative analysis of my field observations conducted in Cantel and Bilwi.

Chapter 6

Impacts of International Migration on Ethnic Structures in Cantel and Bilwi

6.1 Objectives

In this chapter, I examine impacts of international migration on ethnic relations in Cantel, Guatemala and Bilwi, Nicaragua using the data obtained in my fieldwork. The statistical analyses presented in Chapters 4 and 5 have shown that international migration is likely to affect socioeconomic structures of both Guatemala and Nicaragua. The analyses in these chapters have indicated while international migrants seem to be socioeconomically selective in both countries, impacts of international migration among households in Guatemala and Nicaragua have similarities and differences. What do these findings imply for impacts of international migration on ethnic structures in these countries? Regarding ethnicity as a fluid concept that is related to socioeconomic factors and circumstances that surround people, I argue that international migration can have a strong impact on sending communities' ethnic structures. I posit that such impacts are especially the case in countries like Guatemala and Nicaragua, where economic importance of international migration is very large and the definition of ethnic groups is not necessarily concrete or clear.

In this chapter, I analyze impacts of international migration on the ethnic structures in Cantel and Bilwi. These two municipalities differ from other municipalities in Guatemala and Nicaragua considerably. Cantel stands out from typical Guatemalan municipalities because of its large cotton mill that was the economic base of many people in Cantel until quite recently. Similarly, Bilwi is located in the internal war zone and numerous households have been affected by the internal conflict, especially during the 1980s. These municipalities have at least two characteristics in common. First, the proportion of indigenous people and other ethnic minority groups is very high, and this is one reason why people in these municipalities have maintained their ethnic identity as indigenous. Secondly, both municipalities have been heavily influenced by international migration in recent years. However, impacts of international migration on ethnic structures in the two municipalities differ considerably.

6.2 Data and Methods

This chapter draws on the data I collected in Cantel, Guatemala and Bilwi, Nicaragua during 2009 for three and a half months in each municipality. I first started my fieldwork in Bilwi in January 2009 and after completing the fieldwork there in April of the same year, I moved to Cantel and started the fieldwork there. The fieldwork in Cantel ended in July, 2009. I decided to collect first-hand data and conduct qualitative analysis for the following reasons. First, while there are several survey data sets that contain informa-

tion on international migration from Guatemala and Nicaragua, none of these data sets reports detailed information about respondents' ethnicity. In addition, I contend that statistical analyses alone cannot tell us much about how international migration influences ethnic relations and identity change. Since ethnicity is a fluid and complex concept, in order to understand the complexity and nuances of ethnic relations and how international migration can possibly affect these relations, it is imperative to obtain first-hand information that allows one to study processes leading to changes in one's ethnic identity. For example, while I have shown that remittances sent by international migrants may have more than just economic impacts on children's schooling, what this finding means to ethnicity is hard to understand from the statistical analyses. Therefore, the ethnographic approach is especially suitable for gaining insight into impacts of international migration on ethnic relations.

In my fieldwork, I first conducted a survey questionnaire using the questionnaire form shown in Appendix B. In Bilwi, I categorized the population into eight groups using the following three factors: the sex of household heads, their households' migration status and respondents' religious affiliation. While I also asked respondents' religious affiliation in Cantel, I did not use this variable to categorize people there. I used the religious affiliation in Bilwi as one category in choosing survey questionnaire respondents because the religious affiliation, especially among those who are Moravian, is very closely related to ethnic and geographical identity. While religion is also important in Cantel, I did not see notable ethnic differences in religious affiliation in that municipality

and thus, did not use this factor to categorize Cantel's population. Therefore, I categorized the population into eight groups in Bilwi while I had four groups in Cantel. This is why the number of respondents in the survey questionnaire is larger in Bilwi (120 respondents) than in Cantel (60 respondents). Based on these categories and with my research assistants who are native of Cantel or Bilwi and very familiar with residents of the municipalities, I selected respondents for the survey questionnaire. Note that the ethnicity was not used to categorize people for two reasons: 1) given the sample size, it was likely that non-indigenous respondents would be included in the sample, especially in the case of Bilwi where the number of respondents is relatively large and the proportion of Mestizo and other non-indigenous minorities is high. In the case of Cantel, since most residents are indigenous and the key informants included a few Ladino respondents, I did not need to intentionally choose more Ladino respondents and; 2) since one's ethnic identity does not always coincide with what other people think about that person's ethnic identity, especially in the case of indigenous people, I decided that it was better to ask respondents their ethnic identity instead of going to the interviews determining that one is indigenous or not. Therefore, even the dissertation focuses on indigenous people's ethnic identity, ethnic identity itself was not used to categorize the population for the questionnaire survey.

I then interviewed individuals that seemed particularly interesting during the survey questionnaire. I conducted a total of 43 in-depth, digitally-recorded and semi-structured interviews (21 respondents in Cantel and 22

respondents in Bilwi) in Spanish and in some cases, indigenous languages (K'iche' in Cantel or Miskitu in Bilwi). In recruiting respondents, I also asked my respondents as well as my local research assistants in each municipality to suggest potential participants. As a result, even though my study participants differ in their socioeconomic status and migration status, the small number and the non-probabilistic method of selecting the respondents precludes any generalization to the Guatemalan or Nicaraguan populations.

The 43 respondents in the semi-structured interviews also include several key informants in each municipality. The key respondents in this dissertation project are composed of community or religious leaders who are familiar with the issues of ethnicity in these municipalities. Since the time frame of my fieldwork was limited, it was impossible to observe how international migration changes ethnic structures during my fieldwork. Therefore, it was necessary for me to obtain information from those people who have been in Cantel or Bilwi for a long time and are also familiar with the issue of ethnicity and international migration. Although my sample is non-random, I argue that it is not problematic in this project given that ethnicity is situational and how international migration can affect ethnicity may differ between communities. The main goal of the current chapter is not to generalize impacts of international migration on ethnic structure and ethnic identity in Guatemala and Nicaragua, but to identify factors that affect ethnic identity and understand whether or not international migration affects ethnic identity change in the two municipalities.

In addition to the respondents for the in-depth interviews, I recruited people who may participate in focus groups during the survey questionnaire. In this dissertation project, I conducted three kinds of focus groups in each municipality (one focus group for each kind and therefore, a total of six focus groups in the two municipalities): 1) members of migrant households; 2) non-migrant household members and; 3) female members of both migrant and non-migrant households. Therefore, participants in the focus groups have been selected based mainly on a household's migration status and the sex of possible participants and each group had five to eight participants. By conducting different focus groups between migrant and non-migrant households, I examined whether migrant and non-migrant household members share different ideas and attitude toward migration and changes brought by it. For example, how migrant household members see other migrant households may differ from how non-migrant household members see migrant household members.

Goals of the focus groups were to learn what participants would think about their ethnic images and relations as well as ethnic identity shift and how these factors have been affected by international migration. Since I intended to capture ideas regarding migration and ethnicity related-issues among ordinary people in these municipalities, I excluded participants in in-depth interviews who tend to be more familiar with the issue than others in the municipalities. I also expected that open discussions in the focus group would show participants' reactions to and interpretations of changes brought by international migration and impacts of international migration on social networks and eth-

nic identity shift. In doing so, I aimed to identify factors that were most likely affected by international migration and also, elements that are most likely related to one's ethnic identity in these municipalities. The focus groups were conducted during the period I conducted in-depth interviews. Therefore, when I encountered any noteworthy points in the focus groups that had not been explored before in the fieldwork, that point was included in subsequent interviews.

6.3 Results

The main goal of my fieldwork was to examine how international migration affects ethnic structures and people's ethnic identity in Cantel and Bilwi. To achieve this goal, I started my fieldwork exploring factors that international migration may affect. As Cornell and Hartmann (2007) argue, ethnicity is a product both of social change and circumstance and of human interpretation and action. In other words, ethnicity is neither natural nor static identity, and ethnic identity construction may occur in any part of a society and as an aspect of virtually any set of social relations. Therefore, identifying factors that international migration is likely to affect in these municipalities is the first step in examining impacts of international migration on ethnic relations. This is why I began the interviews asking my respondents whether they perceived that any notable changes in ethnicity related issues have been observed over the years since they began to reside in either Cantel or Bilwi. Then, I sorted out factors that are likely affected by international migration and those that

are not. The comparison of the two municipalities has helped me to carry out this task. Below, I present how international migration has affected socioeconomic structures and social networks and how such impacts differ among people in Cantel and Bilwi.

6.3.1 Impacts of International Migration on Socioeconomic Structures and Social Networks

The strong impact that international migration has had on the socioeconomic structure is hard to deny in both municipalities. For example, in both Cantel and Bilwi, when I asked if there were any notable changes that respondents in my interviews and participants in the focus groups thought that were due to international migration, most of them commented that a considerable number of large houses were constructed by migrant households. In the case of Cantel, several respondents stated that some migrant households constructed even four-story houses, which are rare in the municipality where most houses are one-story houses. In addition, children of migrant households often wear clothes that are so expensive that most non-migrant households cannot afford them. In both municipalities, children of migrant households are more likely to attend private schools instead of public schools, especially in Bilwi where various private schools exist.

Even when children remain in public schools, the socioeconomic difference between children of migrant and non-migrants households is easily observable. Dario, a school teacher at a public school in Cantel, noted that migrant

household children tend to possess goods that many non-migrant households cannot afford such as video games. Not only the difference in economic status between migrant and non-migrant households is observable, but also people in both Cantel and Bilwi are well aware of such differences. The prosperity that international migration has brought to both municipalities is one reason why people, especially young people in these municipalities migrate internationally. Indeed, for people in both Cantel and Bilwi, the primary reason to migrate internationally is to encounter economic opportunities that are hard to find in these municipalities. For many indigenous people in both municipalities, migrating abroad is a more attractive and realistic option than migrating to capital cities of Guatemala City or Managua. Many of indigenous households in these municipalities do not have family members or acquaintances in the capital and due to the severe discrimination they have faced as indigenous seems to discourage them from migrating to the capital. On the other hand, I found that most residents in these two municipalities know at least one person who lives abroad and virtually everybody could tell me a story or two about people from their municipalities residing abroad. As a result, I found most young people in these municipalities are at least interested in migrating abroad in search of better economic opportunities.

Economic impacts of international migration are also similar in Cantel and Bilwi: migrant households usually benefit from economic remittances and most people in these municipalities often feel that international migration increases the economic gap between those households that have migrants

abroad and others that do not. Although it is difficult to verify if the gap has actually increased based solely on the field observations, what is crucial in residents in the two municipalities do interact with migrant household members and through such interactions, they feel the gap in both municipalities. However, I found one important difference in impacts of international migration on households between the two municipalities during my fieldwork: members of migrant households in Bilwi are much more likely to change their social networks than migrants or migrant household members in Cantel.

For example, Julio, a young Miskitu university student in Bilwi stated that he has seen various Miskitu people of migrant households who now prefer to interact with Mestizos rather than Miskitu people. According to Julio, in some extreme cases, Miskitu people may deny the fact they can speak the indigenous language that they used to speak and avoid interacting with other Miskitu people as much as possible. During my fieldwork in Bilwi, I have heard similar comments from other respondents. On the other hand, I noticed that international migration rarely changes household members' social relations in Cantel. The above observation is consistent with the fact that while many migrant households in Bilwi tend to build a house in the suburban area of the city and change their residential location, most migrant household members in Cantel decide to build a house in the same village within Cantel where they have lived.

Another difference that I encountered is that some Miskitu indigenous people, especially those of migrant households, aim to change or have changed

their ethnic identity and identify themselves as Mestizo while such a case is extremely rare in Cantel. Changes in social networks and ethnic identity seem to be related to each other since Miskitu people who have changed their ethnic identity are the ones who are most likely to have relations with Mestizos. It is puzzling why such differences emerge when socioeconomic impacts of international migration are similar in the two municipalities. One reason that seems apparent for this difference is that Bilwi is a multi-ethnic society while Cantel is not. Inter-ethnic interactions also affect ethnic identity.

However, I contend that the difference in demographic composition between the two municipalities alone cannot explain why the majority of migrant household members in Cantel maintain their ethnic identity while it is not necessarily the case in Bilwi. In exploring this point, I have identified two factors that may explain why migrant household members in Bilwi, especially Miskitu people tend to change their social networks and identities while Maya-K'iche' people in Cantel do not: the social status of international migrant household members and factors that define indigenusness in these municipalities, which I refer to as ethnic markers.

6.3.2 Migrant Household as Social Status

One notable difference between people in Cantel and Bilwi is the way they see migrant households. In Bilwi, migrants and their household members seem to acquire a status that guarantees members of migrant households a certain social position in the municipality. On the other hand, in Cantel, no

such position is guaranteed for migrants and their household members. In Cantel, it is mainly a household's economic status that determines a household's position. Migrant households tend to be placed in socioeconomically higher positions because they are usually economically more advantageous than non-migrant households. While a household's economic position is of course important in Bilwi, members of migrant households locate themselves in a higher social position as compared to non-migrant households of similar economic status. Since migration destinations among people in Bilwi are not limited to the US, but include Costa Rica, Panama, Spain, Canada and so on, the economic outcome of international migration differs by migrants' destination countries. At the same time, regardless of the amount of wealth that migrant households accumulate, migrant households tend to hold socioeconomically higher positions than non-migrant households in Bilwi.

I noticed that the case of Cantel is quite different from that of Bilwi. While many people in Cantel, especially young men decide to migrate, the risks of migration are very high and many people return to Cantel as a result of deportation in either Mexico or in the US. Since the majority of migrants have paid a large amount of money to smugglers, their economic situations deteriorate as a result of trying to migrate to the US. While the poorest households in Cantel may not be able to send migrants abroad, most households can do so even though the fee paid to smugglers can be as high as US\$6,000. Since the majority of households in Cantel own some land for cultivating corns, many of them use this resource to borrow money to go to the US. However, even

though they pay a large sum of money, for people in Cantel, arriving to the US is never guaranteed. A relatively high migration failure rate seems to result in a large economic discrepancy.

Wealth status of migrant households in Bilwi is largely defined by migrants' destinations. Hence, migrant household's economic situation varies considerably. At the same time, there is one factor that differentiates these migrant households as a whole from non-migrant households. In Bilwi, these migrant households receive remittances in US Dollar regardless of migrants' destination countries since the US currency is widely circulated. The role of US Dollar highlights another important difference between Cantel and Bilwi. The way people regard the US currency. Most people in both Cantel and Bilwi are conscious that migrants in the US earn their wage in the US currency. Yet, most households in Cantel receive their remittances in the local currency (i.e., Guatemalan Quetzal) because in Guatemala, most stores accept only the local currency. Therefore, the only difference between migrant and non-migrant households in Cantel is the amount of economic resources that each type of households holds. Indeed, it seems that the majority of people in Cantel do not care about the US Dollar-Guatemalan Quetzal exchange rate. Of course, people in Cantel realize that migrants in the US earn much more than average people in Cantel, economic remittances are regarded as just another source of income. Furthermore, it was until late 1990s when a considerable number of people begin to migrate to the US from Cantel. This relatively short history of international migration is contrary to the case in Cantel's nearby communities

such as Zunil and Almolonga where we can see the presence of associations among migrants in the US from these communities. During my fieldwork in Cantel, I have not heard the presence of such associations in the case of Cantel.

The case of Bilwi is quite different. Although Nicaragua possesses its own currency (Nicaraguan Córdoba), US Dollar is widely used and accepted everywhere in the country. Bilwi is no exception and various jobs that are usually regarded as professional such as jobs at international organizations such as Red Cross and the UNDP (United Nations Development Programme) and university jobs offer salaries in US Dollar. These jobs require a higher education level and pay more than other jobs. Since most international migrants from Bilwi send their remittances in the US currency regardless of their country of destination, migrant households often feel that their economic status has been improved even if they do not receive a large sum of remittances. Indeed, Perla, a 55-year old school director in Bilwi, has noted that remittances have recently changed the socioeconomic structure of Bilwi considerably. Since migrant households receive remittances in US Dollar, they tend to regard themselves differently from non-migrant households, which is usually not the case in Cantel. I argue that this is one important reason why members of migrant household change their social networks through migration. At the same time, the social status that people obtain through international migration is not sufficient to explain why Miskitu people in Bilwi are more likely to change their ethnic identity than K'iche' people in Cantel. The way people define indigenous people in the two municipalities is also a reason that makes

it easier and sometimes more desirable for Miskitus in Bilwi to shift their ethnic identity than K'iche' indigenous people of Cantel. Below, I present various ethnic markers that define the category of indigenous people used in these two municipalities.

6.3.3 Ethnic Markers

I argue that one reason why Miskitu people in Bilwi are more likely to change their social networks through their international migration status is the difference in factors that define indigenous people between Cantel and Bilwi. Seeing ethnicity as a socially constructed concept, the difference in these factors can affect impacts of international migration on ethnic structures. Below, I first present several factors that can be regarded as ethnic markers and then, explain why such differences influence changes in social networks.

6.3.3.1 Residential Location

One ethnic marker that presents notable difference between people in Cantel and Bilwi is the way residential location is related to their social identity. That is, the geographical unit to which people tend to attach their belongingness differs between people in the two municipalities. In Cantel, people usually refer to their residential location at a level that is smaller than municipality, typically villages (*aldea* or *caserio*) within their municipality. Griselda, a young university-educated indigenous woman, commented that within Cantel, before being Cantelicense (natives of Cantel), she emphasizes her origin

from Pachaj, a village in Cantel that is located about 20 minutes from Cantel's city center called *Pueblo*. The only time she mentions Cantel as her origin is when she goes to Quetzaltenango or other cities outside Cantel. It is also important to note that while Cantel has its city center, the majority of residents in Cantel do their grocery shopping in Quetzaltenango except for those living in *Pueblo*. As a result, even though Cantelicens state that they are from Cantel to people outside the municipality, it seems that they do not share their residential identity as natives of Cantel very much. Since each village does not have a strong tie with other villages, people in each village compare their socioeconomic situations only with those in the same village.

Cantel's situation is quite contrary to the case in Bilwi where people tend to identify themselves as Costeño (coast people). While districts within the municipality do exist in Bilwi, it is rare that people in Bilwi emphasize these smaller geographical units. The reason why the above noted difference exists can be attributed to the nature of population dynamics of the two municipalities. Although a large number of indigenous people reside in these municipalities, the ethnic composition of Cantel and that of Bilwi differ from each other. While the majority of people in Cantel are indigenous, Bilwi is a multi-ethnic society where not only Miskitu indigenous people, but also a number of Mestizos, Creoles, and Mayangna indigenous people live. Teresa, a 49 year old Mestizo woman who is a university library director in Bilwi, stated that while there are districts of Bilwi where certain ethnic groups tend to concentrate, these districts are not strongly related to the ethnic identity

in the municipality. Hence, even though people outside the Atlantic Region usually believe that most habitants in the region are ethnic minorities and share the same identity, for people in Bilwi, residing there does not necessarily mean that they are indigenous. In addition, since Miskitus have a choice to choose whether they identify themselves only as Costeño and/or also from Bilwi, the ethnic identity as Miskitu is not as strongly related to Bilwi.

Furthermore, Bilwi continues to receive a number of migrants each year, most of them from nearby communities in the RAAN for various reasons. For example, Carlos, a sixty-year old municipality office worker, states that today, many children from nearby communities such as Sisin and Santa Martha come to Bilwi after completing their primary education since only primary education is available in these communities. Since many of these children have their family members living in Bilwi, the transition to Bilwi is not very difficult. Due to the influx of many people from outside Bilwi, the identity as being locals of Bilwi is not shared by many people. And this massive incoming migration flow makes a clear distinction between those originally from Bilwi and those born outside the municipality.

On the other hand, as Nash (1967) states, various years after the Fábrica was constructed, a large number of workers from nearby municipalities migrated to Cantel to work at the Fábrica. However, very few people migrate to Cantel and, most people who reside in Cantel today were born and grew up in the municipality. Therefore, people in Cantel can assume that most of current habitants were born in Cantel. This is why Cantlicenses refer to

villages within when they talk about their birth place or where they currently reside. Since their residential identity at a village level is so strong, people in Cantel usually do not move from village to village within Cantel unless some necessary reasons such as marriage emerge. The difference in the unit of geographical locations used for one's identity leads to another difference in impacts of international migration on changes in social networks. This strong attachment to villages leads people in Cantel to think that people residing in Cantel are indigenous even though most of them realize that there are some Ladinos in the municipality.

6.3.3.2 Language

Indigenous language is also an important ethnic marker. However, its importance differs between the two municipalities. It is interesting that while the proportion of indigenous population in Cantel is much larger than in Bilwi, more Miskitu people speak their indigenous language than do people in Cantel, where the majority of young people do not speak K'iche'. Most indigenous children in Cantel do not speak K'iche' today because their parents tend to speak to them in Spanish. Unfortunately, this is the result of traumatic experiences that their parents had when they were young. That is, as Michaela, a young school teacher in Cantel stated during an interview:

I do not speak K'iche because my parents never taught it to me. They did not because they were discriminated by Ladinos because of being indigenous and also, not being able to speak Spanish well. My

parents told me that they were punished when they spoke K'iche' at school and that is one reason why they did not finish school.

Similarly, many young Miskitu people born in Bilwi do not speak the Miskitu language today. For example, Tania, a 55 year old teacher has noted in my interview that when she was a child, she was never taught to speak Miskitu even though her mother could speak it. Instead, she was forced to learn English because her mother believed that proficiency in English instead of Miskitu would bring her success. Tania also recalled that her parents' attitude toward the indigenous language and Miskitu people's generally low socioeconomic status let her desire to be anything but Miskitu. Tania has also stated that many young people in Bilwi wish to master English, which reflects the positive image of British and American cultures.

Despite the fact that some people have negative images of the indigenous languages, it is also true that the Miskitu language is very widely spoken. This is due to the fact that Miskitus from outside Bilwi migrate to the municipality even today. Many of these people do not speak any Spanish this is the reason why the proportion of people in Bilwi who speak the Miskitu language remains high. Since the Miskitu language is widely spoken in Bilwi, often times it takes a lot of time for these new migrants to learn Spanish. Since incoming migrants who speak only the Miskitu language tend to have a very strong ethnic identity as Miskitu, the inability to speak the Miskitu language can be used by some people to escape from the Miskitu ethnic identity. This

example of Bilwi is quite different from the case in Cantel where the ability to speak the K'iche' itself is not a determinant ethnic marker of indigenusness. As a result, those Miskitus who desire to change their ethnic identity can use the language to help shift their ethnic identity from Miskitu to Mestizo.

6.3.3.3 Traditional Clothes and Skin Color

In addition to the language, indigenous clothing is an important ethnic marker. The majority of indigenous women in Cantel wear their traditional clothes called corte and huipil. On the other hand, men in Cantel wear western clothes just like Ladinos. Hence, the costume is an ethnic marker only for women in the case of Cantel. In Cantel, I have found that for some young women, the traditional clothes can be used as a way to escape from their ethnic identity as indigenous. Josue, a private school director in Cantel, noted that recently, more women use western clothes after they try them at school, generally as a school uniform. However, the status of traditional clothes is very complex. For example, Mariano stated that traditional clothes in Guatemala can also be a symbol of prosperity because these clothes usually cost much more than western clothes. Therefore, he argues that many girls do not wear them not because their parents do not want them to wear the traditional clothes, but wearing western clothes is more economical. Like Josue, Mariano also mentions that today's higher school enrolment rate among girls in Cantel reinforces the transition from traditional clothes to western clothes. When he was young, it was almost prohibited for girls to wear clothes other than traditional clothes.

Hence, when girls were forced to wear a uniform for physical education at school, there was a large dispute. However, these days, people do not complain so much on this issue as more people are accustomed to use western clothes.

In the case of Bilwi, to my knowledge, nobody wears traditional costumes. However, among Miskitu people, I noticed that a person's skin color is an important ethnic marker that is not the case in Cantel. Tania, a 55 year-old university professor states that many Miskitu people desire to have lighter skin tone and Miskitu people with lighter skin tone are more likely to identify themselves as Mestizo rather than Miskitu. Tania refers to this as *whitening*. I have noticed that it is very difficult, if not impossible to define biological characteristics of Miskitu people. For example, Maritza, an NGO director states that today there is no pure Miskitu anymore, arguing that all of them are mixed-blood, there are Miskitu people with blue eyes and are white. Indeed, Miskitu people are often not as easily recognizable as Mayan-K'iche' people in Cantel in terms of physical characteristics. Therefore, it seems that it is more difficult to define Miskitu indigenous people solely by biological characteristics than Maya-K'iche' people in Cantel giving a wider definition of indigenusness in Bilwi.

6.3.4 Image of Indigenusness

Through my fieldwork, I noticed that international migration would affect ethnic relations among Miskitu people in Bilwi much more than K'iche' people in Cantel. This tendency seems to be attributable to the definition of

Miskitu people that is much wider and less clear than that of K'iche' people in Cantel. In other words, there are more categories and ethnic markers that define indigenous groups in Bilwi than in Cantel and therefore, the image or definition of indigenusness is broader in Bilwi than in Cantel. I argue that there are three factors that are attributable to this trend: 1) more frequent inter-ethnic communications and relations in the case of Bilwi; 2) a relatively high level of formal education that people in Bilwi receive and; 3) the presence of another indigenous group (Mayangna) in Bilwi.

In Cantel, people do not encounter with other indigenous groups in Guatemala such as Kaqchikel and ethnicity itself is seldom discussed. In Guatemala, each ethnic group tends to concentrate in certain areas of the country, and at least in Cantel, few people interact with other indigenous groups. In Chapter 2, I argued that migration benefits households from economic remittances. It is possible that migrant households improve their relative positions in their communities and such changes lead to the transformation of individuals' perception or images of social structure, including images of ethnic groups. Indeed, it seems that international migration affects image of indigenusness in both municipalities. Given the fact that there are two types of Miskitu people (i.e., those born in Bilwi and those migrating from nearby communities), the image of Miskitu people is wide. As a result, no single factor can define Miskitu indigenous people. On the other hand, the image of indigenusness in Cantel seems to be rather narrow: residing in Cantel usually means one is indigenous and if she or he speaks the K'iche' language, nobody will doubt

that that person is indigenous.

International migration seems to affect migrants' communities of origin through changes in ethnic markers and widens the image of indigenusness, which can reinforce certain people to shift their identity. My fieldwork in Cantel and Bilwi has helped me in sorting out these markers affected by international migration that can reinforce ethnic identity change and those that are not. Changes in ethnic markers along with the improvement in socioeconomic status often widen the image of indigenusness and this induces migrant household members to shift their ethnic identities. In addition, when these members distinguish more categories in the rank order, it seems that they see more opportunities to shift their ethnic identity. And inter-ethnic interactions can promote such shift even more as these interactions may pressure more indigenous people to shift their ethnic identity.

6.3.5 Inter-ethnic Interactions

Ways in which the image of indigenous people is defined differs considerably between Cantel and Bilwi. Such differences are related to the degree and type of inter-ethnic relations in both municipalities. While Bilwi is a multi-ethnic society, Cantel is not. Obviously, this is one reason why people in Bilwi are more sensitive to ethnicity-related issues than people in Cantel. In his work, Popkin (2005) has observed in Guatemala that international migration has resulted in the establishment of new ethnic boundaries within the municipality of Santa Eulalia. For example, some migrants and their house-

hold members adopted behaviors that people in the municipality associate with Ladino Guatemalans. Since indigenous people in Cantel rarely interact with Ladinos within the municipality, such changes do not usually happen. Nevertheless, people in Cantel do also experience inter-ethnic relations, especially when they visit the city of Quetzaltenango.

In both municipalities, there are various factors that affect inter-ethnic relations in addition to the ethnic markers discussed above. Of these factors, one important factor is people's level of educational attainment. That is, the probability of indigenous people in both municipalities to identify themselves as indigenous differs by the level of education they have acquired. Interestingly, I found that the level of education is negatively correlated with the identification as indigenous only at a certain educational level. For example, Carlos, a municipality office worker in Bilwi, has noted that people with the intermediate level (junior and senior high school levels) face the highest danger of losing their ethnic identity as indigenous. Indeed, highly educated people in my interviews often identified themselves as indigenous more often than did those with intermediate levels of education. These respondents have suggested that there are stages through which many indigenous people must go through in order to assure that their ethnic identity becomes solid. In Cantel, those children who study at a public school usually do not interact with any Ladinos since most of students are indigenous.

Ethnicity becomes salient when young indigenous people from Cantel try to obtain jobs in Quetzaltenango or other cities. Nancy, an indigenous

woman who is a nurse in Cantel, states that these people often encounter an ethnic barrier for the first time in their lives. And this experience often lets them feel the existence of the barrier that cannot be easily overcome even when they meet requirements to obtain a job. My respondents with little formal education usually believe that indigenous people did not do well economically because they have not received enough formal education to acquire a good occupational position.

Unlike the case of Cantel, where most students are indigenous even at private schools, in Bilwi some of the most expensive schools are mainly composed of Mestizos. Although there are several private schools in Cantel, most of students in these schools are also indigenous. There are some from Zunil and Almolonga, but they are also indigenous too. Within the municipality, people in Bilwi are very conscious of ethnic identities and discriminations given its very multi-ethnic society. On the other hand, in Cantel only a limited number of people encounter this kind of experience because many of them interact only with indigenous, even when they work in near-by municipalities like Almolonga and Zunil.

When young people in Cantel realize the existence of the ethnic barrier, they may be motivated to shift their ethnic identity from indigenous to Ladino if they see such a shift is possible. Indeed, Julio, a school director in Cantel, told me a story about several indigenous people who changed their last names to escape from their ethnic identity as indigenous. Since people's geographical identity is based at a village level among people in Cantel, the inequality

is also felt at that level. As a result, people usually do not feel the need to change their ethnic identity. However, people with an intermediate level of educational attainment often encounter situations such as job interviews, inter-ethnic relations and more subtle racial discriminations. Interestingly, in both Cantel and Bilwi, I noticed that indigenous people with post-secondary education are much less likely to change or to aim to change their ethnic identity from indigenous to Ladino or Mestizo. Through the interviews, I found that this is because acquiring a very high level of education places them in a higher social position and therefore, they do not need to shift their ethnic identity. Rather, obtaining a high social position despite the difficulties they have faced as indigenous, these highly educated people often emphasize their identity as indigenous.

6.4 Discussion

Contrary to the findings from the statistical analyses presented in Chapter 5, in the case of Cantel and Bilwi, non-migrant households in both municipalities perceive that the level of inequality has become higher today than before the massive international migration took place. However, I have found several differences between the two municipalities. For example, members of migrant households in Cantel are much more likely to keep their networks that were established before they or their household members migrated than do their counterparts in Bilwi. In addition, Miskitu people are much more likely to shift their ethnic identity than their counterparts in Cantel. And it

seems that international migration may accelerate the pace of ethnic identity shift in Bilwi. However, with the current time span of the fieldwork, it is difficult to examine how international migration could impact ethnic structures in these municipalities. To partially offset this limitation, I use computational simulation to provide a longitudinal perspective in the following chapter.

Chapter 7

International Migration and Ethnic Identity Shift in Guatemala and Nicaragua

7.1 Objectives

Findings from Chapters 4 to 6 have shown that in both Guatemala and Nicaragua, international migration is quite a selective process and therefore, indigenous households are less likely to benefit from international migration as compared to their non-indigenous counterparts. Contrary to the above findings, non-migrant households in both Cantel and Bilwi perceive that the level of inequality has become higher today than before the massive international migration took place. Despite such a similarity, migrant households in Cantel are much more likely to keep their networks that were established before they or their household members migrated than do migrant households in Bilwi.

In this chapter, I present a mathematical model of ethnic identity shift. The proposed model explores how a combination of various factors such as the level of socioeconomic inequality and a community's ethnic compositions affect the rate of ethnic identity shift. The model is constructed taking into account the findings presented in the previous chapters. As I have shown in the previous chapter, ethnic identity shift seems much more prevalent in Bilwi

than in Cantel. A seemingly obvious reason for this finding is that most residents of Cantel are indigenous while Bilwi is composed of people of several ethnic backgrounds. However, this factor alone cannot explain a more rapid ethnic identity shift in Bilwi. Indeed, one important finding from my fieldwork is that two persons who are socioeconomically very similar to each other can end up in having quite opposite ethnic identities through their own or their household's migration experience. This point merits serious consideration. However, it has been impossible to rigorously study ethnic identity shift in Guatemala and Nicaragua beyond field observations due to lack of quantitative data. Computational simulation is one way to overcome such a difficulty. Recent technological development has given social scientists an opportunity to examine social processes in experimental settings using computers. Computational simulation is one way that allows us to examine processes that generate phenomena we are interested rather than simply analyzing a correlation between factors.

7.2 Ethnic Identity as Social Process

In both Bilwi and Cantel, I have heard that ethnic identity shift takes place quite drastically and such a change can occur with or without international migration experience. Therefore, when people's relative positions in a society can have strong impacts on images of indigenous groups. Furthermore, changes in relative social positions also lead to the re-construction of ethnic boundaries. Tilly (2005) states that people organize a significant part of their

social interaction around the formation, transformation, activation, and suppression of social boundaries. According to the author, to understand boundary changes, we must distinguish between two different types of mechanisms: 1) those that precipitate boundary change (encounter, imposition, borrowing, conversation, and incentive shift), and 2) those that constitute boundary change and produce its direct effects (inscription, erasure, activation, deactivation, site transfer, and relocation). I argue that international migration affects boundary change by influencing factors that precipitate boundary change as changes in socioeconomic status probably leads to the re-creation and modification of social network.

In my field observations, I have encountered various examples that reconfirm the fact that ethnicity is a fluid concept. For example, in one interview, a Miskitu woman indicated how family relations can affect their ethnic identity:

I have a friend who married an American woman and now lives in Florida with their daughter. Their daughter was born in the US and has never lived here. She occasionally visits here with her parents. But to my surprise, she speaks our language (Miskitu)! I was very curious why and asked her father. He said that his wife loves our culture and she speaks Miskitu very well. Since their daughter was born, she often spoke to her daughter in Miskitu and always placed an importance on her daughter's Miskitu heritage.

*This is why their daughter is now proud of her ethnic background
and speaks the language very well.*

If international migration indeed affects the factors that initiate boundary changes, it can also have impacts on images of indigenes. That is, while images are cognitive and boundaries are socially interactive, images emerge in interactions. What this link between boundaries and images indicates is that if international migration helps selected indigenous people to cross ethnic boundaries becoming Mestizos, they tend to have negative images of indigenes. As the proportion of Mestizos increases and that of indigenous people decreases, indigenous groups enter into a vicious cycle that endangers indigenous cultures: Images of their groups continue to degrade and those who identify themselves as indigenous remain poor and isolated from the mainstream indigenous groups, further dividing a country into two distinctive societies instead of one multicultural society.

Therefore, both boundaries and images of indigenes are closely correlated with social interactions. Furthermore, people in Latin America may cross ethnic boundaries more easily because the fluidity of ethnicity is stronger in Latin America. That is, there is a continuum of racial and ethnic categories, at least more than in the US where the category 'black' supposedly includes anyone with a known 'drop of black blood' (Wade 1997). The category of Mestizo symbolizes such a continuum. However, this feature alone cannot explain the above noted shift. For example, Wimmer (2008) argues that fuzzy

ethnic distinctions and boundaries may allow people to maintain membership in several categories or switch identities situationally. To my knowledge, encountering indigenous individuals who present several ethnic categories in this manner is very rare in Guatemala and Nicaragua. This is because while the ethnic boundary can be very fuzzy in Latin America, social classes are very closely correlated with ethnic backgrounds. These two features are key factors to understanding why international migration and multicultural reforms can threaten ethnic identity as indigenous.

Multicultural reforms and international migration have drastically changed some of the conditions that surround indigenous groups. Since multicultural reforms in the two countries have not been accompanied with necessary structural changes, the majority of indigenous people remain poor. Similarly, while international migration may help migrant households through economic remittances, it does not usually help non-migrant households to advance socioeconomically. As a result, indigenous people are motivated to cross the boundary into the mainstream Mestizo culture to escape from poverty and discrimination. Indeed, the continuing discrimination along with changes brought by both multicultural reforms and international migration induced a more rapid shift in ethnic identity. One such change is bilingual education that covers both Guatemala and Nicaragua extensively today. While it is a welcoming fact that more indigenous children have access to education, the acquisition of Spanish language is a double edge sword for indigenous groups and cultures. In both countries, Spanish is seen as one of the power symbols of the

mainstream society as Hill and Hill (1980) discuss about Mexican indigenous groups. Therefore, while today's multicultural reforms certainly help some indigenous people to overcome hardships and to be included in the mainstream society, the changes that seem apparently beneficial to indigenous people can be detrimental to their cultures. For example, in one of my interviews in Cantel, one professional indigenous Mayan woman recalls her experience with one of her friends:

A few years ago, one of my friends asked me whether she could borrow one of my daughter's corte and huipil (Guatemalan traditional clothes). I asked why and she said that she wanted her daughter to wear them at her school activity. She said that the corte and huipil are good costume for surprise. I cordially declined her request because I felt that she regarded our traditional clothes as those costumes her daughter could wear for...say Halloween.

As this woman's comment suggests, ethnic discrimination continues to exist today albeit in a more nuanced way than in the past. Similarly, Garzon (1998) states on Guatemalan Mayan groups that indigenous population's integration into Mestizo society has often resulted in the internalization of negative images attached to indigenous groups among indigenous people themselves. Since the end of the civil war in the two countries, more indigenous people are in frequent contact with Mestizos. However, indigenous people who encounter Mestizos in a more egalitarian manner frequently face a higher risk of losing

indigenous languages and identities because indigenous people continue to face hostility and derision from the dominant Mestizo group, both explicitly and implicitly. As a result, some indigenous people decide to abandon their ethnic identity and assimilate into the mainstream Mestizo culture. Since they usually speak Spanish well and have other socioeconomic capitals, such as formal education, it is easier for them to abandon their indigenous languages and shift their identity (Garzon 1998).

While changes brought by international migration and multicultural reforms pressure indigenous people to shift their ethnic identity, processes of such a shift remains obscure. The main purpose of the proposed model is therefore to understand the processes of ethnic identity shift and to rigorously analyze what can be done to reverse this trend. Computer simulation is useful to achieve this objective since by changing parameter values, we can observe combinations of parameter values that most likely induce ethnic identity shift.

7.3 Methods

To understand ethnic identity shift, I propose a mathematical model and run a computational simulation based on the model with various parameter combinations. Both recent theoretical advances in the natural sciences and the decreased cost of computer technology have made it feasible to use computational models as tools to tackle problems and questions in the social sciences (Cederman 2005). In addition to its availability, there are other important reasons why I use computational model to examine ethnic identity change.

First, to my knowledge, there is no data set that enables us to study ethnic identity shift trends in Guatemala and Nicaragua. Second, ethnic identity shift presents a nonlinear dynamics and the use of statistical methods is not appropriate for studying this type of phenomena. Third, the main purpose of the current chapter is to understand the process of ethnic identity shift rather than the correlation between factors and such a shift. As Barth (1981) asserts, it is not sufficient to identify an association between factors, especially when one aims to understand why a phenomenon of interest takes place. We should rather focus on understanding how such a phenomenon was generated. Hence we need to be able to describe the processes that generate the phenomenon (Barth 1981; Cederman 2005). Computer simulation enables us to observe and examine processes generating social phenomena of interest and test whether our assumptions hold true.

7.3.1 Model Description

The model takes into account findings from the previous chapters. I use a network approach to examine and explain ethnic identity shift from indigenous to Mestizo. Network phenomena are relevant to numerous biological and social outcomes such as obesity and diffusion of ideas (e.g. Christakis and Fowler 2007). In addition, the previous literature on international migration suggests that migrant network is one of the most important factors influencing a person's probability of migration (e.g. Palloni et al. 2001). I use the network approach because types of neighbors that an individual has can affect

perceptions of discrimination and such perceptions influences the way people define their identities. Therefore, an agent's neighbors have impacts on his or her probability of shifting their identity from one state of ethnic identity to another. Indeed, as Nagel (1994) states, individual ethnic identification is strongly limited and influenced by external forces that shape the options, feasibility, and attractiveness of various ethnicities. My field observation noted earlier that two very similar persons can end up holding opposite ethnic identities justifies the use of network approach. Networks used in the current are structured in a similar way to the construction of random network: individuals are represented by vertices with contacts between members denoted by edge and each individual has the identical number of linked neighbors. That is, neighbors that a person has a direct contact with. However, agents (persons) are not linked to others at random. Instead, the probability of one agent being connected to another one is determined by agents' socioeconomic status and ethnicity so that connections between agents would resemble the actual situation that I encountered in my fieldwork. While it is also possible to let agents be connected to others following other types of networks such as spatial or small-world (Watts and Strogatz 1998), the current framework reflects the actual situation in the two research communities most suitable.

7.3.2 Modeling Ethnic Identity Mechanism: Transmission on the Network

Below I define a macro-level formation of the ethnic identity shift mechanism using tools from theoretical and mathematical epidemiology and based

on the findings from Chapter 6. I first divide the population of interest into two groups: indigenous and Mestizo (Figure 7.1). Note that in the case of the city of Bilwi, non-indigenous groups cannot simply be viewed as one group since there are Mestizos and Creoles. However, since I have found in my fieldwork that Creoles rarely (if ever) change their ethnic identity, dividing the population into two ethnic groups would suffice for the objective of this chapter. The indigenous population is then divided into five states of ethnic identity (S , E , I , L and ID) and the model assumes that all indigenous agents are situated in State S at the beginning (i.e. time 0). The Mestizo group is divided into two groups: those in State L_p hold positive ideas about indigenous groups while the opposite is true for those in L_n . The description of each state is provided in Table 7.1.

Figure 7.1: Scheme of Indigenous Ethnic Identity Shift

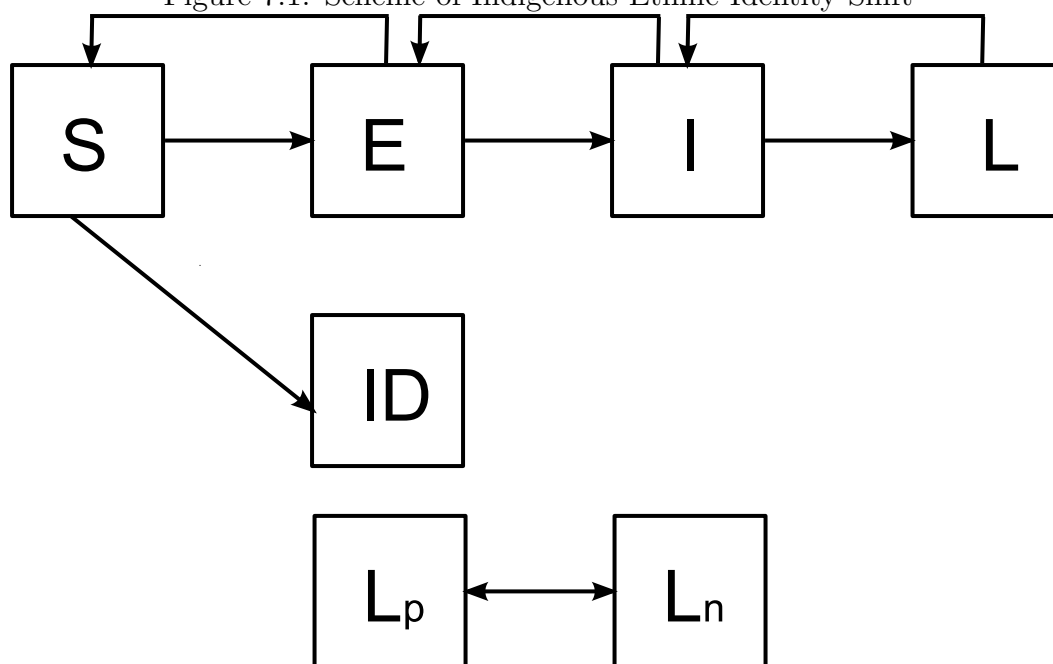


Table 7.1: Description of States

State	Description
S	General and susceptible indigenous population
E	Indigenous individuals who are exposed to the negative image associated with being indigenous
I	Indigenous individuals who have negative images associated with being indigenous and also transmits such negative images
L	Indigenous individuals who have abandoned their ethnic identity as indigenous and currently identify themselves as mestizos
ID	Indigenous individuals whose identity as indigenous has been solidified and is robust
L_p	Mestizo individuals who have positive images of indigenous groups
L_n	Mestizo individuals who have negative images of indigenous groups

In the proposed model, the ethnic identity change takes place as equations shown below indicate and Table 7.2 gives a description of each parameter:

$$\begin{aligned}\dot{S} &= -\beta SE + \epsilon\beta ES - \epsilon\beta ID \\ \dot{E} &= \beta SE - \beta EI - \epsilon\beta ES - \epsilon\beta EID + \epsilon\beta IE \\ \dot{I} &= \beta EI - \beta IL - \epsilon\beta IE \\ \dot{L} &= \beta IL \\ \dot{ID} &= \epsilon\beta SID + \epsilon\beta EID\end{aligned}$$

Table 7.2: Description of Parameters

Parameter	Description
β	Rate of ethnic identity shift
ϵ	Identity reverse parameter that varies $0 < \epsilon < 1$

As Figure 7.1 indicates, in the current model, mestizos never change their ethnic identity, which is consistent with my field observation. However, their attitude toward indigenous people can change. In this study, I assume that each agent has some ideas or images about indigenous groups. For the process of how such image is generated, which is beyond the scope of this paper, I follow the algorithm presented in Fararo and Kosaka (2003). In the current model, agents are assigned a mean value of the image and its standard deviation. Agents interact with others and may modify their images at probability p , which is also assigned at model setup.

Mestizos are situated either in State L_n or L_p depending on the mean value of images they have. I assign two different distributions of the average

image that people have on indigenous people: one for the indigenous population and the other for the mestizo population. I assign these distributions using a gamma distribution. I use the gamma distribution because in the fieldwork, it has become clear that the image of a particular ethnic group does not usually follow a normal distribution. Rather, the distribution is probably skewed and gamma distributions are very flexible in creating numerous shapes of distributions. Once each agent is assigned the average image, mestizos with images that are higher than the average image of the whole population will be situated in State L_p while those whose image is lower than the whole population's average will be in State L_n .

Another important feature of the proposed mechanism is that the probability identity shift from one state to another is constant and identical except when an agent's identity as indigenous becomes solidified (from S to ID and E to ID) and when a reversal of identity shift (i.e. from E to S and from I to E) occur, in which cases β is multiplied by the reverse parameter ϵ . In my fieldwork, while it has become clear that indigenous people who eventually change their identity to mestizo tend to have at least some periods to rethink about their identity, whether the rate from one state to another differs is still unclear.

Therefore, it is more appropriate using the same value of β for indigenous agents' shift in state. In addition, note in Figure 7.1 that States ID and L are absorbing states indicating that once individuals enter these states (whether identified as indigenous or mestizo), they will never change their

ethnic identity again in the model. In reality, the probability of agents to change their state from these two states may not be zero. Nevertheless, this assumption appears to be reasonable according to my findings in the fieldwork. Finally, using a network approach, while the assigned value of β is identical across all agents, the probability of indigenous agents to move from a state to another is contingent on the types of neighbors they have. For example, an agent's probability of moving from State S to E is higher when he or she has Mestizo neighbors than when all neighbors are indigenous.

7.3.3 Ethnic Image Transformation and Rewiring Process

In the proposed model, while Mestizos do not change their ethnic identity, their attitude toward indigenous groups can. When the modification process takes place, each agent evaluates their linked neighbors' socioeconomic status and if any of their neighbors' socioeconomic status is as high as or higher than that of the agent, they may adapt the image of those neighbors. This is probably the most important feature included in the proposed model since changes in an agent's socioeconomic location in society tends to stimulate the transformation of their images about society and ethnic groups, which is also an important factor on ethnic identity shift. For the mechanism of image transformation, I adapt the mechanism presented in Deffuant et al. (2005). Let us imagine that two Agents i and j have different images of indigenous groups and that Agent j 's socioeconomic status is higher than that of Agent i . Segments of image for Agent i is defined as:

$$\begin{aligned}
& s_i = [x_i - u_i, x_i + u_i], \\
\text{while for Agent } j: & \\
& s_j = [x_j - u_j, x_j + u_j].
\end{aligned}$$

We examine the agreement of Agents i and j as the overlap of s_i and s_j , minus the non-overlapping part. The overlap h_{ij} is given by:

$$h_{ij} = \min(x_i + u_i, x_j + u_j) - \max(x_i - u_i, x_j - u_j)$$

And the non-overlapping width is:

$$2u_j - h_{ij}.$$

The agreement is the overlap minus the non-overlap.

$$h_{ij} - (2u_j - h_{ij}) = 2(h_{ij} - u_j)$$

Then *iff* $h_{ij} > u_j$, the modification of Agent i 's (i.e. x_i) occurs by the interaction with Agent j are multiplied by the relative agreement:

$$x_i = x_i + \mu \left(\frac{h_{ij}}{u_j} - 1 \right) \cdot (x_j - x_i)$$

where μ is a scale parameter determining the weight that the interaction with Agent j can have on the new image possessed by Agent i . Note that unlike Deffuant et al. (2005), I do not modify u through interaction since I assign the fixed standard deviation for each agent's image. Rather, agents maintain the same width (i.e. standard deviation) of their images. As the above formula

indicates, if $x_i < x_j$, then Agent i 's image of indigenous groups will become more positive after the interaction between Agents i and j while the opposite is the case when $x_i > x_j$.

In addition to their images of indigenous groups, agents can change their network ties at the same rate as the rate of image transformation if they are dissatisfied with their neighbors. An agent is dissatisfied with his or her neighbor if the neighbor's socioeconomic status is lower than the agent's or if the neighbor's ethnicity is not consistent with the agent's preference. The agent's ethnic preference depends on his or her current state. For example, while the dissatisfaction of mestizos in State L_p never depends on the neighbor's ethnicity, this is not the case among agents in State L_n . If an agent is dissatisfied with at least one of his or her neighbors, he or she identifies one such neighbor and disconnects a tie with him or her. Then, the agent creates a tie with another agent following the same algorithm of networks used at the setup of the initial network.

7.3.4 Limitations

To my knowledge, the proposed model is the first attempt to explore how international migration reinforces ethnic identity shift and why the pace of such an identity shift differs across communities and countries. Therefore, while the model takes into account the above mentioned features, I have simplified it and thus, the model contains various shortcomings. In the current model, I do not differentiate those indigenous people whose ethnic identity

as indigenous has been solidified and robust (State *ID* in my model). It is clear that there can be various sub-categories within this group. For example, extremists may claim their own ancestral land and even try to construct their own nations. Meanwhile, others may present a more moderate political attitude. Moreover, while indigenous agents' images of their groups can also change through interactions with other agents, their states do not change given their value of images. This is because it is still unclear how much change is necessary for indigenous agents to shift their state. Despite these weaknesses, I argue that the proposed model is useful in exploring ethnic identity shift and the model can be improved when more information is available.

7.4 Simulation Results

I ran simulations with 30 different parameter combinations for 100 repetitions each, for a total of 3,000 simulation runs. Below, I present results from four parameter combinations. To see if my argument that the proportion of the indigenous population in a community is not necessarily the leading cause of ethnic identity shift holds true, I fix the proportion of indigenous population in the current chapter at 0.5 for all simulation runs. Therefore, half of the population is indigenous while the other half is Mestizo. Since I set the population size at 300 agents, there are 150 indigenous agents and 150 non-indigenous agents. In the simulation runs, each agent has ties with exactly three other agents and the probability of being connected to another agent is conditional on both agents' ethnic and socioeconomic status as well as the

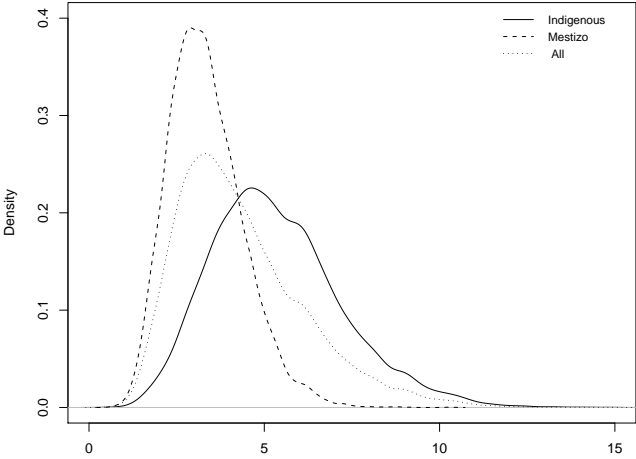
parameter values presented in Table 7.3. For example, the probability of two agents with the identical socioeconomic status to have ties each other is higher if they share the same ethnicity (0.7) than when their ethnic backgrounds differ (0.3).

Each simulation takes 520 steps (or tick. The above calculations are undertaken at each step. Therefore, 520 calculations will be performed for each simulation runs) and for convenience, I treat one step as one week. Hence, 520 steps can be seen as the length of 10 years. The value of ethnic identity shift rate reflects a composite measure of factors influencing the shift such as media and community characteristics. Note, however, that the value of identity shift rate (0.5) was assigned arbitrarily since it is difficult to compute this rate empirically. Hence, the goal of the simulation runs is to examine which parameter combinations are likely to lead to a high ethnic identity shift rather than exactly what proportion of people continue to identify themselves as indigenous after 10 years.

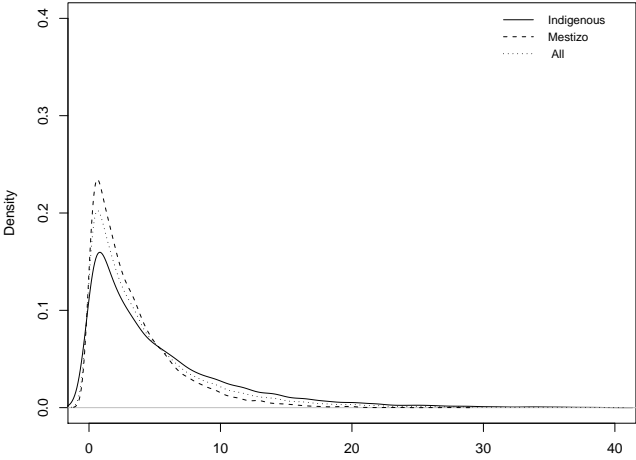
Table 7.3: List of Parameter Values Fixed in the Current Chapter

Name	Value	Description
Population Size	300	Number of agents
Number of Links	3	Number of links each agent possesses
Proportion Indigenous	0.5	Proportion of indigenous population in total population
Same Ethnicity	0.7	Probability of having a tie with an agent of the same ethnicity when SES is controlled
Ethnic Inequality	50	Level of socioeconomic inequality between indigenous and non-indigenous agents. 0 indicates no inequality. Ranges from 0 to 100
Migrant Selectivity	20	Level of migrant selectivity in terms of agents' socioeconomic status.
Migration Success Probability	0.75	Probability of migration success. If successful, an agent's socioeconomic status increases by one rank (e.g. from poor to middle)
Ethnic Identity Shift Rate	0.5	Rate of Ethnic Identity Change per 52 steps (for each 100 agents)
Poor	0.6	Proportion of agents who are classified as poor
Middle	0.3	Proportion of agents who are classified as middle class
Rich	0.1	Proportion of agents who are classified as rich
Same SES	0.5	Probability of an agent to possess a tie with another agent of the same SES when agents' ethnicity is controlled
Different SES 1	0.35	Probability of an agent to possess a tie with another agent whose SES is one rank different when agents' ethnicity is controlled
Different SES 2	0.15	Probability of an agent to possess a tie with another agent whose SES is two ranks different when agents' ethnicity is controlled
Propensity Score	0.5	Weight the importance of ethnicity and socioeconomic status when creating ties among agents
Reverse Rate	0.8	ϵ as presented in Table 2
Image Update/Rewiring Frequency	2	Average frequency of image updates and rewiring per 52 steps (for each 100 agents)
Scale Parameter	0.3	Weight of interaction with another agent when creating a new image of indigenous groups

Figure 7.2: Two Distributions of Images of Indigenous Groups at Population Level



a



b

The four parameter combinations are composed of different distributions of agents' images of indigenous groups at the population level and different widths (in terms of standard deviation) of images that each agent possesses. More specifically, Figure 7.2 presents two distributions of ethnic images used in the current chapter. Figure 7.2a shows a narrow distribution (with indigenous $\alpha = 8$, indigenous $\beta = 1.5$, Mestizo $\alpha = 10$, and Mestizo $\beta = 3$) and we can find a wider distribution in Figure 7.2b (for indigenous $\alpha = 0.8$ and $\beta = 0.15$ and for Mestizo, $\alpha = 1$ and $\beta = 0.3$). The mean value of the images for each group is identical across the two kinds of distributions. However, we can see that the distribution of images at the population level is much wider in 7.2b than in 7.2a.

The first distribution resembles the population of Cantel, where the vast majority of its population (approximately 95%) are indigenous. In addition to its ethnic composition, I argue that the distribution of agents' images of indigenous group is likely to be narrow at the population level in Cantel because of the following reasons: 1) The average years of schooling is very low in Cantel among peoples of ages 18-64 and many elderly people—especially women—are illiterate. The level of educational attainment is related to images of ethnic groups that individuals hold because education is strongly correlated with types of occupations people have as well as people with whom they interact. In addition, types of media people are most exposed to are important influential factors on the images they hold have a strong relation with one's educational attainment; and 2) According to the 2002 demographic census

and my own observations, currently, there are few people migrating into this community. Therefore, Cantel is a very closed community and since residents know that most of their neighbors were born in the community, it is rare that they talk about a person's origin of community or ethnicity. Because of these reasons, I assert that people in Cantel hold similar ideas about indigenous groups.

On the other hand, people in Bilwi appear to possess diverse images of ethnic groups since the city is quite different from Cantel. For example, while the level of education is low among elderly people, young people in Bilwi tend to receive many more years of schooling than their counterparts in Cantel. Furthermore, not only does Bilwi send many migrants abroad, it also receives a number of incoming migrants from many rural communities in the Atlantic region of Nicaragua. Ethnic backgrounds of these incoming migrants include the Miskitu group and other ethnic groups such as Mayangnas (another indigenous group in Nicaragua) and Creoles, and Mestizos both from inside and outside the Atlantic region. As a consequence, images of indigenes in Bilwi are likely to vary more than those possessed by people in Cantel.

In addition to the distributions of images at the population level, an agent's width of image varies in the four combinations. In one case, an agent's image has a standard deviation of 0.5 making 95% of his or her image approximately range from the mean ± 1 . In the second case, the standard deviation is 1.5, making an agent's image much wider (i.e. mean ± 3). While the individual-level distribution may seem similar to the population-level dis-

tribution, the two distributions are quite different. A narrow individual image indicates that a person has quite a firm idea about indigenusness regardless of whether people share different images of indigenous groups or not. On the other hand, when an individual possesses wide images, they are less clear about what they think about indigenous groups. Wider images can be attributed to various factors including more frequent inter-ethnic contacts or when Mestizos have few contacts with indigenous people and have little idea about them.

I vary the distributions of images in the simulation because my fieldwork presented in Chapter 6 has suggested that it is images of ethnic groups that international migration most likely affects. That is, through the migration experience, migrants, especially indigenous migrants, tend to be more aware of their ethnic backgrounds and think more often about the meaning of their ethnic backgrounds in their societies. Of course, such changes also derive from changes in agents' social interactions, which reflect changes in ethnic boundaries. In a similar vein, I have observed that as impacts of migration in a community increase, people observe more drastic changes brought by migration including the establishment of luxury houses and the improved economic situation among migrant households. Often, socioeconomic status has a stronger impact on people's social interactions than one's ethnicity in both Cantel and Bilwi. At the same time, ethnicity continues to be an important factor for such interactions even though its meaning may be more nuanced. These changes can lead inhabitants to feel unsure about their ethnic backgrounds and to possess a wider definition of indigenusness. The results

from the simulation runs based on the four parameter combinations aim to explore possible consequences that changes in distributions of images can have on ethnic identity shift.

Figure 7.3 presents results from the simulation runs based on the two parameter combinations: simulation runs of the population with a narrow image distribution at the population level. Let us suppose that 7.3a represents the population before massive international migration begins and 7.3b, after the noticeable number (e.g. 10% and up) of the population from the same community left, migrating abroad. I argue that these populations resemble the population in Cantel, except for the proportion of the Mestizo population that is much higher (0.5) than the actual demographic characteristics of Cantel (0.05). In Figure 7.3a, in which each agent possesses a narrower image of indigenous groups (i.e. standard deviation = 0.5), we can find that more indigenous people have solidified their ethnic identity as indigenous than become ladinized (begin identifying themselves as Mestizo). While at earlier steps (fewer than 100 steps), more indigenous people are exposed to negative images of being indigenous (situated in States E or I) as the number of indigenous people who have reaffirmed their identity as indigenous increases, fewer people are exposed to negative ideas of being indigenous and even fewer are found in State I . This is because as the number of indigenous people with a robust identity as indigenous increases, other indigenous agents tend to be surrounded by those who are not affected by negative images of being indigenous. Therefore, even the ethnic identity shift rate remains the same

throughout the simulations, the risk of agents moving to States *E*, *I* and *L* decreases. As a result, while about 20% of the total population (i.e. 40% of indigenous agents) are situated in State *ID* at the last step, more indigenous agents have solidified their ethnic identity.

We encounter quite a different outcome when agents have wider images of indigenusness even when the distribution of agents' average images remains the same at the population level (Figure 7.3b). In this scenario, at the end of the 520 steps, we find many more indigenous agents who identify themselves as Mestizo than those who solidified their ethnic identity as indigenous. Nearly 60% of indigenous agents identify themselves as Mestizos at the end of the simulation while only about 20% of indigenous agents (i.e. 10% of the total population) have a robust identity as indigenous. In addition, note that in this scenario, we see a much lower number of Mestizo agents who have a positive idea about indigenous groups at the end of the simulation runs as compared to the initial state.

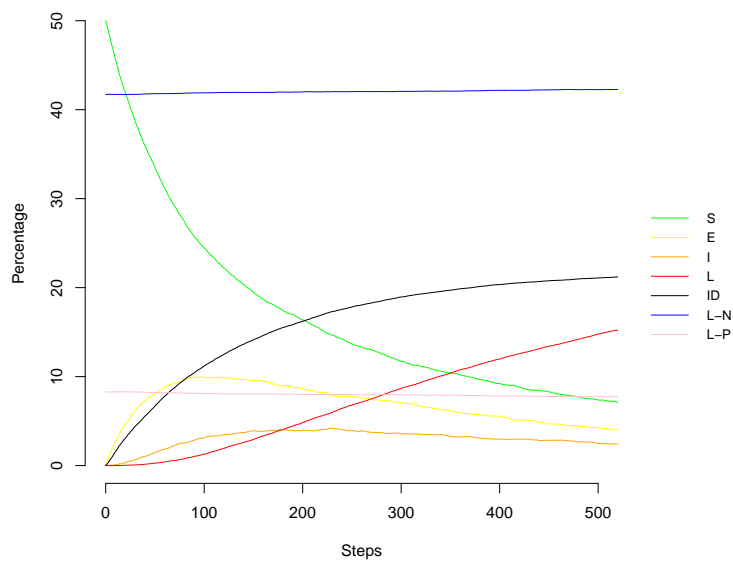
This finding derives from two factors: 1) the average image of indigenusness possessed by Mestizos is more negative than that possessed by indigenous agents, and 2) Mestizo agents are socioeconomically more advantageous than their indigenous counterparts. Both of these factors are consistent with the situations in my two research communities as well as in other parts of the two countries. As a result, Mestizo agents tend to adapt to their images of indigenous people with Mestizo agents more than with indigenous agents. Since more Mestizos hold negative ideas about indigenous groups, when exchanges

of images take place between Mestizo agents, their images tend to degrade.

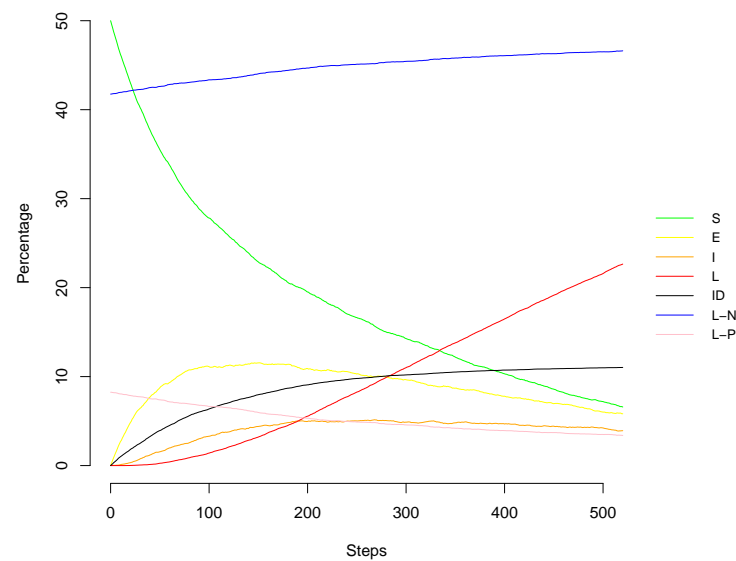
Another important result from the simulations based on this population is that the number of steps indigenous agents spend in States S , E and I is shorter than the number when each agent's distribution of images is narrow. This is because of the high number of agents in States E , I and L as well as the increasing number of Mestizo agents in state L_n . Indeed, as compared to the scenario in 7.3a, indigenous agents tend to be surrounded by neighbors with negative ideas about being indigenous more often. Hence, their risk of abandoning their original ethnic identity increases. As a consequence, even though the probability of indigenous agents to have Mestizo neighbors across the two scenarios does not differ at first, their chance identifying themselves as Mestizo is higher in 3b than in 3a since interactions with Mestizos with negative images of indigenusness pressure indigenous agents to shift their ethnic identity.

Figure 7.3: Results from Simulation Runs with a Narrow Image Distribution at the Population Level

197

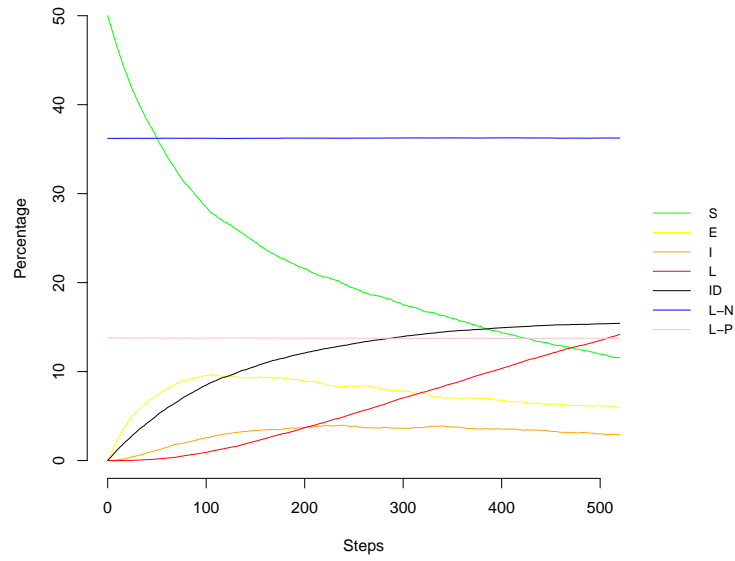


a

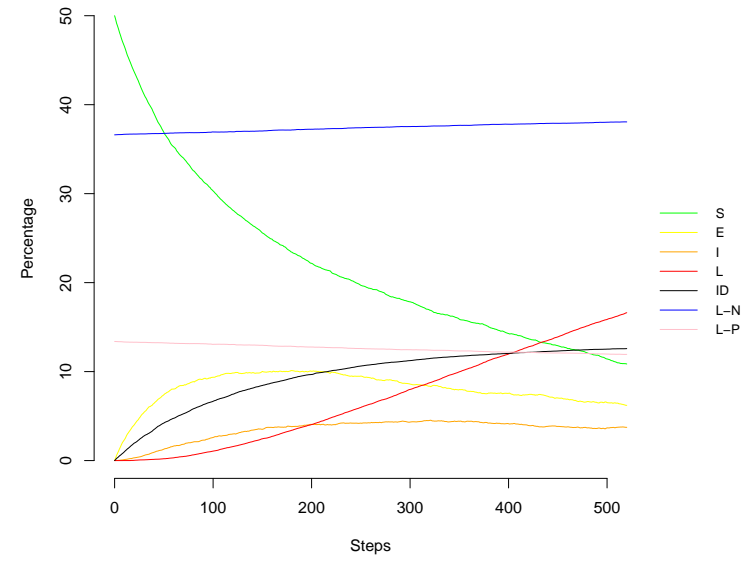


b

Figure 7.4: Results from Simulation Runs with a Wide Image Distribution at the Population Level



a



b

Figure 7.4 presents results from simulation runs based on the population with a wide distribution of images of indigenous groups at the population level. I argue that this population is similar to that of Bilwi since even among indigenous people, the image of indigenusness differs depending on their birthplace and the length they have lived in the municipality. In these simulation runs, we can find several different results from those simulations based on the narrow distribution at the population level. For example, the shift in attitudes toward indigenous groups among Mestizo people takes place much less often as indicated by very flat lines representing the proportion of two kinds of Mestizo groups (i.e. L_p and L_n). Since the distribution is much wider in these scenarios than the case of the previous two scenarios, the sufficient overlap of images between two agents required for the modification occurs less frequently, especially when individual's definition and image of indigenusness is narrow (7.4a). Note that in 7.4a, although the modification of images of indigenous possessed by agents takes place infrequently, indigenous agents nevertheless shift their ethnic identities. The number of indigenous agents who have solidified their ethnic identity slightly surpasses the number of those agents who shifted their identity from indigenous to Mestizo in 7.4a.

At the same time, we observe that when the individual level distribution is wider (7.4b), which resembles the case of Bilwi more than the population 7.4a, the proportion of indigenous people who identify themselves as Mestizo at the end of the simulation runs surpasses the number of indigenous people who solidify their identity as indigenous. About 40% of indigenous agents

shifted their ethnic identity from indigenous to Mestizo while less than 30% of indigenous agents solidified their origin ethnic identity. It is because the wider definition of indigenusness for each agent allows more agents to have a sufficient overlap in images between them. Indeed, we observe that the number of Mestizo agents with negative images of indigenusness is higher at the end of the simulation than the number of such agents at the beginning.

As noted previously, the population presented in Figure 7.3a represents the case of Cantel most while the population in 7.4b resembles Bilwi. The results from simulation runs based on these two populations are different in various ways. For example, the number of indigenous agents who have solidified their original ethnic identity is much higher in Figure 7.3a than in 7.4b. At the same time, the numbers of indigenous agents who shifted their ethnic identity in the two cases differ only slightly. What do these findings indicate? They suggest that when indigenous agents have a wider image of being indigenous, they tend to see a higher probability of being able to identify themselves with Mestizos (especially the case when the distribution of images at the population level is narrow (7.3b)) because the modification of images takes place often. Such agents are often pressured to shift their ethnic identity to succeed socioeconomically as well as to avoid unwanted attention and discrimination. In a similar vein, when the individual level image distribution is wide, Mestizos' images of indigenous groups tend to be more negative than at the beginning because the overlaps of images happen more often when one's image distribution is wider. Since the shift in ethnic identity takes place

almost always unidirectionally, from indigenous to Mestizo, and implicit discrimination against indigenous groups continue to exist in both Guatemala and Nicaragua, the more frequent modification of images of indigenous groups tends to deteriorate the average image of being indigenous and further decreases the proportion of the indigenous population in these countries.

7.5 Discussion

This chapter has explored a little studied but very important aspect of international migration in Guatemala and Nicaragua-impacts of international migration on ethnic identity shift. The simulation runs have indicated that the pace of ethnic identity shift among indigenous people varies considerably depending on the distribution of ethnic images agents possess regardless of the proportion of the indigenous population in the society. I argue that this finding explains more the seemingly rapid rate of ethnic identity shift in Bilwi than in Cantel. There are several reasons to believe why the distribution of images of being indigenous is wider in Bilwi than in Cantel. First, indirectly related to the lower proportion of the indigenous population in town, several languages (Spanish, Miskitu, Creole English, standard American English, and Mayangna) are spoken in Bilwi while only two (Spanish and K'iche') are spoken in Cantel. Furthermore, most young people in Cantel speak only Spanish today. The variety of languages available and more frequent inter-ethnic contacts in Bilwi surely affects what it means to be indigenous in this town. Hence, daily interactions in Bilwi remind its inhabitants of people's ethnic

backgrounds more often than the same events in Cantel.

Additionally, the existence of a large number of incoming migrants, mostly Miskitu and Mayangna indigenous people, usually migrating from nearby indigenous communities, who often speak little Spanish at first, lead people to situate indigenous people at the bottom of ethnic hierarchy. Since they also interact with people in Bilwi, residents in Bilwi tend to see indigenous as poor and less competent both socioeconomically and culturally. This perception is often the case among many indigenous people themselves. As a result, the distribution of images of indigenous tends to be wider at the population level among people in Bilwi than in Cantel since such incoming migrant flow is nonexistent in Cantel. It is also important to realize that because the level of educational attainment in Bilwi is considerably higher than indigenous children in Guatemala, indigenous children are much more likely to interact with children of other ethnic background in school. These interactions can also threaten the further decline in the number of indigenous groups. Additionally, the fact that Guatemalan traditional clothes can be an icon of prosperity may be one reason why more indigenous people in Cantel maintain their ethnic identity than their counterparts in Bilwi since these clothes are more expensive than western clothes and rich indigenous women tend to wear very pricey traditional clothes.

While the situation in Cantel appears to be better than the case in Bilwi, indigenous cultures in Cantel are also threatened. Currently, the pace of the ethnic identity shift is much slower in this community as compared

to the pace in Bilwi, despite the fact that the distribution of images at the population level seems to be narrow. This finding can be attributed to the very high proportion of the indigenous population in this community as well as the narrow definition of images of indigenous groups that each agent in Cantel possesses. However, even in this municipality, the ethnic identity shift is taking place. In the past, it occurred mainly among individuals who migrated to Guatemala City in search of opportunities and to a lesser degree, those who work in nearby Xela. The situation in Cantel is much different today. More and more children attend school for a longer period of time in Cantel, especially among children of migrant households. I found that often times, these children attend school in Xela where they usually interact with non-indigenous children. My interviews with people in Cantel have revealed how fragile identity as indigenous can be when the pressure from peers is strong.

The model of ethnic identity shift and the simulation runs presented in this chapter suggest the maintenance of ethnic identity as indigenous will be a much more difficult task than in the past. We should also be concerned that recent qualitative changes in inter-ethnic relations may also lead some non-indigenous people to be hostile towards indigenous people even if they may have had positive images of these people in the past. That is, the new type of inter-ethnic relationship may induce a tension between indigenous and non-indigenous groups. The increased contact between ethnic groups leads not only indigenous, but also non-indigenous people to rethink ethnic hierarchies and relations in a society. Economically less advantaged Mestizos are most

likely to interact with indigenous groups in their daily lives, such interactions may lead to the perception of abandonment among Mestizos. Therefore, if these Mestizos show hostile attitudes toward indigenous people, indigenous people themselves may feel more pressure to shift their ethnic identities to free from unwanted problems. Therefore, one very serious problem of multicultural reforms today is its emphasis on equality in the existence of severe socioeconomic inequality. This problem can make the protection of indigenous cultures even more difficult. The rejection of the constitutional reforms in Guatemala reflects such a difficulty (Montejo 2002).

Finally, I must admit that the model presented in the current chapter is very simple and holds many assumptions that can be criticized such as the choice of the distribution of images at the population level and the width of such images for each agent, as well as parameter values used in the simulation runs. The proposed model is an initial step to understand ethnic identity change in migrants' communities of origin and the model can be improved or totally changed based on further empirical evidence. However, despite the above-noted limitations, the findings presented in this chapter highlight possible hidden dangers of international migration on migrant areas of origin and how such dangers are similar closely related to negative consequences of multicultural reforms suggested by Yoshioka (2010).

Chapter 8

Conclusions

8.1 Impacts of International Migration on Inhabitants of Sending Communities

International migration is an important demographic process that has considerable impacts on socioeconomic and ethnic structures in both Guatemala and Nicaragua. Regarding ethnicity as a fluid concept whose definition is influenced by socioeconomic and cultural factors, I have argued that international migration has a potential to affect sending communities' ethnic structures if it has impacts on socioeconomic structures of these communities. I posited that such impacts are likely to exist in both Guatemala and Nicaragua where economic impacts of international migration are so massive that economic remittances account for more than 10% of GDP (World Bank 2006). As compared to research on migrants in receiving countries, much fewer studies have been done on impacts of international migration in sending communities and to my knowledge, no study has examined how this important demographic process can influence one's ethnicity. This dissertation has explored such a little studied area and examined the issue both indirectly through the statistical analyses of the secondary data sets and directly by the fieldwork and computational simulations. The statistical analyses presented in Chapters 4

and 5 have examined correlation between international migration and various socioeconomic factors.

In my fieldwork, taking into account the findings from the secondary data analysis, I have examined how inhabitants of sending communities perceive changes brought by international migration and whether or not such changes affect their ethnic identity. I conducted the fieldwork in two municipalities: Cantel, Guatemala and Bilwi, Nicaragua. These municipalities share several important aspects in common. First of all, in both municipalities, a high proportion of ethnic minorities reside. Additionally, these municipalities differ from other typical Guatemalan or Nicaraguan municipalities, which is also one reason why ethnic minorities, especially indigenous people live in these municipalities. I compared two municipalities of the different countries because the situation that indigenous people face in these two countries also differs in one very important aspect: while indigenous people in Guatemala are wide spread across the country and each indigenous group does not interact with other indigenous groups so much, the majority of indigenous people in Nicaragua concentrate in the Atlantic region of the country and are aware of other ethnic minorities. In the fieldwork, taking advantage of these unique characteristics and differences, I closely examined changes brought by international migration that indigenous people in these municipalities face. In the fieldwork, I also paid special attention to processes through which people feel changes in socioeconomic structures, social networks and ethnic identity.

Finally, based on the findings from the fieldwork, I proposed a mecha-

nism of ethnic identity change and tested it using computational simulations. Even though the model is simple, it has permitted me to test how the pace of ethnic identity shift can change by various settings. In doing so, I have explored reasons why the pace of ethnic identity change seems different between Cantel and Bilwi even though both municipalities have been considerably influenced by international migration. The findings from these simulations have allowed me to examine possible effects of international migration on ethnic structures and what international migration means for Guatemalans and Nicaraguans in the era of multicultural reforms. In the following section, I present a brief review of the findings.

8.2 A Review of the Findings

In Chapters 4 and 5, I evaluated ethnic differentials in the selectivity of international migrants and examined economic impacts of international migration in Guatemala and Nicaragua. In Chapter 4, using the demographic censuses of the two countries, I examined how the odds of having sent migrants abroad is correlated with various socioeconomic factors at both national level and also, limiting the sample to the populations of Cantel and Bilwi. The regression models have suggested that international migration is a socioeconomically selective process in both Guatemala and Nicaragua. This result and the fact that indigenous households are usually poorer than non-indigenous households indicated that international migration may impact inter- and intra-ethnic relations and ethnic identity in these countries.

The findings from the analyses of the Cantel and Bilwi samples have shown that the disadvantage of indigenous households in sending migrants abroad is much larger in Cantel than in Bilwi. I have argued that the smaller gap in educational attainment across ethnic groups in Bilwi as compared to that in Cantel and the longer history of international migration in Bilwi are two reasons that account for the above trend. Furthermore, Chapter 4 has shown that while indigenous households are significantly less likely to receive economic remittances than their non-indigenous counterparts in Guatemala, the opposite is true among households in Nicaragua. I noted that the finding in Nicaragua may be attributable to the concentration of ethnic minorities in the Atlantic region of the country. Indeed, once other factors, including households' residential location, are controlled, the advantage of indigenous households disappears. Since households in the Atlantic region are less likely to send migrants, I stipulated the gap in income distribution among households in that region may be more pronounced than other regions of the country.

In Chapter 5, the main question was whether or not international migration widens a socioeconomic gap in the two countries as it may mean a wider gap across ethnic groups. To answer this question, I focused on two factors that are likely to be affected by international migration: income distribution and educational attainment. The statistical analysis of the survey data sets has indicated that economic remittances sent from abroad slightly decrease the income inequality level among Guatemalan households. On the other hand, in the case of Nicaragua, I found that economic remittances considerably increase

the level of income inequality. Furthermore, the widened gap is more visible among indigenous households as compared to non-indigenous households. I have argued one reason for the findings among the Nicaraguan households is that since the majority of indigenous people reside in the Atlantic region, even using the national level data, the changes in income structure is reflected in the analysis. In this sense, I stipulated that at the municipality level, the level of income inequality may rise due to remittances sent by international migration.

Chapter 5 has also shown that economic remittances affect children's schooling in sending countries. In Guatemala, the amount of international remittance that a household receives significantly reduces children's risk of dropping out of school. In addition, international migration seems to have an acculturation effect among indigenous households. Impacts of international remittances on children's schooling are much stronger among indigenous children of migrant households than non-indigenous children of migrant households. Hence, international migration may bring indigenous household not only economic remittances, but also transmit cultures and ideas from migrant receiving countries to sending countries in the form of social remittances. These social remittances may be taken as positive if these also affect non-migrant households and improve their socioeconomic status. At the same time, these resources may have led to a wider gap between migrant and non-migrant households. Therefore, it is necessary to observe and examine this point carefully. In the case of Nicaragua, international remittances also significantly reduce

the risk of children's school dropout. As in the case of Guatemala, impacts of international remittances on children's schooling are stronger among indigenous children than non-indigenous children. Findings presented in Chapters 4 and 5 suggested that while both Guatemala and Nicaragua send a large number of migrants abroad and the importance of economic remittances is hard to negate in both countries, impacts of international migration on socioeconomic structures may differ between the two countries.

In Chapter 6, I have presented findings from my fieldwork conducted in Cantel, Guatemala and Bilwi, Nicaragua. In both Cantel and Bilwi, non-migrant households perceive that the level of inequality has increased since the massive international migration took place. Indeed, the economic gap between migrant and non-migrant households is obvious in both municipalities and people of these municipalities experience such a gap through interactions among them on a daily basis. Due to the widened gap felt by members of non-migrant households, many people from these municipalities decide to migrate abroad in search of economic opportunities. Despite the above similarities, the fieldwork has also revealed that social status given to migrant households considerably differs between Cantel and Bilwi. In Cantel, since a number of people do not succeed in sending money back home from a destination country, even though most of them pay a large sum of money to smugglers, being migrant households itself does not guarantee any position since some migrant households are poorer than non-migrant households as they try to pay back debts. On the other hand, to my knowledge, migrants from Bilwi are rarely deported. For

example, unlike migrants from Cantel who are most likely to migrate to the US, those from Bilwi have various destination countries in addition to the US such as Costa Rica, Panama, Spain, and so on. Since most of these migrants go to countries where they have a relative or friend, it seems the risk of deportation is much lower among migrants from Bilwi. Therefore, most migrant households are economically more advantageous than non-migrant households in Bilwi. In addition, people in Bilwi started migrating abroad during the early 1980s when the Atlantic region was the internal war zone, and many people take advantage of social networks that have been established between Bilwi and destination countries. On the other hand, it is until quite recently when a considerable number of people began to migrate to the US from Cantel. While people in Cantel often depend on their family members or acquaintances in the US when they migrate, it is usually smugglers who guide them to their destinations. As a result, I found a considerable gap in the success rates of international migration between the two municipalities.

In addition, the role that the US currency plays in both municipalities cannot be dismissed. In Bilwi, the fact that migrant households receive remittances in US dollars regardless of migrants' destination country due to the wide availability of the US dollars gives migrants and their household members a special position in their society since high status is given to the US currency. The US currency is widely used in Bilwi just like other parts of Nicaragua, and occupations that are paid in the US dollar are those that are usually well paid. As a result, people in Bilwi tend to relate those paid with the US currency

with high social status. On the other hand, in Cantel, I could not find such a special role given to the US currency.

During the fieldwork, I also found that migrant households in Cantel are much more likely to keep their social networks that were established before they or their household members migrated than do migrant households in Bilwi. I posited that this is because people in Cantel use a village level residential location for their identity while people in Bilwi uses the level that is larger than municipality: the Atlantic region as a whole. For people in Bilwi, residing in the Atlantic region does not indicate they are indigenous or other ethnic minorities because there are also a large number of Mestizos who reside in the region. Instead, people in the Atlantic region often prefer using the label “coast people.” As a result, changing residential locations within the municipality is emotionally much easier to achieve for people in Bilwi than their counterparts in Cantel.

Furthermore, I have shown that international migration is likely to affect ethnic markers that shape people’s ethnic identity. The difference in ethnic markers used in Cantel and Bilwi is one reason that explains the difference in impacts of international migration on ethnic structures in these municipalities. Due to its ethnic composition, incoming migrant flow and relatively high educational attainment, it is much easier for indigenous people in Bilwi to shift their ethnic identity than those in Cantel. Besides, because of much more frequent inter-ethnic interactions that people in Bilwi experience, I posit that they may be more likely to feel the need to shift their identity as compared to

those in Cantel. The fieldwork suggested that international migration is likely to accelerate the pace of ethnic identity shift in Bilwi.

An important question explored in Chapter 6 was the process through which such identity shift takes place. I have argued that in addition to more frequent inter-ethnic interactions especially in Bilwi, international migration widens the definition or image of indigenusness in both municipalities. For example, in both Cantel and Bilwi, indigenous people tend to be very poor. At the same time, indigenous people of migrant households may be economically more advantageous than average households in these municipalities. Hence, for people in the two municipalities, it becomes more difficult to equate indigenous people with poverty. In a similar sense, international migration widens the image of indigenusness in terms of such factors as educational attainment, language and clothing. In this sense, it is likely that changes in the image of indigenusness and more frequent inter-ethnic interactions complement each other and induce further ethnic identity shift.

Since the duration of the fieldwork was limited, I could not find answers to questions related to the ethnic identity shift that arose during the fieldwork. To test possible mechanisms of ethnic identity change and answer the question of why indigenous people in Bilwi are more likely to shift their ethnic identity than people in Cantel, I ran computational simulations applying the concept of image of ethnicity in Chapter 7. The simulation runs have indicated that the pace of ethnic identity shift among indigenous people varies considerably depending on the distribution of ethnic images that people possess regardless

of the proportion of the indigenous population in a society. This finding explains why the pace of ethnic identity shift seems more rapid in Bilwi than in Cantel: people's definition or image of indigenous people seems to be much wider in Bilwi than in Cantel, which means that inhabitants of Bilwi are given more ways to shift their ethnic identity from indigenous to Mestizo and also, more reasons to do so. In addition, since the level of educational attainment in Bilwi is considerably higher than indigenous children in Guatemala, indigenous children are much more likely to interact with children of other ethnic background in school. These interactions can also reinforce the further decline in the number of indigenous groups.

8.3 Impacts of International Migration on Ethnic Identity

A number of scholars have studied socioeconomic and cultural impacts of international migration in migrant receiving countries. In addition, there are various studies that have explored such impacts in sending communities (e.g., Acosta et al. 2008; Acosta et al. 2007; Adams 2006; Popkin 2005). It is my contention that studying impacts of this demographic process on ethnic structures is extremely important in countries where socioeconomic factors are closely correlated with ethnicity related issues. In this dissertation, I have examined impacts of international migration on both socioeconomic factors and ethnicity related issues in Guatemala and Nicaragua. I tried to understand what international migration means for indigenous people in the two coun-

tries who have suffered from numerous social problems for centuries. While international migration gives unprecedented economic opportunities to many indigenous people, it also seems to worsen existing problems in sending societies such as socioeconomic inequalities. Considering this point, my question was whether or not international migration would be beneficial to indigenous people and other ethnic minorities and also, if it would contribute or not to the preservation of their culture. To analyze impacts of international migration on the preservation of indigenous cultures, I chose to analyze ethnic identity shift because the concept of ethnicity is fluid and in both Guatemala and Nicaragua, the concept of indigenusness is vague.

A focus on ethnic relations and international migration in Cantel and Bilwi led me to examine impacts of international migration on ethnic identity shift. As the fieldwork progressed, it has become clear that international migration reinforce ethnic identity shift among indigenous peoples in Bilwi by affecting ethnic markers utilized in that municipality. Findings in this dissertation have suggested that while there are indigenous households who have achieved economic success through international migration, international migration has a potential to threaten indigenous cultures in both Guatemala and Nicaragua. In both Guatemala and Nicaragua, there remains an implicit but hard-to-break ethnic hierarchy. In such societies, indigenous people who have achieved economic success may be motivated to shift their ethnic identity to avoid unwanted problems if these problems are ethnicity related ones. This dissertation has suggested such a hidden danger is especially prevalent in

societies such as Bilwi where inter-ethnic contacts are frequent and the definition of indigenous people is wide and vague. The wide definition or image of indigenusness makes it easier for indigenous people in Bilwi to shift their ethnic identity to Mestizo if they wish. Indeed, during my fieldwork, several respondents have commented that there are Miskitu indigenous people who have abandoned their identity as Miskitu and act like Mestizo.

Ethnic identity shift is less common in Cantel. I have argued that it is because the image of indigenusness is much narrower than the case of Bilwi. Residing in Cantel almost equals being indigenous for many people. And this fact makes it more difficult for people in Cantel their identity as indigenous even for those people who do not speak the indigenous K'iche' language or women who do not wear traditional indigenous clothes. At the same time, while the situation in Cantel appears to be better as compared to the case in Bilwi in the above sense, I have argued that indigenous cultures in Cantel are also threatened. Even in this municipality, the ethnic identity shift seems to be taking place. My interviews with people in Cantel have revealed how fragile a person's identity as indigenous can be when the pressure from peers is strong. If the proportion of people who migrate internationally increases, more people in Cantel may feel it necessary to shift their ethnic identity. Even though it remains low, the level of educational attainment among children in Cantel is also rising and such a rise may result in the accelerated pace of ethnic identity change in the near future. This is especially true given that most students in Cantel who attend high school need to commute to Quetzaltenango, where

they need to encounter and interact with Ladinos.

Considering the above findings, an important question arises. Why do changes in ethnic markers induced by international migration endanger ethnic identity as indigenous? Literature related to neoliberal multiculturalism may give an answer. Even though indigenous peoples seem to be given unprecedented rights today that were hard to imagine only a few decades ago thanks to multicultural reforms, a hidden discrimination against indigenous peoples and other ethnic minorities continues in both Guatemala and Nicaragua. At the same time, because of changes that multicultural reforms bring, indigenous peoples are more likely to interact with non-indigenous populations at a number of occasions. Since the discrimination against indigenous peoples albeit in a more subtle way continues and indigenous people who interact with non-indigenous people often may be motivated to shift their ethnic identity from indigenous to Mestizo or Ladino. When the image of indigeness is wide, such image gives indigenous peoples more room to negotiate their identity.

It is hard to deny the fact that international migration gives indigenous people economic opportunities that are hard to obtain through other ways. Besides, international migration may bring sending communities' cultures and ideas of receiving societies that seem very positive including the importance of formal education. At the same time, this dissertation has shown that in societies where severe socioeconomic inequality between different ethnic groups exists and prejudice against ethnic minorities is yet hard to overcome, international migration can have unexpectedly negative effects on ethnic minorities

and their cultures in the long run. The above point must be taken into account carefully in order to plan development through the use of economic remittances at both community and national levels. This dissertation has shed light on impacts of international migration on ethnic structures and mechanism of how ethnic identity shift may take place. It has also emphasized the need to take into account ethnicity related issues more carefully when examining effects of international migration on socioeconomic, cultural, and health issues to more accurately understand what international migration means for inhabitants of sending countries, especially ethnic minorities.

At the beginning of this dissertation, I have argued that without examining the relationship between international migration and ethnic identity, we cannot fully understand the meaning of international migration for Guatemala and Nicaragua. In addition, understanding impacts of international migration gives us a hint to construct true and robust multicultural society that encourages Guatemalan and Nicaraguan indigenous people to preserve their ethnic identity. This dissertation project has shown that the above argument is valid. When studying impacts of international migration on multiethnic countries like Guatemala and Nicaragua, it is not sufficient to look only at topics widely covered in previous literature such as income distribution and educational attainment. This dissertation has indicated that ethnic relations are strongly affected by international migration in an unfavorable way: international migration tends to deteriorate situations of ethnic minorities-indigenous peoples in the case of Guatemala and Nicaragua. This finding sounds reasonable given

the fact that indigenous people tend to live in areas where governmental supports are least likely to reach and as a result, the increased income inequality is easily visible and more pronounced.

In both Guatemala and Nicaragua, well-paid jobs are scarce, stimulating many to leave their countries in search of better economic opportunities. Since this is a tough reality that the majority of indigenous people in both Guatemala and Nicaragua face, it is difficult to prevent people from migrating to other countries. To conserve indigenous cultures and prevent more indigenous people from abandoning their ethnic identities, we need to assure that indigenous people feel pride in their cultures while they participate in national economy and politics under the strong pressure caused by changes originating from international migration and multicultural reforms. I have argued that both international migration and multicultural reforms work against such a goal. Since the trend of international migration and multicultural reforms are difficult to be reversed, we need to work hard to find a way to make a more equal society and also, the importance of respecting different cultures. Understanding how images of ethnicity are constructed and transformed is an essential step to finding solutions to the above-noted dilemma and achieving a robust multicultural society.

While I have shown that international migration may have devastating effects on the preservation of indigenous cultures and induce ethnic identity shift, it is necessary if such a case holds true in other countries where a large number of ethnic minorities migrate abroad. Additional observations are also

needed to further verify and improve the model of ethnic identity shift presented in Chapter 7. One important question that needs to be answered is why certain ethnic groups do not show any tendency of ethnic identity shift to the mainstream ethnic group. For example, in Bilwi, I have never heard that Creole people change their ethnic identity to Mestizo. It may be the case that Creoles in Bilwi are usually socioeconomically more advantageous than Miskitu people and they do speak English. However, we have seen that Miskitu people who have attained a socioeconomic upward mobility often shift their identity. Another possibility is that the image of Creole is much narrower than that of Miskitu.

Finally, although I have focused on how international migration modifies ethnic markers in Cantel and Bilwi, it is also possible that international migration creates new ethnic markers since new ideas are transmitted from receiving societies to sending societies in the form of social capital. For example, while there are types of food that is mainly consumed by indigenous people, none of my respondents has listed it as ethnic markers. Yet, as the rate of migration rises and more indigenous peoples adapt to Mestizo or Ladino food consumption patterns, what were not considered as ethnic markers in the past may become markers that identify indigenous peoples or other ethnic minorities. Further examining these points will help us to further understand what international migration means for indigenous peoples and other ethnic minorities in sending communities in the era of multicultural reforms.

Appendices

Appendix A

Results from Multilevel Probit Regression

Table A.1: Multilevel Probit Regression Predicting Households' Remittance Recipient Status in Guatemala, 2006 and Nicaragua, 2005

Explanatory Variables	Guatemala				Nicaragua			
	Mean	S.D.	95% HPD		Mean	S.D.	95% HPD	
Indigenous	0.123	0.047	(0.028	0.214)	-0.137	0.140	(-0.412	0.144)
Lives in Urban Area	0.404	0.051	(0.306	0.502)	-0.077	0.067	(-0.207	0.055)
Female Head	-0.905	0.049	(-1.001	-0.807)	-0.427	0.059	(-0.537	-0.309)
Household Head's Age	0.003	0.007	(-0.010	0.015)	-0.009	0.008	(-0.025	0.007)
Age Squared	0.000	0.000	(-0.000	0.000)	0.000	0.000	(-0.000	0.000)
Household Head's Education								
(None or less than Primary)								
Primary Education	-0.036	0.044	(-0.122	0.048)	-0.063	0.059	(-0.170	0.052)
Post-Primary Education	0.006	0.065	(-0.124	0.129)	-0.143	0.081	(-0.302	0.014)
Male Members Aged 15+	0.104	0.022	(0.061	0.149)	0.051	0.025	(0.004	0.100)
Female Members Aged 15+	-0.079	0.021	(-0.121	-0.036)	0.003	0.028	(-0.049	0.055)
Male Members Under 15	-0.027	0.015	(-0.055	0.004)	-0.002	0.023	(-0.044	0.043)
Female Members Under 15	-0.056	0.016	(-0.088	-0.023)	-0.016	0.023	(-0.060	0.029)
Household's Asset Index	-0.137	0.011	(-0.158	-0.117)	-0.175	0.017	(-0.207	-0.144)
Region (Guatemala)								
(Metropolitan Area)								
North	-0.177	0.116	(-0.396	0.055)				
Northeast	-0.285	0.088	(-0.453	-0.117)				
Southeast	-0.359	0.098	(-0.554	-0.168)				
Central	0.089	0.088	(-0.091	0.254)				
Southwest	-0.469	0.087	(-0.634	-0.290)				
Northwest	-0.745	0.109	(-0.955	-0.524)				
Peten	-0.473	0.126	(-0.721	-0.244)				
Region (Nicaragua)								
(Managua)								
Pacific					-0.247	0.180	(-0.570	0.123)
Central					0.120	0.176	(-0.211	0.497)
Atlantic					0.364	0.194	(-0.005	0.729)
Intercept	1.976	0.173	(1.672	2.353)	1.841	0.258	(1.361	2.340)
Deviance	7,079				3,963			

Appendix B

Survey Questionnaire

1. Característica del hogar

EXPERIENCIA DE MIGRACIÓN

No. de miembros que está viviendo en el hogar	<input type="text"/>
No. de miembros que está viviendo en otro lugar dentro del país	<input type="text"/>
No. de ex-migrante internal que está viviendo aquí actualmente	<input type="text"/>
No. de miembros que está viviendo en otro país	<input type="text"/>
No. de ex-migrante internacional que está viviendo aquí actualmente	<input type="text"/>

CARACTERÍSTICA DEL HOGAR

Sexo de jefe de hogar	<input type="checkbox"/> Masculino	<input type="checkbox"/> Femenino	
No. de miembros del hogar	Total <input type="text"/>	Masculino <input type="text"/>	Femenino <input type="text"/>
No. de niños 0 - 5	<input type="text"/>		
No. de niños 6 - 14	<input type="text"/>		
No. de niños 15 - 18	<input type="text"/>		

RIQUEZA DEL HOGAR

No. de cuartos	<input type="checkbox"/> <input type="checkbox"/>
No. de dormitorios	<input type="checkbox"/> <input type="checkbox"/>
No. de cuartos solo para negocio	<input type="checkbox"/> <input type="checkbox"/>
Material de piso	0 Tierra 1 Madera 2 Cemento 3 Otro: especifique _____
Agua	0 Tubería dentro del hogar 1 Tubería fuera del hogar pero dentro del terreno 2 Tubería fuera del terreno 3 Sin tubería 4 Otro: especifique _____
Medio para cocinar	0 Leña o carbón 1 Gas 2 Electricidad 3 Otro: especifique _____ 4 Ninguno
Sanitario	0 Inodoro conectado a red de drenajes 1 Inodoro conectado a fosa séptica 2 Excusado lavable 3 Otro: especifique _____ 4 Ninguno
Electricidad	<input type="checkbox"/> Sí <input type="checkbox"/> No
Refrigeradora	<input type="checkbox"/> Sí <input type="checkbox"/> No
Microonda	<input type="checkbox"/> Sí <input type="checkbox"/> No
Lavadora	<input type="checkbox"/> Sí <input type="checkbox"/> No
Radio	<input type="checkbox"/> Sí <input type="checkbox"/> No
Television	<input type="checkbox"/> Sí <input type="checkbox"/> No
Cable para TV	<input type="checkbox"/> Sí <input type="checkbox"/> No
Satelite para TV	<input type="checkbox"/> Sí <input type="checkbox"/> No
Computadora	<input type="checkbox"/> Sí <input type="checkbox"/> No
Internet	<input type="checkbox"/> Sí <input type="checkbox"/> No
Telefono (fijo)	<input type="checkbox"/> Sí <input type="checkbox"/> No
Telefono (celular)	<input type="checkbox"/> Sí <input type="checkbox"/> No
Automobile	<input type="checkbox"/> Sí <input type="checkbox"/> No
Motocicleta	<input type="checkbox"/> Sí <input type="checkbox"/> No
Terreno	<input type="checkbox"/> Sí <input type="checkbox"/> No

2. Característica de miembros del hogar

Nombres y Apellidos	_____
Sexo del jefe	<input type="checkbox"/> Masculino <input type="checkbox"/> Femenino
Edad del jefe	<input type="text"/> año de nacimiento _____
Lugar de nacimiento	<input type="checkbox"/> Esta municipalidad <input type="checkbox"/> Otro: _____
Lugar de nacimiento de madre	<input type="checkbox"/> Esta municipalidad <input type="checkbox"/> Otro: _____
Lugar de nacimiento de padre	<input type="checkbox"/> Esta municipalidad <input type="checkbox"/> Otro: _____
Lugar de vivienda anterior	<input type="checkbox"/> N/A <input type="checkbox"/> Otro municipio: _____
Estado civil	<input type="checkbox"/> Otro país: especifique _____
Si está casado...	0 soltero 1 union libre 2 Separado 3 Divorciado 4 viudo 5 casado
etnicidad de esposa	0 Sólo civil 1 sólo ceremonia religiosa
Si indígena o Otro...	2 ambos
Etnicidad	0 Ladino/Mestizo 1 Indígena 2 Otro
Si indígena o Otro...	especifique etnicidad _____
Habla lengua indígena?	0 Ladino/Mestizo 1 Indígena 2 Otro
Habla español	especifique etnicidad _____
¿Viste traje tradicional? (solo Guatemala)	<input type="checkbox"/> Sí: especifique _____ <input type="checkbox"/> No
Religión	<input type="checkbox"/> Sí <input type="checkbox"/> No
Nivel de Educación	<input type="checkbox"/> Sí <input type="checkbox"/> No
Si primaria o secundaria...	0 Catolico 1 Evangelico 2 Moravo 3 Otro: especifique _____ 4 Ninguno
Año escolar total	0 Ninguno or o menos que primaria 1 primaria 2 primaria completa 3 secundaria 4 Secundaria completa 5 Post-secundaria
Está asistiendo a escuela actualmente?	especifique el año más alto <input type="text"/>
Si sí, tipo de escuela	<input type="text"/>
Primer empleo	<input type="checkbox"/> Sí <input type="checkbox"/> No
Horas que trabajó la semana pasada	0 publica 1 privada 2 otro: especifique _____
salario (frecuencia)	_____
salario (cantidad)	_____
Segundo empleo	<input type="text"/>
Horas que trabajó la semana pasada	0 por hora 1 semanal 2 quincenal 3 mensual 4 otro
salario (frecuencia)	_____
salario (cantidad)	<input type="text"/>
	0 por hora 1 semanal 2 quincenal 3 mensual 4 Otro

3. Miembros del hogar que no están en el hogar (pregunte al jefe de hogar)

No.	Nombre	Relación con el jefe de hogar	Sexo	Edad	Año de primera migración	destino (vea abajo)	Año de última migración	destino (vea abajo)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Codigo de país: 1. dentro del país 2. EE.UU: 3. Costa Rica 4. México 5. Otro: especifique

4. Migrantes retornados (preguntas para migrantes retornados)

Nombres y Apellidos	_____
Edad de migración	<input type="text"/> años y <input type="text"/> meses)
Duración de permanencia	<input type="checkbox"/> dentro del país <input type="checkbox"/> EE.UU. <input type="checkbox"/> Costa Rica <input type="checkbox"/> Mexico <input type="checkbox"/>
Destino	Otro: especifique _____
Estaba casado/a cuando migró?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Estudiaba en el destino?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Hablaba inglés cuando migró?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Habla inglés ahora?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Estado de visa cuando migró	<input type="checkbox"/> Con visa vigente <input type="checkbox"/> sin visa vigente
Usó coyote?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Si sí, cuanto pagó?	_____ dólares/quetzales/córdobas
Trajo dinero a su casa?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Si sí, cuanto?	_____ dólares/quetzales/córdobas

Nombres y Apellidos	_____
Edad de migración	<input type="text"/> años y <input type="text"/> meses)
Duración de permanencia	<input type="checkbox"/> dentro del país <input type="checkbox"/> EE.UU. <input type="checkbox"/> Costa Rica <input type="checkbox"/> Mexico <input type="checkbox"/>
Destino	Otro: especifique _____
Estaba casado/a cuando migró?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Estudiaba en el destino?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Hablaba inglés cuando migró?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Habla inglés ahora?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Estado de visa cuando migró	<input type="checkbox"/> Con visa vigente <input type="checkbox"/> sin visa vigente
Usó coyote?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Si sí, cuanto pagó?	_____ dólares/quetzales/córdobas
Trajo dinero a su casa?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Si sí, cuanto?	_____ dólares/quetzales/córdobas

5. Remesa económica

Algun miembro ha mandado dinero o paquete desde cuando salió Si sí, su relación con usted es...	<input type="checkbox"/> Sí <input type="checkbox"/> No (pase a No. 8. "remesa social")
Que ha _____ mandado? Como recibió dinero	0 Esposa 1 hijo/a 2 nieto/a 3 padre/madre 4 Otro: especifique _____ _____
Normalmente gasta o ahorra el dinero que recibe? Si gasta, para cual?	0 Western Union 1 MoneyGram 2 Banco 3 cajero automático 4 Otro: especifique _____ 0 gasta 1 ahorra 2 ambos 3 Otro: especifique _____ 0 deuda 1 alimento 2 ropa 3 educación 4 negocio 5 Inversión 6 Otro: especifique _____
En caso de negocio o inversión: tipo de negocio año de formación año de venta o clausura	_____ _____ _____

6. Remesa social (preguntas para jefe de hogar)

Cada cuanto tiempo recibe noticia de miembros de su hogar?	<input type="checkbox"/> Diario <input type="checkbox"/> semanal <input type="checkbox"/> mensual <input type="checkbox"/> Otro: especifique _____
NOMBRE_____ comunica con otro miembros del hogar o amigos?	<input type="checkbox"/> Sí <input type="checkbox"/> No
La frecuencia de su comunicación ha cambiado desde cuando NOMBRE_____ salió?	<input type="checkbox"/> Sí <input type="checkbox"/> No
En el curso de _____ años desde la salida de NOMBRE_____, ha NOMBRE_____ venido a la casa para vistar?	<input type="checkbox"/> Sí <input type="checkbox"/> No
Si sí, cuantas veces ha NOMBRE_____ venido y por cuanto tiempo?	_____

7. Imágen de etnicidad

Ahora, voy a presentar perfiles de 16 personas. Imagínese usted es esta persona y dígame si usted se identifica como indígena o no y también, como costeño/a o no.

1. Habla el idioma indígena. Los dos padres son indígena. No creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

2. Habla el idioma indígena. Uno o los dos padres no son indígena. Creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

3. No habla el idioma indígena. Uno o los dos padres no son indígena. No creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

4. No habla el idioma indígena. Los dos padres son indígena. No creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

5. No habla el idioma indígena. Uno o los dos padres no son indígena. Creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

6. Habla el idioma indígena. Los dos padres son indígena. Creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

7. Habla el idioma indígena. Uno o los dos padres no son indígena. Creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

8. Habla el idioma indígena. Los dos padres son indígena. No creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

9. No habla el idioma indígena. Uno o los dos padres no son indígena. Creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

10. No habla el idioma indígena. Uno o los dos padres no son indígena. No creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

11. No habla el idioma indígena. Los dos padres son indígena. Creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

12. No habla el idioma indígena. Los dos padres son indígena. Creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

13. No habla el idioma indígena. Los dos padres son indígena. No creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

14. Habla el idioma indígena. Los dos padres son indígena. Creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

15. Habla el idioma indígena. Uno o los dos padres no son indígena. No creció en la región. Vive en la región ahora.

Indígena No-indígena No sabe

16. Habla el idioma indígena. Uno o los dos padres no son indígena. No creció en la región. No vive en la región ahora.

Indígena No-indígena No sabe

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Vita

Hirotohi Yoshioka was born in Atsugi, Kanagawa, Japan on December 12 1978, the son of Katsuji Yoshioka and Toshiko Yoshioka. He received Bachelor of Arts in Sociology from the University of Pittsburgh in 2003. He received Master of Arts in Sociology from the University of Pittsburgh in 2005. In August 2005, he entered the doctoral program in Sociology at the University of Texas at Austin.

Permanent address: 7326-3 Nakatsu Aikawa-Machi
Kanagawa-Ken, Japan

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