Ethnicity, Political Violence and Internal Migration in Guatemala, 1975-1994: A Multi-level Backward Recurrence Time Model.

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Guatemala experienced a protracted and bloody insurgency and counter-insurgency starting in the early 1960s and continuing into the early part of the 1990s. The 1980s were marked by particularly high levels of political violence, as the military government launched an aggressive counter-insurgency campaign. During the course of the conflict the level of war related deaths, and political assassinations and disappearances, varied substantially across geographic zones of the country and over time, and was not restricted to any particular area. Specific instances of population displacement and refugee movements are well documented, but the effects of the political violence on internal migration at the national level have not been studied. Guatemala is also a society with a dramatic ethnic divide. Approximately 50-60 percent of the population are Spanish speakers of European and mixed European-indigenous ancestry, and the rest of the population are of Indigenous-Mayan ancestry. The Maya population is further differentiated on the basis of language into monolingual Maya speakers, bilingual Maya-Spanish speakers, and monolingual Spanish speakers. The two broadly defined ethnic populations differ significantly on a range of sociodemographic outcomes including migration behavior.

This paper provides the first, systematic analysis of internal migration in Guatemala at the national level. It examines the impact of political violence and ethnicity on the risk of out-migration, controlling for other background and place characteristics. The study is based on a 5% sample of individual records from the 1994 Guatemala Population Census. Questions on the number of years in the current place of residence, and the place of prior residence, are used to construct a person years file. We use a multilevel discrete-time hazard model to estimate the risk of migration from this backward recurrence time data. Liang and White (*Demography* 1996) and others have demonstrated the value of this model for analyzing the hazard of recurrent events, such as migration, from data on time since last occurrence.

We define migration as inter-municipal moves, and capture variation in place characteristics with an index of economic development, the annual per capita level of municipal government expenditures, the proportion of the municipal population that is ethnically Mayan, and a measure of political violence in the municipality. All of the place characteristics are time-varying. The index of economic development is constructed from 1973, 1981 and 1994 census data on the proportion of the municipal population that is urban, the proportion of the population that is literate, and the proportions of dwellings with piped water, sewer connections, and electricity. Political violence at the municipal level is measured by the total, annual number of politically related killings and disappearances at the municipal level. This data was compiled into a database covering the early 1960s to the mid-1990s, as an outcome of peace accords signed by the Guatemalan government and rebel forces in 1996.

We restrict our analysis to adults age 15-59 at the time of the census, and to life years from 1975-1994. Preliminary results from a discrete-time hazards model show significant interactions between ethnicity and the ethnic composition of the municipality, and ethnicity and the level of political violence (Table 2). The odds ratios presented in Figure 1 show that monolingual Spanish speaking and bilingual Mayas are at a

significantly higher risk of out-migration than Ladinos (nonindigenous Spanish speakers) in places where the population is predominantly Ladino. However, this difference in the risks of out-migration shifts dramatically as the proportion of the local population that is Indigenous rises. In predominantly Indigenous municipalities, Maya in all three categories are at a substantially lower risk of out-migration than Ladinos. On the other hand, Ladino out-migration is relatively unaffected by the ethnic composition of the place of origin. This powerful interaction between ethnicity and the local ethnic composition is consistent with strong, ethnic based community ties, that discourage out-migration among Maya living in predominantly Indigenous communities.

We also find significant ethnic differences in the migration response to political violence at the local level. Among monolingual Spanish speaking and bilingual Maya, the risk of out-migration rises faster in response to increases in the level of political violence than is the case for Ladinos. These results are consistent with evidence from other sources that the Indigenous population bore the brunt of political violence, and in some instances was specifically targeted for violence by government forces. Among monolingual Maya speakers, the odds ratio actually decreases as the level of violence increases. We suspect this result is due to international out-migration from predominantly Indigenous municipalities that were hard hit by the violence. At one point during the war, as many as 200,000 Guatemalan refugees were living in the border zones of southern Mexico. Many of these refugees did not return to Guatemala until after the 1994 census when the peace accords were signed. These out-migrants were lost to observation, and therefore biased the results downward for the municipalities from which they migrated. For the same reason, the results for the monolingual Spanish speaking and the bilingual Mayas are lower-bound estimates of the migration response to political violence.

We plan on testing alternative specifications of the impact of political violence on out-migration, using different time lags, and measuring the level of violence at higher levels of geographic aggregation.

Table 1 Descriptive Statistics, Adults Age 15-59, 5% Sample of 1994 Guatemala Population Census.

	Percent
Age at Time of Census	
15-19	22.2
20-24	17.0
25-29	13.2
30-34	12.2
35-39	10.4
40-44	8.8
45-49	6.6
50-59	9.6
Male	47.9
Ethnicity	
Ladino	59.6
Maya, Spanish only	11.3
Maya, Bilingual	17.7
Maya, Mayan only	11.4
Education level	
No school	35.8
Primary	43.9
Secondary	17.1
Higher	3.2
Number of observations = 185,912	

Table 2 Discete-Time Hazard Models of Internal Migration, Adults Age 15-59, Guatemala 1975-1994.

	Model 1 Odds ratio	Model 2 Odds ratio	Model 3 Odds ratio
Period Effects (ref=1994)			
1975	0.65*	0.55*	0.55*
1976	1.67*	1.38*	1.41*
1977	1.00	0.84*	0.85^{+}
1978	0.98	0.84^{+}	0.86^{+}
1979	2.27*	1.96*	1.99*
1980	1.25*	1.03	1.06
1981	1.06	0.90	0.92
1982	1.79*	1.50*	1.53*
1983	0.74*	0.63*	0.65*
1984	2.24*	2.00*	2.03*
1985	0.90	0.82*	0.83*
1986	1.62*	1.50*	1.52*
1987	1.37*	1.26*	1.27*
1988	1.51*	1.40*	1.41*
1989	1.81*	1.69*	1.71*
1990	1.64*	1.55*	1.56*
1991	1.73*	1.67*	1.68*
1992	1.83*	1.80*	1.81*
1993	2.40*	2.39*	2.39*
Individual Effects			
Age (ref = 50-65)			
15-19		2.39*	2.40*
20-24		2.43*	2.44*
25-29		2.10*	2.11*
30-34		1.80*	1.80*
35-39		1.50*	1.50*
40-44		1.30*	1.31*
45-49		1.21*	1.21*
Male		0.89*	0.89*
Ethnicity (ref = ladino)		--	--
Maya, Spanish only		0.69*	0.86^{+}
Maya, Bilingual		0.44*	1.37*
Maya, Mayan only		0.35*	1.74^{+}
Student in current year		0.78*	0.78*
Education level (ref=no school)		--	--
Primary		1.26*	1.28*
Secondary		1.62*	1.65*
Higher		1.93*	1.99*

Table 2, (continued)

	Model 1 Odds ratio	Model 2 Odds ratio	Model 3 Odds ratio
Place Effects			
Development index		0.93*	0.94*
Municipal expenditures		1.01*	1.01*
Proportion of population Maya		0.79*	1.10^{+}
Political violence (last four years)		1.03*	1.02*
Ethnicity and Place Interactions			
Maya, Span × Prop. pop. Maya			0.44*
Maya, Bi × Prop. pop. Maya			0.18*
Maya, Mono × Prop. pop. Maya			0.14*
Maya, Span × Political violence			1.06*
Maya, Bi × Political violence			1.04*
Maya, Mono × Political violence			0.97
LR Chi-square	2,418	8,721	9,353
Number of life years = 2,266,574			
Number of observations = 185,912			

* $P < 0.001$, $^{+}P < 0.01$.

Figure 1 Odds Ratios for Predicting Migration by Ethnicity and Municipio Ethnic Composition

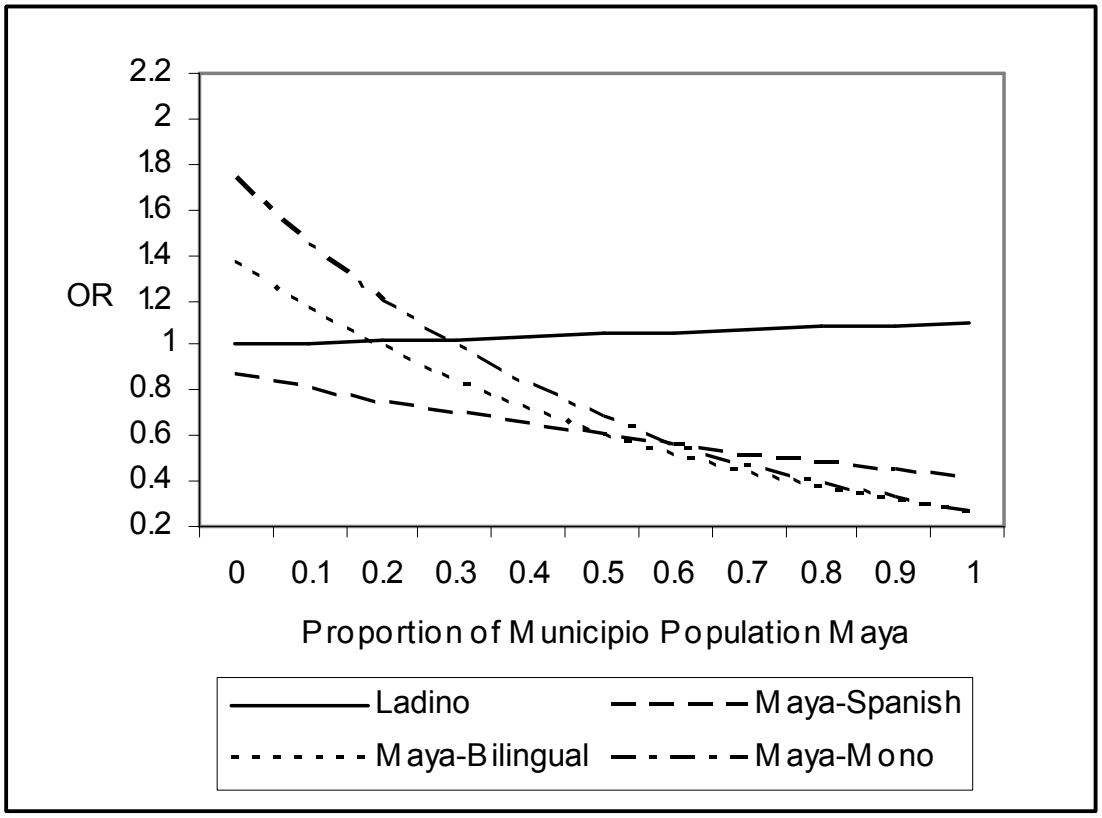

Figure 2 Odds Ratios for Predicting Migration by Ethnicity and Level of Municipio Political Violence.