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Immigration Policies and the Ecuadorian Exodus

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Ecuador recently experienced an unprecedented wave of emigration following the severe economic crisis of the late 1990s. Individual-level data for Ecuador and its two main migration destinations, Spain and the United States, are used to examine the size and skill composition of these migration flows and the role of wage differences in accounting for these features. Estimations of earnings regressions for Ecuadorians in all three countries show substantially larger income gains following migration to the United States than to Spain, with the wage differential increasing with migrants' education level. While this finding can account for the pattern of positive sorting in education toward the United States, it fails to explain why most Ecuadorians opted for Spain. The explanation for this preference appears to lie in Spain's visa waiver program for Ecuadorians. When the program was abruptly terminated, monthly inflows of Ecuadorians to Spain declined immediately. JEL codes: O15, J61, D31

Following the seminal contributions of Roy (1951), Sjaastad (1962), and Borjas (1987), most studies of international migration have focused on how wage differentials shape the decision on whether and where to migrate. There is also consensus that many nonwage factors are important: demographic changes in

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the origin countries (Hanson and McIntosh 2010a), cultural and linguistic proximity (Grogger and Hanson forthcoming), ethnic networks (McKenzie and Rapoport 2010; Beine, Docquier, and Özden forthcoming), and immigration policies in the main host countries (Mayda 2010; Ortega and Peri 2009).

Identifying the impact of immigration policies on migration decisions is often problematic because immigration policies are multifaceted; tracking their differences over time and across countries is a challenge. This article focuses on the massive Ecuadorian migration of the late 1990s and early 2000s[1] by isolating the effects of a change in one policy dimension: the introduction of a visa requirement for visitors from Ecuador to Spain in August 2003.

Individual-level data from comparable sources in Ecuador, the United States and Spain, the two main destination countries, were assembled to identify the composition and distribution of the recent Ecuadorian migration. The information was used to assess to what extent these features can be explained by wage and nonwage factors.

The destination of Ecuadorian migrants was examined by education level and gender. More women than men and more people without a college degree[2] emigrated to Spain, while more college graduates opted for the United States.

Individual observations on labor earnings for Ecuadorians were used to run country-specific Mincer regressions and to estimate the income gain associated with migration to the two main destinations. The estimated differences in labor earnings across countries and levels of schooling are consistent with the higher average level of education of migrants to the United States.

Still, wage factors are starkly at odds with the relative scale of migration to the two destination countries. The much larger income gains associated with migration to the United States do not help explain why most Ecuadorians who left in the aftermath of the crisis opted for Spain. This choice is all the more puzzling considering that precrisis Ecuadorian migration networks were denser in the United States than in Spain,[3] yet the postcrisis migration was characterized by a large shift "from New York to Madrid" (Jokisch 2001). The literature on networks and migration suggests that the denser U.S. networks should have contributed to an *increase* in the scale of Ecuadorian migration to the United States relative to Spain (Beine, Docquier, and Özden forthcoming; McKenzie and Rapoport 2010).[4]

This puzzle can be explained by a key difference in the immigration policies of the United States and Spain. Spain had introduced a visa waiver program for

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1. See Beckerman and Solimano (2002), Jácome (2004), Larrea (2004), and Laeven and Valencia (2008) for an analysis of the causes and economic consequences of the late 1990s crisis.

2. College degree or college graduate is defined as a person with at least four years of college education.

3. Before 1999, there were 272,000 Ecuadorian-born individuals in the United States (U.S. Census Bureau 2000) but just 76,000 in Spain (INE 2001).

4. Figure S.1 and table S.1 and the related discussion in the supplemental appendix to this article (available at http://wber.oxfordjournals.org/) provide some suggestive evidence that this was the case; observe that networks could have also contributed to reduce the level of education of Ecuadorian migrants to the United States, as the empirical results in Bertoli (forthcoming) show.

Ecuadorians since 1963. Its influence on the distribution of Ecuadorian migrants across the two main destinations can be gauged by what happened when the program was terminated in August 2003, at a time when other relevant facets of immigration policies in the two destination countries remained unchanged: monthly inflows of Ecuadorians into Spain fell sharply.

The article is structured as follows. Section I describes the timing of the Ecuadorian exodus. Section II presents descriptive statistics. Section III analyzes the skill composition of migration flows. Section IV reports Mincerian regressions and attempts to reconcile the implied wages with the data on migration flows. Section V discusses the most relevant differences in immigration policies between the United States and Spain. Finally, section VI discusses some implications of the findings.

I. Data Sources and Timing of Migration

Ecuador experienced a severe economic and financial crisis in the second half of the 1990s, prompting a large wave of international migration. Information on this migration episode comes from three sources: the December 2005 round of the National Survey of Employment and Unemployment in Urban and Rural Areas (ENEMDU; INEC 2005) for Ecuador, the 2007 American Community Survey (ACS; U.S. Census Bureau 2007) for the United States, and the 2007 National Immigrant Survey (ENI; INE 2007) for Spain.[5] These data sources provide comparable individual-level information on Ecuadorians residing in the three countries on age, year of migration, gender, education, marital status, employment status, sector of occupation, and pretax labor earnings.[6] The three datasets contain information on 73,758 individuals residing in Ecuador and 2,030 who migrated to Spain or to the United States between 1999 and 2005.

Figure 1 plots the distribution of the Ecuadorian migrants in the ACS 2007 and in the ENI 2007 by year of arrival. The time profile of migration flows from Ecuador to the two destinations is very similar, with a surge in flows to the United States and Spain around 2000, in the aftermath of the economic crisis. Though the timing is similar, the scale differs substantially. Some 137,148 Ecuadorians emigrated to the United States during 1999–2005,[7] and some 318,243 emigrated to Spain—more than twice as many. Ecuadorian data

5. The ENEMDU 2005 is a nationally representative labor market survey covering a sample of 73,758 people (INEC 2005). The ACS 2007 sample covers approximately 2.5 percent of the resident population in the United States (U.S. Census Bureau 2007; Ruggles and others 2008). The ENI 2007 is a nationally representative survey of the foreign-born population in Spain, with a sample size of 15,500 (INE 2007).

6. Other relevant variables, such as province of residence in Ecuador or English language proficiency, are not available on a comparable basis in the three datasets; some of these variables were used to perform robustness checks, described in the supplemental appendix.

7. The period covers migration episodes that occurred at least two years before the ENI 2007 and the ACS 2007, as surveys in destination countries might be unable to adequately enumerate recently arrived migrants (Hanson 2006).

FIGURE 1. Arrivals of Ecuadorians to the United States and Spain, 1991–2006
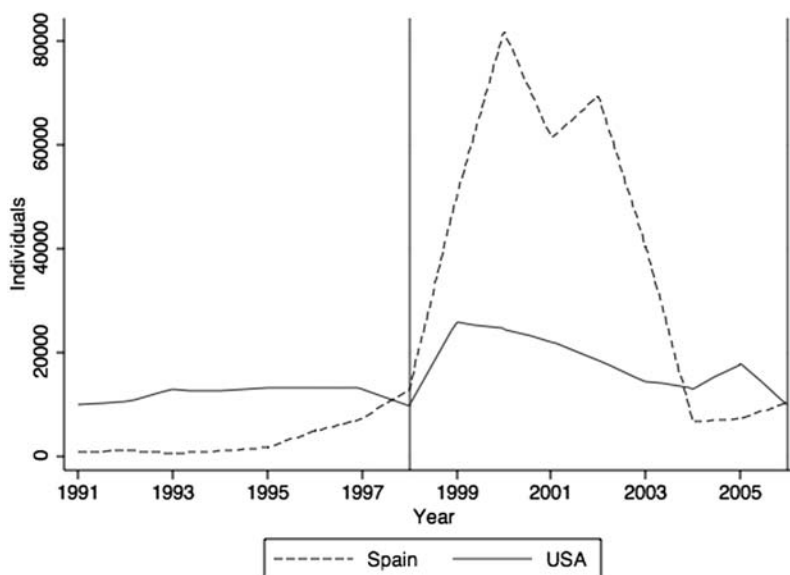
Note: The figure plots the distribution of migrants by their year of first arrival at destination; the two vertical lines delimit the reference period of the analysis.

Source: Authors' calculations using data from U.S. Census Bureau (2007) and INE (2007).

sources show a similar picture of the scale and timing of migration to the two main destinations (see figure S.2 in the supplemental appendix).

Two issues arise concerning the representativeness of the sample. First, the sample does not account for temporary migrants who had returned home by the time of the survey. However, the size of the return flow is very small. Based on ENEMDU 2005 data, 9,890 people returned to Ecuador from Spain or the United States between 1999 and 2005, a very small number compared with the roughly half a million Ecuadorian migrants to the United States and Spain. Thus, any bias due to return migration is likely to be very small. Second, the sample enumerates most Ecuadorians who moved to the United States or Spain over the 1999–2005 period, irrespective of their legal status at destination. The number of Ecuadorians who entered the United States between 1999 and 2005 according to the 2007 ACS is very close to the sum of the number of Ecuadorians who became legal permanent residents and the best available estimate of the size of illegal flows of Ecuadorians over the same period.[8] Spain

8. Hoefer, Rytina, and Baker (2008) estimate that 10,000 Ecuadorians entered the United States illegally every year over 2000–06. The 1999–2005 issues of the Yearbook of Immigration Statistics (U.S. Department of Homeland Security various years) reveal that 64,034 Ecuadorians became permanent residents over fiscal years 1999–2005. Adding this figure—which also includes adjustment of status—to the estimated undocumented inflow yields approximately 135,000, which is reassuringly close to the 137,148 Ecuadorian migrants recorded by the ACS 2007 over the period.

extended three amnesties to illegal immigrants (in 2000, 2001 and 2005), so most Ecuadorians had a legal residence permit at the time of the ENI 2007.

II. Sample Selection and Descriptive Statistics

Since the aim of the analysis was to understand the determinants of migration decisions by prime working age Ecuadorians, the sample was restricted to people born during 1949–82 who were 16–49 years old and living in Ecuador in 1998, at the onset of the economic crisis, and who then left Ecuador between 1999 and 2005 or stayed in the country. Some 205 individuals who reported past international migration experience were excluded, so that the subsample of stayers includes only those who had never migrated. These sample selection criteria deliver a sample of 509 migrants to the United States, 915 migrants to Spain, and 27,917 stayers.

The distribution of migrants in the selected sample between the two destination countries is similar to that depicted in figure 1: the migration flow to Spain was almost three times as large as the flow to the United States, with some differences by education and gender. The ratio of migrants to Spain to migrants to the United States was 3.2 for non-college graduates compared with 1.9 for college graduates, and 3.2 for women compared with 2.8 for men (see table S.2 in the supplemental appendix). These figures suggest that the incentives and the ability to migrate to the United States differed by education and gender.

Migrants to the two destinations were similar in age and younger than stayers (table 1). They had been residing there an average of 6 years at the time of the surveys. Male migrants to Spain were on average less educated (8 percent had a college degree) than were stayers and migrants to the United States (14 percent each). Female migrants to the United States were more highly educated (22 percent had a college degree) than were stayers (13 percent).[9] Thus, for both genders, Ecuadorians who migrated to the United States were more educated than those who migrated to Spain. They had completed 1.3 more years of schooling, and the share of college graduates was 6 percentage points higher.

The employment rate for Ecuadorian men—for both those with a college degree and those without—is the same in the United States and Spain, suggesting that this played a limited role in influencing prospective male migrants' destination choice. For women, the employment rate is substantially higher in Spain than in the United States, which probably reflects the fact that tied movers (individuals who follow a migrating household member) were a greater share of female Ecuadorian migrants in the United States. Ecuadorian migration to the United States had traditionally been male dominated, so in

9. The same picture emerges when the sample is restricted to individuals born in 1949–73, who had already completed their education by the onset of the late-1990s crisis.

TABLE 1. Descriptive Statistics on Ecuadorians in Ecuador, the United States, and Spain

Statistic	Ecuador		United States		Spain	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Men						
Age at migration	37.97	9.73	28.78	8.42	28.66	7.91
Years since migration	0.00	0.00	5.73	1.99	6.25	1.38
College graduate[a]	0.14	0.35	0.14	0.35	0.08	0.27
Years of education	9.23	4.86	10.86	4.25	9.58	4.02
Employment rate	0.95	0.22	0.90	0.30	0.90	0.30
College graduate	0.93	0.26	0.92	0.27	0.92	0.28
Non-college graduate	0.95	0.22	0.90	0.30	0.90	0.30
Labor income (U.S. dollars)	3,829	5,447	26,896	20,344	15,979	4,214
College graduate	8,793	9,817	43,219	35,581	16,308	5,743
Non-college graduate	3,023	3,766	23,991	14,368	15,951	4,054
Women						
Share of total	0.52	0.50	0.46	0.50	0.49	0.50
Age at migration	37.97	9.49	30.22	8.54	28.91	7.54
Years since migration	0.00	0.00	5.68	1.84	6.07	1.43
College graduate[a]	0.13	0.34	0.22	0.41	0.15	0.36
Years of education	8.91	4.90	11.55	4.29	10.29	4.09
Employment rate	0.60	0.49	0.63	0.48	0.81	0.39
College graduate	0.82	0.39	0.63	0.49	0.84	0.37
Non-college graduate	0.57	0.50	0.63	0.48	0.81	0.39
Labor income (U.S. dollars)	2,883	3,775	18,189	12,718	10,767	3,317
College graduate	5,631	5,692	21,314	10,492	10,891	3,081
Non-college graduate	2,199	2,718	17,445	13,084	10,744	3,358
Number of observations	27,917		509		915	

a. Defined as at least four years of college.

Source: Authors' analysis based on data from INEC (2005), U.S. Census Bureau (2007), and INE (2007).

this postcrisis migration wave, women were more likely than men to be able to take advantage of the family reunification provisions of U.S. immigration law (Sánchez 2004). Conversely, women made up most of the early migrants to Spain, where they were often employed as domestics and in elderly care (Jokisch and Pribilsky 2002).

Pretax labor earnings for Ecuadorians in the United States are well above those in Spain and Ecuador for both men and women and for all levels of education (see table 1). Average annual labor earnings for an Ecuadorian male college graduate in the United States are $27,000 more than in Spain; for non-college graduates the differences is $8,000.[10] These data were collected in 2007 for migrants, and the U.S. dollar depreciated substantially over the seven-year reference period, implying that the data underestimate the difference in earnings at the time when most migrants decided to leave Ecuador.[11]

The three countries also differ in the variability of labor earnings. Earnings dispersion is greatest for Ecuador, while earnings appear to be compressed around the mean for Ecuadorians in Spain (see table 1).[12]

III. Selection and Sorting in Education

The descriptive statistics reported above suggest that the average Ecuadorian in the United States was substantially more educated than the average Ecuadorian in Spain. This section provides a more rigorous comparison, controlling for individual differences in observable characteristics, such as age and gender.

Migrants are said to be positively *selected* in education if their average educational attainment is higher than that of stayers and negatively selected if it is lower (Borjas 1999). And migrants to one destination can be said to be positively *sorted* if their average education is higher than that of migrants to other destinations and negatively sorted if it is lower (Grogger and Hanson forthcoming).

To assess the degree of selection and sorting in education, two probit models are estimated for the probability of being a college graduate for a sample that includes stayers and migrants (selection) or migrants to both

10. The labor earnings figures in table 1 are adjusted for inflation but not for differences in purchasing power parity, because of the large size of remittances, both in absolute terms and relative to migrants' earnings. As a result, the appropriate price index is some unknown combination of the price level in Ecuador and in the destination country. At any rate, the difference in the price levels in the United States and Spain is very small. Taking the United States as the base (100 in 2007), Spain's cost of living was 95.5 (World Bank 2008). Ecuador's cost of living was 42.2 in the same year.

11. The exchange rate stood at $0.92 per euro in 2000, when postcrisis migration reached its peak, rising to $1.37 per euro in 2007 (World Bank 2008), when the labor earning figures were collected (see also figure S.3 in the supplemental appendix).

12. The supplemental appendix contains additional descriptive statistics that are helpful in understanding the likely labor market effects of Ecuadorian immigration in the United States and Spain (see table S.3).

destinations (sorting). Several alternative specifications are considered, varying in the control variables included (table 2).

The top two panels in table 2 present estimates for selection. For men, there is clear evidence of negative selection in education for migrants to Spain (compared with stayers), as evidenced by the negative and significant coefficient on the dummy variable for migration to Spain across all specifications. The estimated coefficient on the U.S. dummy variable is positive but not significant. For women, there is significant positive selection for migrants to the United States and a much smaller and not significant coefficient for migrants to Spain. This finding is robust to controlling for year of birth, marital status, and Ecuadorian province of origin (not available for the U.S. data).

The two bottom panels of table 2 present estimates for sorting of migration by education. The main explanatory variable takes a value of one if the migrant opted for Spain and zero if for the United States. The estimated coefficient for the dummy variable for Spain is negative and highly significant across all specifications for both genders, meaning that both male and female Ecuadorian migrants to Spain were negatively sorted in education relative to migrants to the United States.

Ideally, the estimation would control for some measure of networks, but the ACS 2007 data do not enable linking Ecuadorian immigrants to their communities of origin. Still, it is highly unlikely that networks can account for the observed pattern of negative sorting in education to Spain, as their greater density in the United States should have contributed to the opposite pattern to that found in the data.[13]

IV. Earnings and the Decision to Migrate

With individual-level data, Mincer regressions can be run using observed earnings for Ecuador, Spain, and the United States to estimate the returns to education for Ecuadorians in each location, without having to rely on extrapolations from income figures for the general population, as in most empirical studies (Belot and Hatton 2008; Grogger and Hanson forthcoming; Ortega and Peri 2009). The dependent variable in the Mincer equations—which are gender- and country-specific—is the log of pretax annual earnings in 2005 dollars, and the regressions are estimated on the subsample of employed individuals.[14] The regressions

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13. Bertoli (forthcoming) finds that the greater the density of migration networks (measured as the share of households in each Ecuadorian county that had a member in the United States before the late 1990s crisis), the lower the average level of schooling of migrants that opted for the United States in the aftermath of the crisis.

14. Following Heckman (1979), the robustness of the estimates was tested controlling for selection into employment and adding household size among the regressors in the first stage. This had little influence on estimated returns to education for men, given the high rates of employment in the three countries (see table 1); the impact is larger for women, but it does not alter the differences across countries that emerge in table 3 (see table S.4 in the supplemental appendix).

T A B L E 2. Selection and Sorting Regressions, Probit Model

Variable	Specification					
	(1)	(2)	(3)	(4)	(5)	(6)
Birth cohorts	No	Yes	No	Yes	Yes	Yes
Year of birth dummy variable	No	No	Yes	No	No	No
Marital status	No	No	No	Yes	Yes	Yes
Province dummy variable	No	No	No	No	No	Yes
Selection in education						
Men born in 1949–82						
U.S. migrant dummy variable	−0.004	0.057	0.055	0.009		
	(0.102)	(0.103)	(0.103)	(0.103)		
Spain migrant dummy variable	−0.355	−0.301	−0.313	−0.312	−0.279	−0.282
	(0.101)***	(0.101)***	(0.101)***	(0.103)***	(0.105)***	(0.107)***
Number of observations	13,991	13,991	13,991	13,991	13,781	13,781
Women born in 1949–82						
U.S. migrant dummy variable	0.340	0.332	0.341	0.322		
	(0.102)***	(0.103)***	(0.104)***	(0.103)***		
Spain migrant dummy variable	0.095	0.069	0.067	0.067	0.071	0.063
	(0.090)	(0.091)	(0.091)	(0.091)	(0.086)	(0.086)
Number of observations	15,350	15,350	15,350	15,350	15,157	15,157
Sorting in education						
Male migrants born in 1949–82						
Dummy Spain migrant dummy variable	−0.35	−0.383	−0.454	−0.404		
	(0.141)**	(0.145)**	(0.149)***	(0.143)***		
Number of observations	688	688	688	688		
Female migrants born in 1949–82						
Dummy Spain migrant dummy variable	−0.245	−0.292	−0.292	−0.254		
	(0.134)*	(0.140)**	(0.140)**	(0.140)*		
Number of observations	736	736	736	736		

***Significant at the 1 percent confidence level; ** significant at the 5 percent confidence level; * significant at the 10 percent confidence level.

Note: Numbers in parentheses are standard errors. The dependent variable is having a college degree (completing at least four years of college).

Source: Authors' calculations using data from INEC (2005), U.S. Census Bureau (2007), and INE (2007).

include as explanatory variables a proxy for potential labor market experience and its square, marital status, and a measure of educational attainment (either a dummy variable for having a college degree or number of years of schooling). Potential labor market experience is defined as age minus the age at which education was completed, following Mincer (1974).[15] For Spain and the United States, years since migration are included as a measure of labor market experience at destination.

The findings are in line with the descriptive statistics in table 1. First, there is a high college wage premium in Ecuador (98 percent for men and a 107 percent for women) and in the United States (45 percent for men and 37 percent for women).[16] In contrast, college-educated Ecuadorians in Spain earned virtually the same as non-college-educated ones. That is, the earnings profile for Ecuadorians in Spain appears to be flat across education levels for both men and women.[17]

The differences in the estimated college premia across the two destination countries are due neither to differences in time elapsed since migration, controlled for in specification 2 and 3, nor to differences in the legal status of the Ecuadorian migrants in the two countries. In 2007, the share of Ecuadorian legal residents was 60 percent in the United States[18] and 91 percent in Spain.[19] Therefore, accounting for legal status—for which individual-level data are not available for the United States—would likely result in an even larger gap in college wage premia between the two destinations.

Specification 3 includes years of schooling as a measure of education: for men, the estimated return to an additional year of schooling is 9.8 percent in

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15. This is defined as the number of years of schooling plus 6. Since it is reasonable to assume that child labor experience does not increase adult wages, potential experience before the age of 16 is not counted.

16. The ACS 2007 provides information on self-reported fluency in English for immigrants; differential English fluency across education groups is likely to influence the observed college wage premium for Ecuadorians. In the sample, 20 percent of non-college graduates do not speak any English compared with less than 1 percent of college graduates. Once controls are included for English proficiency in the Mincer equation for the United States, the estimated college premium for men falls from 45 percent to 34 percent, though the difference is not statistically significant (see table S.4 in the supplemental appendix).

17. The low R^2 in the Mincer regressions for Spain can be related to the limited dispersion in earnings among Ecuadorian migrants to Spain documented in table 1. This reflects the extreme wage compression in Spain's labor market for recent migrants, which is due mainly to the highly centralized wage bargaining. In addition, Ecuadorians working in Spain were heavily concentrated in a few occupations and sectors (mainly construction and household services; see table S.3 in the supplemental appendix).

18. The ACS 2007 reports that 403,643 Ecuadorian-born people who were residing in the United States as of January 1, 2007; for the same date, Hoefer, Rytina, and Baker (2008) report that an estimated 160,000 Ecuadorians were residing illegally in the country, putting the share of legal migrants at 60.4 percent. The share would be lower if only postcrisis migrants were considered.

19. Spain's Local Population Registry recorded 434,673 Ecuadorians as of January 1, 2007. Of these, 376,233 had legal residence permits and 19,345 were naturalized, putting the share of Ecuadorian-born individuals residing legally in the Spain at 91 percent.

Ecuador, 3.7 percent in the United States, and 0.7 percent in Spain, with the last figure not being significant. For both destination countries, the estimated rate of return is significantly lower than the corresponding rate of return for the general population, reinforcing the argument that relying on countrywide figures to gauge income gains from migration can be misleading. Mincer regressions estimated on the ACS 2007 for the United States and the 2006 Wage Structure Survey for Spain (INE 2006) show an 11.6 percent return for men in the United States and 5.4 percent in Spain.[20]

The Mincer regressions provide a basis for gauging the income gains from migration provided that the non-random selection in unobservables across the three countries does not significantly bias the returns to observable characteristics. Bertoli, Fernández-Huertas Moraga, and Ortega (2010) adopt the semi-parametric approach proposed by Dahl (2002) to correct for selection in unobservables when predicting counterfactual earnings for Ecuadorians in the three countries focused on here; their results suggest negligible selection bias.[21]

Table 4 displays the predicted average annual earnings based on specification 1 in table 3, by gender and level of education, for Ecuadorians in each of the three countries. College graduates enjoyed a larger earnings gain from migrating to the United States (around $35,000 annually) than did non-college graduates (around $21,000; table 4). Migration to Spain entailed larger expected gains in earnings for non graduates (around $11,000 annually) than for graduates (about $7,000).

What are the implications of these estimates for expected earnings for the scale, selection, and sorting of immigrants across destinations? First, wage differences by themselves are unable to account for the differences in the scale of migration to the United States and Spain, since most Ecuadorians migrated to Spain, the lower earnings destination. This implies that other factors must have played a key role.

The education composition of migration across destinations is considered next. The findings in the previous section on selection in education were inconclusive, with two significant coefficients (male migration to Spain and female migration to the United States) and two non-significant ones.[22] However, the comparison of the average educational attainment of migrants to the United

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20. These two regressions were estimated for the same set of controls as the results reported in table 3 (except for marital status in Spain, which is not available in the 2006 Wage Structure Survey) and for individuals born in 1949–82. The rate of return for women is 13.4 percent in the United States and 5.6 percent in Spain (see table S.5 in the supplemental appendix).

21. Internal migrants in Ecuador were compared with Ecuadorian migrants abroad to further address the concern of nonrandom selection in unobservables. Descriptive statistics show that internal and international migration flows are similar in gender and education composition (see table S.6 in the supplemental appendix); Mincer regressions estimated separately for stayers and internal migrants in Ecuador show no significant differences in the returns to schooling (see table S.7 in the supplemental appendix), which is reassuring about the limited influence on wages exerted by a possible nonrandom selection in unobservables.

22. The significant results on selection are consistent with a linear utility specification of the Roy model, as in Rosenzweig (2007) and Grogger and Hanson (forthcoming).

TABLE 3. Determinants of Labor Earnings in Ecuador, the United States, and Spain

Variable	Ecuador		United States			Spain		
	(1)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Men born in 1949–82								
Years of schooling		0.098			0.037			0.007
		(0.002)***			(0.012)***			(0.004)
College graduate[a]	0.976		0.449	0.446		0.006	−0.000	
	(0.033)***		(0.152)***	(0.151)***		(0.065)	(0.065)	
Experience	0.022	0.028	−0.008	−0.005	0.001	0.004	0.003	0.004
	(0.004)***	(0.004)***	(0.023)	(0.023)	(0.023)	(0.010)	(0.010)	(0.010)
Experience, squared	−0.001	−0.001	0.000	0.000	−0.000	−0.000	−0.000	−0.000
	(0.000)***	(0.000)***	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Years since migration				0.064	0.059		0.020	0.018
				(0.022)***	(0.023)**		(0.011)*	(0.011)*
Marital status	0.292	0.217	−0.002	−0.019	0.027	−0.013	−0.012	−0.008
	(0.020)***	(0.020)***	(0.105)	(0.104)	(0.105)	(0.033)	(0.033)	(0.033)
R²	0.18	0.28	0.07	0.13	0.11	0.004	0.02	0.03
Number of observations	11,985	11,985	196	196	196	386	386	386
Women born in 1949–82								
Years of schooling		0.122			0.034			0.005
		(0.003)***			(0.023)			(0.005)
College graduate[a]	1.067		0.371	0.340		0.029	0.028	
	(0.035)***		(0.142)***	(0.145)**		(0.051)	(0.051)	
Experience	0.003	0.009	0.008	0.005	0.011	0.002	0.000	0.001
	(0.006)	(0.006)	(0.030)	(0.029)	(0.028)	(0.014)	(0.015)	(0.015)
Experience, squared	−0.0001	0.000	−0.0003	−0.0003	−0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Years since migration				0.044	0.042		0.007	0.005
				(0.037)	(0.039)		(0.015)	(0.015)
Marital status	0.105	0.074	−0.176	−0.166	−0.149	−0.094	−0.096	−0.097
	(0.030)***	(0.028)***	(0.142)	(0.143)	(0.142)	(0.043)**	(0.041)**	(0.041)**
R²	0.18	0.31	0.05	0.06	0.06	0.04	0.04	0.04
Number of observations	7,055	7,055	139	139	139	371	371	371

***Significant at the 1 percent confidence level; ** significant at the 5 percent confidence level; * significant at the 10 percent confidence level.

Note: Numbers in parentheses are standard errors. The dependent variable is the log of yearly pretax labor earnings.

a. Defined as having at least four years of college.

Source: Authors' analysis based on data from INEC (2005), U.S. Census Bureau (2007), and INE (2007).

TABLE 4. Predicted Earnings

	Ecuador		United States		Spain	
Variable	Mean	Standard error	Mean	Standard error	Mean	Standard error
Men born in 1949–82						
College graduate[a]	6,066	210	40,976	3,569	13,403	911
Non-college graduate	2,164	41	23,868	1,313	13,181	475
Women born in 1949–82						
College graduate[a]	4,175	161	28,593	2,771	9,074	540
Non-college graduate	1,400	41	15,847	1,155	9,036	437

Note: Predictions are based on specification (1) in table 3.

a. Defined as having at least four years of college.

Source: Authors' analysis based on data from INEC (2005), U.S. Census Bureau (2007), and INE (2007).

States and to Spain (sorting) turned out to be much more revealing, showing positive sorting toward the United States, for both male and female migrants. The pattern of sorting is consistent with the estimated earnings for Ecuadorians in each location reported earlier. The United States offered a substantially higher college wage premium than Spain, which can account for the positive sorting toward the United States.

In conclusion, wages differences across the three locations can account for the differences in skill composition of the migration episode analyzed here. However, other factors must be incorporated to account for the differences in the size of the flows.

V. Immigration Policies and the Choice of Destination

A country's attitude toward immigration is manifested in a host of policies, including amnesties for illegal aliens, pension rights portability, quotas on legal immigrants, enforcement of border controls, and visa requirements for nonimmigrant admissions. While the literature acknowledges that these factors affect immigration, much less is known about their individual effects.

Why did most Ecuadorians go to Spain despite the substantially larger income gains from migrating to the United States? Several factors might have had a role, but identifying their individual influence is difficult. Such factors include the cultural and linguistic ties between Ecuador and Spain, Spain's more generous welfare services, characteristics of Ecuadorian networks in both countries, and the greater ease of legally entering and of becoming a resident, among others.[23]

23. Additional time-invariant factors that are not accounted for by the wage differential are represented by the lower costs of living in Spain, lower income taxes in the United States (Bertoli, Fernández-Huertas Moraga, and Ortega 2010), and lower cost of sending remittances from the United States, because dollarization in Ecuador enabled Ecuadorians to avoid the unfavorable exchange rates that usually apply to these transfers (see http://remittanceprices.worldbank.org).

This section looks at the role played by just one factor: the visa waiver program that eased Ecuadorian travel to Spain. Its termination in 2003 permits isolating the effect of this one dimension of immigration policy on Ecuadorians' migration choices.

But first consider some of the differences for Ecuadorians in legally entering and becoming a resident in the United States and in Spain. Legal migration to the United States between 1999 and 2005 occurred mostly through family reunification provisions (17,396 cases of family-based preferences and 36,412 cases of close relatives of naturalized immigrants); few Ecuadorians (7,705) obtained a legal residence permit through employment-based preferences (U.S. Department of Homeland Security various years). More than half of the immigrants over the reference period were undocumented residents, with few options to regularize their status, as the United States has not approved a general amnesty since the Immigration Reform and Control Act of 1986. Legal migration to Spain depended mainly on obtaining a work visa, but undocumented Ecuadorians also had several opportunities to legalize their status through one of Spain's frequent amnesties in the early 2000s. Spain also had faster access to citizenship. Ecuadorians become eligible for naturalization after two years of legal residence (a shorter period is required for Ecuadorians of proven Spanish descent). In the United States, Ecuadorians can apply for citizenship only five years after obtaining legal residency documentation (green card).[24]

An apparently small but important difference in immigration policies was the need for Ecuadorians to obtain a visa to enter the United States, while they could visit Spain for up to three months without a visa provided that they had approximately $2,000, a credit card, a travel plan, hotel reservations, confirmed return flight, and justification for visiting (Jokisch and Pribilsky 2002).

Most Ecuadorians who wished to immigrate to Spain simply overstayed the three-month period, became undocumented workers, and waited for a general amnesty. Conditions for undocumented workers were much easier in Spain than in the United States. Government raids on workplaces were rare, and everyone residing in Spain had access to free healthcare regardless of immigration status. Illegal immigrants to the United States, by contrast, often experienced expensive and risky travel, a hostile social environment, fear of apprehension and deportation, and exclusion from most government services.

When Spain's visa waiver program was terminated in the summer of 2003, there were no other relevant changes in U.S. or Spanish immigration policy toward Ecuadorians, including in immigrants' access to public services, in Ecuadorian networks, or in cultural or economic conditions. Thus the change in Ecuadorian inflows into Spain in the months following termination of the

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24. Access to Spanish citizenship is regulated by the Constitution and by the Ley Orgánica 4/2000, while criteria for access to U.S. citizenship are set by the Constitution and the 1952 Immigration and Naturalization Act, partially revised in the early 2000s.

FIGURE 2. Monthly Inflows of Ecuadorians to Spain, 1999–2007
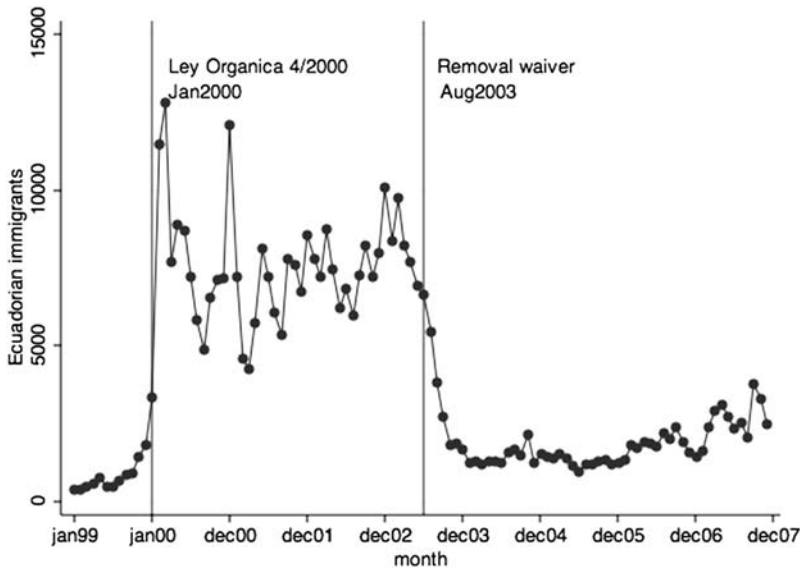
Source: Authors' calculations using data from INE (various years).

visa waiver helps to isolate its role in Ecuadorians' destination decision. In March 2003, the European Union included Ecuador among the countries whose nationals had to have a visa to enter any EU member state (Council of the European Union 2003). Spain complied with this regulation on June 3, 2003, notifying Ecuador that the visa waiver would be suspended as of August 3, 2003 (Boletín Oficial del Estado 2003).

The inflow of Ecuadorians to Spain dropped sharply immediately after the visa requirement went into effect (figure 2).[25] Average monthly inflows fell from 7,862 in the 12 months before the change to 1,566 in the following 12 months.[26] The United States became the main destination for Ecuadorians in 2004 and 2005 (see figure 1).

Such a dramatic effect from termination of the visa waiver might seem surprising. Visa waivers do not receive as much attention in the literature as some

25. These data are from the Local Population Registry. Its accuracy is very high, particularly since January 2000, when the Ley Orgánica 4/2000 increased the incentives for illegal migrants to register by allowing them to document their residence in Spain for future amnesties (see Fernández-Huertas Moraga, Ferrer, and Saiz, 2009).

26. A regression of the monthly inflows of Ecuadorians into Spain between January 1999 and December 2005 was run for a set of monthly and yearly dummy variables to control for seasonality in the data and for the confounding effect of macroeconomic conditions and a dummy variable for introduction of the visa requirement. The estimated coefficient on the visa requirement variable was −4,790 and highly statistically significant. Similar results were obtained when GDP per capita in the three countries was included among the regressors; the estimated coefficient for the change in visa policy was −5,026, confirming that the policy change introduced a structural break in the series. The results are available from the authors on request.

TABLE 5. Apprehensions and Deportations of Ecuadorian Migrants to the United States and Spain

Year	Migrants to the United States				Migrants to Spain			
	Mexico[a]	At sea[b]	INS[c]	Total	Expulsions[d]	Devolutions[e]	Returns[f]	Total
1999	—	298	822	1,120	170	10	1,686	1,866
2000	—	1,244	913	2,157	52	120	1,106	1,278
2001	1,055	1,020	960	3,035	70	91	1,021	1,182
2002	1,427	1,608	729	3,764	314	92	4,675	5,081
2003	808	703	722	2,233	614	178	4,950	5,742
2004	1,076	1,189	1,116	3,381	—	—	—	—
2005	3,276	1,149	1,490	5,915	—	—	—	—
Total	7,642	7,211	6,752	21,605	1,220	491	13,438	15,149

— is not available.

a. Apprehensions and deportations by Mexican authorities.

b. Alien migrants interdiction by the U.S. Coast Guard, fiscal year.

c. Aliens removed by the Immigration and Naturalization Service (now Immigration and Customs Enforcement), fiscal year.

d. Repatriation of illegal aliens resident in the country.

e. Individuals who attempted to enter Spain illegally through nonborder areas.

f. Individuals rejected at Spanish borders.

Source: Authors' analysis based on data from the INAMI (various years), U.S. Coast Guard (2010), U.S. Department of Homeland Security (various years), and Ministerio de Trabajo e Inmigración (various years).

other dimensions of immigration policy, such as quota size and skill requirements.[27] However, the great distance between Ecuador and Spain means that air travel is virtually the only channel of entry, which simplified enforcement of the new visa requirement.

A related question is why the visa waiver had such a large effect on the destination choice of Ecuadorian migrants. A reasonable hypothesis is that for Ecuadorians for whom illegal migration was the only feasible alternative, Spain was a much cheaper, and considerably safer, destination than the United States.

Anecdotal evidence suggests that illegal migration to the United States costed $7,000–$9,000 in the late 1990s (Jokisch and Pribilsky 2002), compared with $1,800 per migrant to Spain (based on self-reported data from the ENI 2007). That difference was surely important for Ecuadorians, who faced tight liquidity constraints in the years following the crisis. Additionally, attempts to enter the United States illegally entailed a much higher risk of deportation (table 5). Between 1999 and 2005 some 21,605 Ecuadorian

27. Grogger and Hanson (forthcoming) control for visa waivers, which they find "are associated with higher migration rates, although the effect is marginally significant." Ortega (2005, 2010) studies the political-economy determinants of immigration policy but focuses exclusively on quotas and skill requirements.

migrants were caught at sea by the Coast Guard, in Mexico, or by U.S. border patrols.[28] Over 1999–2003, some 15,149 Ecuadorian migrants were deported from Spain, nearly all of them rejected at the border.

Combining the data on deportations from table 5, the data on total migration flows from figure 1, and information on legal migration from secondary sources gives an approximate measure of the probability of apprehension when attempting to migrate illegally to Spain or the United States (ratio of number of deportations to the estimated number of illegal migrants plus deportations).[29] The estimated probability was 23.6 percent for migrants to the United States and 5.7 percent for Spain (before the end of the vise waiver program).[30] Illegal migrants to the United States also faced a high risk of death in transit, whereas the voyage from Ecuador to Spain was safe and comfortable.

VI. Conclusions

While the analysis in the article found that the skill composition of Ecuadorian migration flows was consistent with the wages received by Ecuadorians at each destination, the larger size of the Ecuadorian migration flows to Spain was puzzling considering the large college wage premium in the United States. The puzzle is resolved by taking into account that the options for migrating legally to either country were severely limited and that migrating illegally to the United States was much more costly than migrating illegally to Spain, largely for policy-induced reasons.

The evidence presented here shows that changes in some dimensions of immigration policy can have very large effects on immigration flows. Most likely, the U.S. tightening of controls over illegal immigration since the mid-1990s, combined with factors that made Spain an attractive destination, was effective in diverting the Ecuadorian exodus toward Spain. When the visa

28. A concern with deportation figures is that the same would-be migrant can be apprehended and deported more than once and may eventually succeed in migrating; Pribilsky (2007, p. 166) observes that "it is a common practice for Border Patrol agents to 'throw back' alien Mexicans caught crossing illegally" and most Ecuadorians can successfully pretend to be Mexicans when apprehended, so that they can make another attempt to cross the border. Still, the figures in table 5 include only those who were identified as Ecuadorians by U.S. authorities and hence were deported to Ecuador.

29. The number of Ecuadorians who entered the United States illegally over 1999–2005 (70,000) is from Hoefer, Rytina, and Baker (2008). The number for Spain takes the 303,555 Ecuadorians who entered Spain between 1999 and 2003 from figure 1 and subtracts the 52,828 who were granted visas over the same period, leaving approximately 250,727 Ecuadorians who entered Spain through nonimmigrant admission provisions.

30. As with the monetary costs of migration, the income gain was still larger for migrating to the United States rather than to Spain even after discounting the differences in the probability of failing to reach the two countries. Still, the crisis of the 1990s probably increased the risk aversion of Ecuadorian households, who would be more unwilling (and unable) to bear the costs of a migration attempt that entailed a high risk of failure.

waiver granted to Ecuadorians was repealed in August 2003, the inflow of Ecuadorians to Spain halted almost immediately.

The inflows of Ecuadorians increased the relative supply of unskilled labor in both the United States and Spain. The effects on the U.S. labor market were probably very limited, as Ecuadorians represented just 1.3 percent of immigration inflows to the United States in 1999–2005. Their share of immigration inflows to Spain was substantially larger, at 12 percent.[31] Still, there is widespread agreement among researchers that the largest effects of migration are on migrants' themselves, rather than on natives, in the form of income gains, part of which can be remitted back to the country of origin. Additionally, as Hanson and McIntosh (2010b) argue for the case of Mexico, the large emigration of Ecuadorians may have kept wages in Ecuador from falling as much as they would otherwise have in the aftermath of the late 1990s crisis. Globalization can provide relief in times of severe economic distress.

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31. See also the discussion for table S.3 in the supplemental appendix.

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