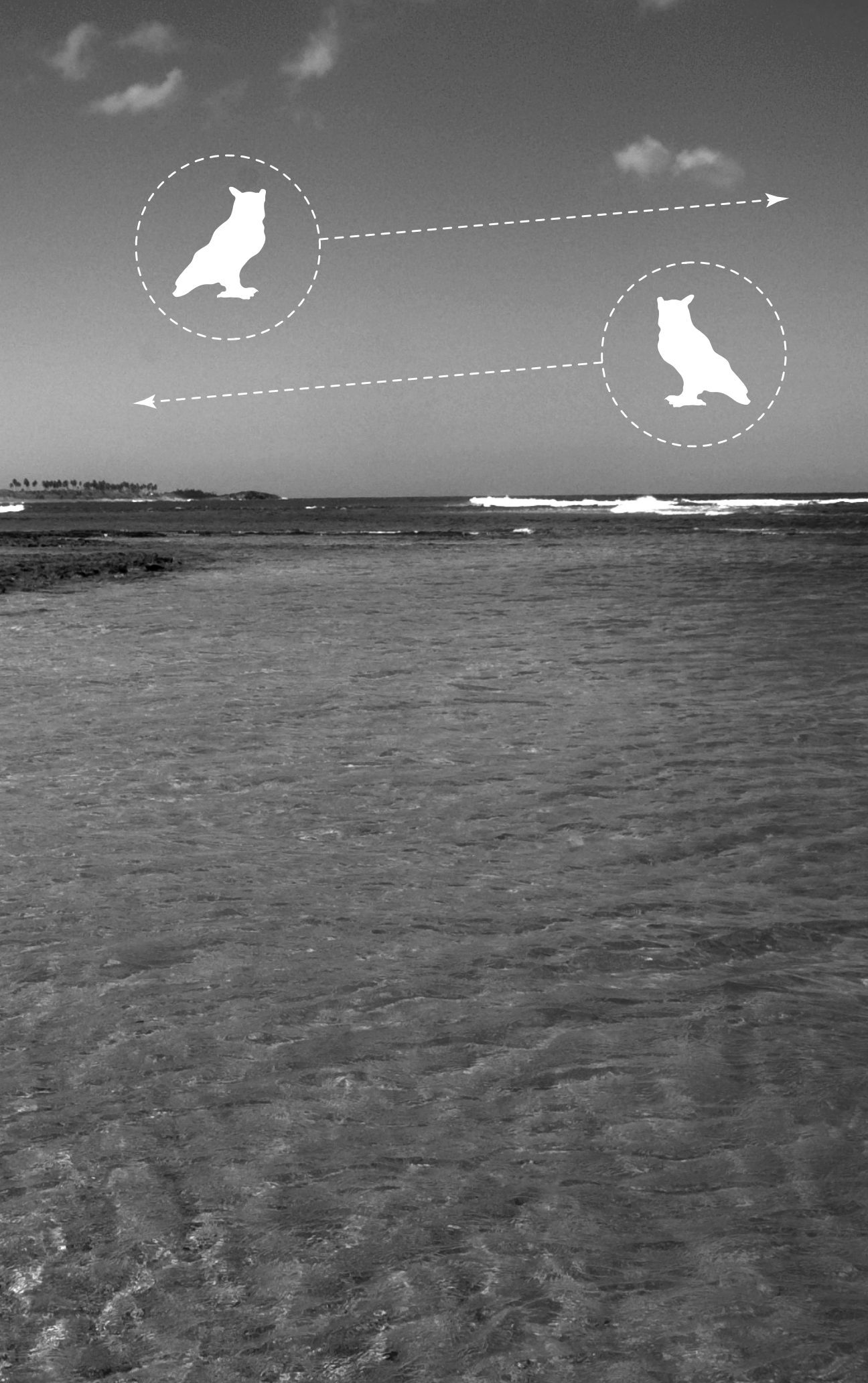

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LOW-WAGE LABOR, MARKETS AND SKILLS SELECTIVITY AMONG PUERTO RICAN MIGRANTS

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ABSTRACT

This study provides an analysis of the occupational and educational selectivity of Puerto Rican migration to and from the United States using consolidated data from the American Community Survey for 2006 to 2008. Using existing theoretical explanations of migration, the study assesses the extent to which current explanations of migration are applicable to the most recent migratory flows. To ascertain the validity of the proposition that Puerto Rican migration flows are primarily composed of the most disadvantaged workers, we divided the sample into two labor market segments—those employed in low-wage occupations and those not employed in low-wage occupations. The main conclusions of this study are that net migration outflows from the island are likely to persist to the extent that growing disparities in labor market conditions between Puerto Rico and the United States persist, and that the patterns of selectivity predicted by various theories of migration are not unmistakably identifiable in current flows. Such evidence calls for a new look at the case of Puerto Rican migration. [Key words: migration, migrants, Puerto Ricans, labor markets, low-wage]

MIGRATION CONTINUES TO BE AN IMPORTANT AND INFLUENTIAL

experience in everyday life for most Puerto Ricans. Since the 1950s, migration to the United States mainland and the return migration to Puerto Rico have provided a unique case for scholars. Given the legal status of Puerto Ricans and the low transportation costs of moving, migration is relatively easy. Unique migration patterns between island and mainland have led to unusual dynamics of labor-market incorporation and assimilation of Puerto Ricans in the U.S. that have changed in the context of the broader political and economic dynamics (Falcón 1990; Meléndez 1993). However, while research has sought to understand the origins, evolution, and conditions of Puerto Rican migratory flows throughout the last four generations, much of this analysis has remained limited and somewhat outdated as scholars have relied primarily upon data from the U.S. Census or the Puerto Rico Planning Board (PRPB). Such limitations make understanding the unique nature of modern migration flows to and from the island an important area of consideration.

The impact of migration on the Puerto Rican community is significant given the growth in the size of the stateside Puerto Rican population over the last two decades. While Puerto Ricans in the U.S. represented about one-third of the total Puerto Rican population in 1970, by 2008, the U.S. Census estimated that over half of Puerto Ricans by birth or parentage resided on the mainland. Data from the 2010 census indicates that, with a population increase of 1.2 million during the prior decade, mainland Puerto Ricans now exceed the total population of Puerto Rico by over 900,000 persons or 24 percent of the island population (Delgado 2011). More than any other factor, continued migration from the island to the mainland is responsible for the changes in population, and this trend has intensified over the last three decades. According to data from the PRPB and the American Community Survey (ACS), net migration of people 16 years of age and older exceeded 20,000 per year, with a surge to over 30,000 in the 1990s (Table 1). Because of this migratory trend and its impact on the stateside dispersion of the Puerto Rican population, the composition of migrant flows has continued to be an important topic in the literature and it is the central focus of this research project.

Research has shown that the composition of migrants can directly affect social outcomes of a given population through its effects on average earnings, education, skills, language proficiency, and labor-force participation (Fillerton and Tossi 2001; Friedberg and Hunt 1995; Read 2004). These effects may be magnified and can

contribute to persistent poverty if migrants concentrate in low-wage labor markets and in areas where other low-income or disadvantaged populations already reside. In the case of Puerto Rico, disadvantaged communities in the U.S. could grow if those who return to the island are better educated, more skilled, or have greater labor force participation than those who remain in the U.S. If such tendencies were to persist for a prolonged period, the composition of migratory flows could contribute to the concentration of Puerto Ricans in the U.S. low-wage labor markets, their higher poverty rates, and other socio-economic consequences.

Given the effects of migration on Puerto Ricans in the U.S., an understanding of the composition of these migration flows to and from the island is critical. Puerto Rican migration to the U.S. preceeds that of most other Latin American countries (with the possible exceptions of Cuba and Mexico), and thus its case offers a valuable glimpse into the dynamics of labor market incorporation and assimilation among other Hispanic groups. In addition, there is a substantial amount of literature and data documenting the origins, evolution, and current conditions of Puerto Rican migratory flows that provides a contextual and evolutionary look at the patterns of migration. A deep understanding of this case is above all important when the flows and characteristics of migrants—particularly those flows with a large number of undocumented migrants—cannot be captured by formal surveys and other sources of data. In sum, Puerto Rican migration to the U.S. serves as a well-documented case study (or "natural experiment") that informs the question: What would happen over time in terms of the volume and composition of migrants if the legal barriers affecting immigration from other Latin American countries to the U.S. were completely eliminated (i.e., through citizenship status) and transportation costs substantially reduced (i.e., competitive commercial fares for transportation and relocation costs)?

We begin by reviewing the literature on Puerto Rican migration and the dominant theories used to explain migration patterns to and from the island. Then, using data from the American Community Survey's 2006–2008 estimates, we examine recent trends in Puerto Rican migration and undertake an analysis of the probability of migration, controlling for skill levels and other characteristics based on logistic regression analysis. These experiments allow us to estimate the impact of human capital, labor market, and economic characteristics on the respective community, depending on whether an individual migrates to Puerto Rico or the U.S. We find that the patterns of selectivity predicted by various theories of migration are not clearly identifiable in current flows. We conclude with a discussion of the implications of these trends for research and policy and offer our policy recommendations.

Theories of Puerto Rican Migration and Selectivity

The previous literature presents two predominant theories to explain migration of Puerto Ricans between the mainland and the island: the "training-ground" hypothesis and the "circular-migration" hypothesis. Each explores structural and human capital characteristics that may be exhibited broadly by migration populations (Falcón 1990; History Task Force 1979; Meléndez 1993). These theories and their portraits of the migratory flows to and from Puerto Rico are examined below.

Post-World War II studies of out-migration from Puerto Rico to the U.S. advanced the training-ground hypothesis, which shaped scholars' early understanding of migration flows to and from Puerto Rico. Focusing on the rapid decline of agriculture on the island, these studies found positive selectivity in the migrating population, especially when selectivity was measured by educational attainment—that is, high

school or higher education as well as hard skills training (Friedlander 1965; Hernández-Alvarez 1967; Maldonado 1979; Mills, Senior and Goldsen 1947; Reynolds and Gregory 1965; Sandis 1973; Senior and Watkins 1974). Migrants to the mainland were generally young, more educated, and more skilled than the non-migrating population. Semi-skilled and white-collar workers were the largest industrial occupational group represented among out-migrants, with less skilled workers (those with lower educational levels) significantly underrepresented in the flows returning to the island.

These flow patterns, scholars argued, suggested a positively selected population returning to the island, describing what Friedlander (1965) referred to as a "training ground." In this sense, migration to the mainland was viewed primarily as a means for individuals to improve their education and skill levels while gaining work experience. Migrants would then return to the island with higher levels of human capital, helping to promote the economy of Puerto Rico. Thus, return migration under this theory was seen as a positive component of early economic development policy.[1]

THE CIRCULAR-MIGRATION THESIS WAS ALSO VIEWED AS THE PRIMARY MECHANISM TO EXPLAIN THE INTEGRATION OF PUERTO RICANS INTO THE CLASS STRUCTURE OF THE U.S., AND HAS REMAINED THE THEORY OF CHOICE FOR MOST SCHOLARS RESEARCHING PUERTO RICAN MIGRATION.

While the training-ground theory stressed the human capital characteristics of migration flows and migration as a rational choice of the individual investing in his or her own success, studies of the 1960s and early 1970s began to highlight structural factors stemming from macroeconomic changes occurring on the island and their impact on the composition of migration flows. The change from labor-intensive industrial manufacturing to capital-intensive production created an economy in which services and public sector agencies became the primary employers of most Puerto Ricans on the island. The change in employment then led to lower rates of unemployment and higher wages for many. Such characteristics created changes in migration trends with a higher number of migrants returning to the island (Castillo-Freeman and Freeman 1992; Pol 2004).

Pol (2004) attributed the positive growth in return migration to workers from the first generation of emigrants retiring to the island, the rise of deindustrialization in

major urban centers like New York City, the growth of employment opportunities in Puerto Rico, and the increase in federal entitlement funds to the island. As a result, the training-ground hypothesis lost traction. Rather, studies began to show that the human-capital characteristics of emigrants during this period were lower than those of Puerto Rico's general population, challenging the previously held notion that migrants to the mainland were more educated and skilled (Castillo-Freeman and Freeman 1992; Muschkin 1993; Pol 2004). In fact, as Muschkin (1993) argued, those individuals who migrated to the island were less likely to be employed prior to leaving the mainland.

Such changes in the composition of migratory flows led to the development of the circular-migration theory of Puerto Rican migration (Bonilla 1983; Bonilla and Campos 1986; History Task Force 1979). In essence, this hypothesis suggests that Puerto Rico functions as an industrial labor reserve force for U.S. labor markets. Thus Puerto Ricans migrated back and forth between the mainland and island primarily to satisfy demands for low-wage labor in both areas, with employment opportunity as the dominant factor underscoring migration. The circular-migration thesis was also viewed as the primary mechanism to explain the integration of Puerto Ricans into the class structure of the U.S., and has remained the theory of choice for most scholars researching Puerto Rican migration (Basu 2002; Duany 2002; Hernández-Cruz 1985; Mark 1996; Rodríguez 1989).

Changes in the composition of Puerto Rican migration led to an emphasis on the "reserve-army" aspect of the circular-migration theory. Studies from the early 1980s until the late 1990s began to show significant negative net migration, as flows from Puerto Rico to the mainland began to show much higher rates than those returning to the island (Pol 2004). Studies that tracked educational selectivity in migration flows consistently found evidence of negative educational selectivity among emigrants (Ortiz 1986, 1992; Ramos 1992). However, while there appeared to be a negative selectivity, the studies further found that first highly educated migrants and then those with lower level of educational attainment were returning to Puerto Rico in greater numbers (Baerga and Thompson 1990; Enchautegui 1990, 1993; Rivera-Batiz 1996). Occupational selectivity studies beginning in the 1980s observed overrepresentation in both in-migrant and out-migrant flows among blue-collar workers from labor intensive sectors, such as agriculture, crafts, and operatives, as well as from the service sector (Enchautegui and Freeman, 2005; Godoy 2000; Meléndez 1993, 1994, 2005; Ortíz1986; Rivera-Batiz 1987, 1992). Given the trends observed in negative selectivity and the direction of the migration flows, the reserve-army proposition suggested an overrepresentation of working-age migrants, despite educational level or occupation, affected by the business cycle and macroeconomic conditions. Also, those at the lower end of the labor market were seen as more prone to migrate during economic downturns (Pol 2004; Meléndez 1993, 1994), thus lending cautious support to the reserve-army argument.

The existing literature clearly indicates that other critical factors affect the direction, magnitude, and composition of migratory flows. The question of labor market conditions was first highlighted by scholars in the late 1970s and 1980s as economic conditions declined on the island (Baerga and Thompson 1990; Falcón 1990) and persisted into the 1990s (Enchautegui and Freeman 2005). Since the 1970s, net migration flows in Puerto Rico have been significantly associated with labor market opportunities. In addition to fluctuations in the business cycle, the existing literature has also linked minimum wages and English proficiency to migration flows to and from the island, though in these instances the data are less conclusive.

Early studies of the implementation of the U.S. federal minimum wage in Puerto Rico in 1974 suggested that minimum wage hikes increased unemployment in Puerto Rico, and consequently increased out-migration due to the effect of dramatically raising wages in sectors that traditionally paid far below minimum wage (Castillo-Freeman and Freeman 1992). However, subsequent research has found that wage increases actually reduced migration to the extent that employers across whole industries were bound to mandatory minimum-wage standards (Santiago 1993).[2] Though not examined as extensively as educational or occupational selectivity, English language proficiency generally increased the probability of emigration from Puerto Rico (Castillo-Freeman and Freeman 1992; Godoy 2000; Rodríguez 1994; Santiago-Rivera 1999), but did not necessarily incentivize immigration to Puerto Rico. While those proficient in English were more likely to migrate to the island during the 1970s (Enchautegui 1993), during the 1990s, English-proficient Puerto Ricans were considerably less likely to go to the island, based on their ability to compete in the U.S. labor markets (Godoy 2000).

THE EVIDENCE TO SUPPORT A BRAIN DRAIN OR ELITE MIGRATION PATTERNS DURING THE 1990S IS ELUSIVE.

The overview of the literature suggests a dynamic interaction between the U.S. and Puerto Rican economies that seems to be largely responsible for the evolution in the logic of migration. While the theories vary, the existing literature suggests an outflow of positively selected workers for the early post-war period and a wave of return migration in which workers with lower educational levels were significantly underrepresented in the flows returning to the island, thus supporting the training ground argument. Thereafter, evidence suggests a dynamic flow of low-wage workers consistent with the reserve-army hypothesis. However, during the economic expansion of the 1990s, there was also an increasing convergence of island and the mainland occupational structures and migratory flows largely follow these distributions. The evidence to support a brain drain or elite migration patterns during the 1990s is elusive.[3] Such a divergence in the literature serves as our foundation for understanding current trends in migration for Puerto Ricans as seen in the first decade of the 21st century.

Method and Data

To assess more recent trends in Puerto Rican migration and the selectivity of migrants, we used data from the American Community Survey conducted by the U.S. Census Bureau. A brief discussion is necessary to provide the reader with an understanding of the benefits and limitations of this data source for the study of Puerto Rican migration. Until a few years ago, the Survey of Travelers (Encuesta Sobre Información del Viajero) conducted by the Puerto Rico Planning Board provided the only source of data in regard to the social and economic characteristics of the migrating population *at the time of departure from or arrival to the island.*[4]

The main objective of the PRPB survey is to collect information about the volume and characteristics of travelers from Puerto Rico to the U.S.[5] The so-called "ramp" survey is based on a sample drawn from all the commercial flights leaving or entering Puerto Rico from the Luis Muñoz Marín International Airport in San Juan and, more recently, from the Rafael Hernández airport in Aguadilla.

According to the operational definition used by the PRPB for the ramp survey, an immigrant is a person 16 years or older who intends to stay in Puerto Rico for three months or longer. Those who are coming to the island to visit family or are returning after a business, leisure or study trip are excluded from the sample. Conversely, an emigrant is a person who leaves the island intending to remain in the U.S. for more than three months, and whose purpose for traveling is not to visit family, to study, or for health reasons.[6]

The Decennial Census of Population and Housing of the United States has been used as the main alternative source of data for the study of Puerto Rican migration and is generally acknowledged as the most reliable source of information about the social and economic characteristics of the population. However, the U.S. Census is not designed to address migrant populations and does not collect data on migrants. Given the scarcity of sources, researchers used a question about residency five years prior to the census to attribute migrant status.[7] Though imperfect, this approach allows researchers to describe the characteristics of the migrant population surveyed during the decennial census at one point in time. In addition to an intrinsic bias to undercount recent migrants when using this approach, the census data is unable to provide specific information about the social characteristics of migrants at the time when migration occurred (e.g., labor force status, motivation for migration, etc.). Taken as a whole, the PRPB's Survey of Travelers was for many years the best source of information about Puerto Rico migrants' characteristics, and, because it is collected continuously, the survey allows for inter-temporal comparisons of such characteristics on a consistent basis. Common and substantive criticisms of the survey are the inconsistent collection of data[8] and the long lag for its preparation and availability to the public.

Since 2005, the availability of the Puerto Rico Community Survey (PRCS) of the U.S. Census Bureau has considerably improved the data for analyses on migration and other social conditions when compared to the data from the decennial censuses. This survey and its mainland counterpart, the American Community Survey (ACS), have replaced the long form in the decennial census and it is designed as an ongoing data-collection survey. As such, it provides more current information than the decennial census. In this new format, the survey now asks for last-year place of residence. Since all the questions related to social and economic characteristics of the population remained in the survey, an analysis of migrant's selectivity is greatly improved by this data set. However, though a one-year lag is significantly less likely to undercount migrants, the PRCS and the ACS still lack information about migrants' characteristics at the time of departure, an insurmountable design obstacle, for example, to examine the potential impact of employment status in the departing region or job offers received from the receiving region employers. For the purpose of this study, the lack of information about migrant's education and occupation at the time of departure forces us to assume that there was no educational advancement or occupational mobility within the prior year of the survey. Though this is not an unreasonable assumption for educational attainment, it is a very strong assumption for occupational mobility.[9]

TABLE 1. NET MIGRATION IN PUERTO RICO BY PERIODS (16 YEARS AND OVER)

PERIOD	EMIGRANTS	IMMIGRANTS	NET MIGRATION	ANNUAL AVERAGE
1982–1988	-285,787	134,587	-151,200	-21,600
1991–2002	-466,948	166,447	-300,501	-30,500
2006–2008	-171,206	110,006	-61,200	-20,400

Source: Authors' estimates based on unpublished data from the Puerto Rico Planning Board and from the American Community Survey, U.S. Census Bureau.

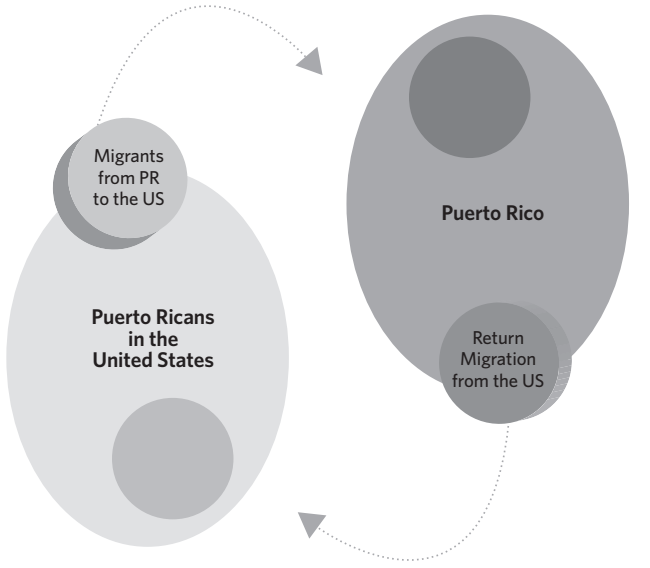
For this study, we used the estimates from the 2006 to 2008 ACS. This is a special file prepared by the Census Bureau, which provides a larger sample size and thus is suitable for the analysis of small populations at a greater level of detail than if single-year data sets were used for the analysis. In addition, in the absence of variables indicating employment status at the time of departure, we relied on an aggregate (or macro) unemployment variable as a control for the estimation of statistical models predicting migratory flows.

Table 1 shows net migration patterns for the 16-years-and-over population in Puerto Rico from 1982 to 2007. The data is grouped by three periods for which data is available for each of the last three decades. The data for the first two periods is from the Survey of Travelers of the PRPB, and the last from the PRCS and the ACS. Considering the last three decades, on average, over 20,000 working-age Puerto Ricans left the island every year. Net migration was higher in the 1990s, reaching an annual average of 30,500. Between 2006 and 2008, the last years of the post-September 11 economic expansion, net migration reached 20,400, about the same level as in the 1980s. Clearly, the period with a longer economic expansion showed a more significant exodus from the island of the working-age population.

WE SEEK TO DETERMINE WHETHER THE COMPOSITION OF MIGRANTS SHOWS POSITIVE OR NEGATIVE OVER-REPRESENTATION WHEN COMPARED TO NON-MOVERS IN THE SENDING COUNTRY.

In preparing to analyze the trends in Puerto Rican migrant selectivity, we reconstructed the census estimates so as to provide our comparative framework for analysis. In essence, as depicted in Graphic 1, we selected individuals who migrated from Puerto Rico to the U.S. in the stateside survey and inserted them into the Puerto Rico data set. Likewise, we selected individuals who migrated from the U.S. to Puerto Rico identified by the Puerto Rico survey and inserted them into the stateside data set. Such reconstruction of the data set allows a comparison of the characteristics of movers or migrants to the characteristics of the population in the sending country. The sample is restricted to individuals 16 years of age and older.

GRAPHIC 1. RECONFIGURATION OF THE AMERICAN COMMUNITY SURVEY DATA SET



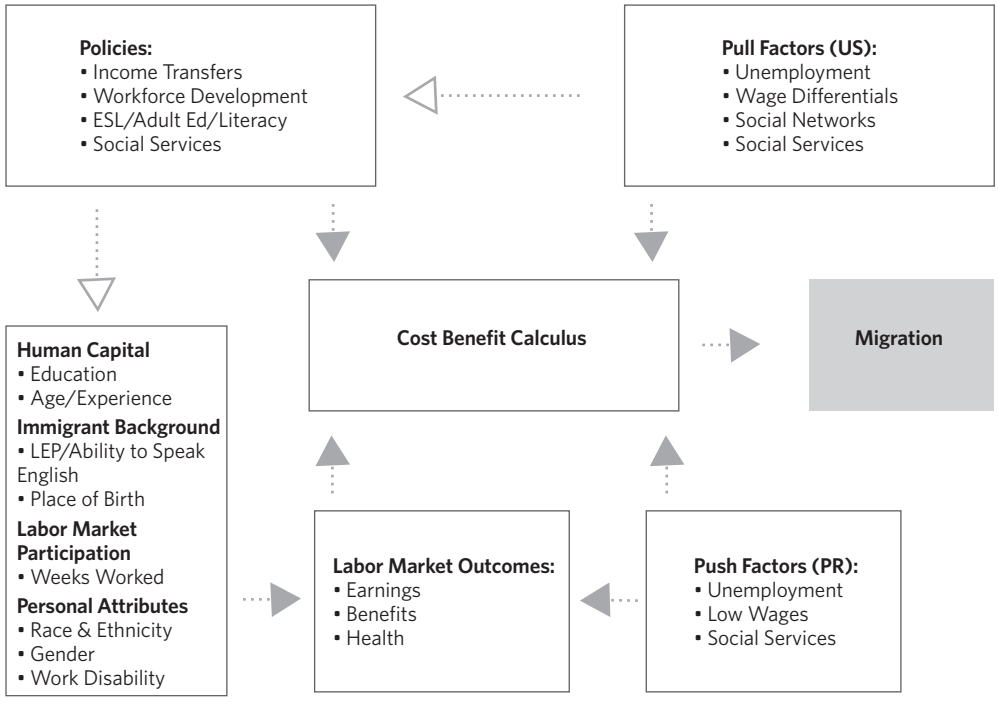
The purpose of this study is to compare selectivity in migratory flows, from Puerto Rico to the U.S. and from the U.S. to Puerto Rico. This comparison is intended to identify significant changes in the composition of migrants within some critical dimensions of the labor market characteristics of the migrants. Specifically, the analysis focuses on the changes in the characteristics of the emigrants and immigrants (from the island to and from the U.S., respectively) by educational levels and occupations, the most often used variables in the literature as proxies for skills. We seek to determine whether the composition of migrants shows positive or negative over-representation when compared to non-movers in the sending country. Specifically, we assessed the aforementioned characteristics for workers considered to be part of the low-wage labor market. Following Visser and Meléndez (2009), we adopted a method of designating status of low-wage or non-low-wage for each individual in the data set. Workers are determined to be low-wage if their occupation commanded earnings below two-thirds of the median wage of their respective metropolitan area for the year prior to the year of the interview in the study. To account for variations in local labor market conditions as accurately as possible, a total of 426 occupational categories and of 517 metropolitan areas were used in the model for the estimation of low-wage thresholds and unemployment rates.

To assess how the characteristics of migrants compare to those of the non-migrant population, we used parity ratios as an index of representation of a given segment of the population in relation to the distribution of cases in other segments. According to the 2006–2008 ACS data, there were a total of 1,394,594 working-age Puerto Rican men residing on the mainland. The 397,460 men in the cohort representing

those with less than a high school education represent 28.5 percent of the total male population in the sample. As shown in Table 2, the ratio of the proportion of movers who have earned below a high school degree is 0.47. In other words, the parity ratio of 0.47 indicates about a 53 percent underrepresentation of movers to Puerto Rico when compared to the total population of migrants to Puerto Rico and when compared to the total population of all individuals with less than a high school degree. A larger ratio of 0.77 for women in the same age group indicates that there is about a 23 percent underrepresentation of migrants in this category when compared to the general population of stateside women.

In addition to the parity ratios described above, the bulk of our analysis is based on estimated probability of migration, controlling for personal and labor market characteristics. These probabilities are derived from odds ratios estimated through logistic regression analysis. Appendix A includes descriptive statistics for all variables included in the aforementioned logistic regression model along with the results of the logistic model on which the analysis of the paper is based. Graphic 2 shows a theoretical model of the factors affecting the decision to migrate. We assume that the cost-benefit calculus or economic rationality of individuals considering migrating involves labor- market-related circumstances, such as whether a person is employed or satisfied with his or her earnings, in relation to the expected improvement of such circumstances if they choose to move, such as the prospect of better jobs. It also involves the quality of the networks of the individuals that provide information and possibly facilitate a transition to a new area, and the capacity to adapt to a new social and work context as facilitated by education, language, skills, and other factors. It is important to notice that not all the theoretically important control variables can be included in a model estimated with the PRCS and the ACS data.

GRAPHIC 2. THEORETICAL MODEL OF FACTORS AFFECTING DECISION TO MIGRATE



We attribute occupations in the receiving country based on the occupation of employment at the time of the survey in the sending country. In addition, important analytical and control variables are excluded from the model due to the unavailability of data, such as employment status or job offers at the time of departure, whether the individuals received any type of social services, and the motivation for (e.g., study, retirement, family reasons, etc.) or incidence of migration. Given the aforementioned limitations of the data, in the next section of the paper we examine the observed educational-attainment and occupational-positions data from the surveys, two common indicators of migrants' skill selectivity. The discussion of findings ends with a discussion of the probability of migration given educational attainment and occupational positions.

Findings

Educational Selectivity

Research has shown that education is an important proxy for the skill level of migrants. Table 2 includes the parity ratios of migrants across educational levels based on their labor market standing—whether employed in low-wage or non-low-wage occupations. The second through fifth columns of Table 2 show the results for migration patterns for movers from the U.S. to Puerto Rico, and the sixth through ninth columns of the table show results for movers from Puerto Rico to the U.S., by sex of the migrant. The descriptive data for wages indicates a significant wage difference between the island and stateside Puerto Ricans.

TO THE EXTENT THAT THERE IS AN EXODUS OF TALENT OR BRAIN DRAIN INDICATED BY THE DATA, THE OBSERVED PATTERN IS CONSISTENT WITH AN UNDER-PLACEMENT OF HIGHLY EDUCATED INDIVIDUALS, ESPECIALLY OF WOMEN.

As shown in Table 2, the wages by educational attainment are on average two to three times higher in the U.S. than in Puerto Rico. In absolute terms, the gap widens for each educational level, and for both men and women, from about $5,000 for those with less than high school attainment to over $27,000 for those with undergraduate and graduate degrees. Though this significant wage gap by educational level induces migration in general, several other factors must be considered, including skills and unemployment. To assess whether such distribution of wages is a factor in explaining migratory flows, we have divided workers by those in a low-wage segment versus those above the low-wage cut off for the area of residency,

TABLE 2. PARITY RATIOS OF MIGRANTS BY LABOR MARKET STANDING AND EDUCATIONAL ATTAINMENT (INCLUDES POPULATION AGES 16 YEARS AND OLDER)

			PUERTO RICANS RETURN MIGRATION TO PR, *LOS QUE REGRESAN*, RELATIVE TO WORKERS IN THE U.S.			PUERTO RICANS MIGRATION TO THE U.S., *LOS QUE SE VAN*, RELATIVE TO WORKERS IN PR		
	Average Wage	Total Percentage of Puerto Ricans in the United States*	Non-Low Wage	Low Wage	Average Wage	Total Percentage of Adults in Puerto Rico*	Non-Low Wage	Low Wage
MEN								
12th Grade or Lower	$11,848	29.1%	0.47	0.59	$6,776	34.4%	0.87	0.77
High School Graduate	$20,074	29.6%	0.88	1.30	$7,753	27.9%	1.01	1.45
Some College/ Associate	$29,181	26.1%	1.26	1.49	$9,404	20.6%	1.15	0.72
Bachelor's/ Graduate	$52,647	15.3%	1.64	2.53	$29,491	16.9%	0.97	2.31
WOMEN								
12th Grade or Lower	$10,272	29.1%	0.77	0.57	$4,672	32.6%	1.30	0.81
High School Graduate	$17,725	30.5%	0.64	0.90	$5,544	23.0%	1.13	1.12
Some College/ Associate	$28,090	26.2%	1.19	1.42	$7,019	20.3%	1.20	0.90
Bachelor's/ Graduate	$46,654	14.1%	1.45	2.33	$19,074	23.8%	1.67	1.93

* Includes population not in the labor force and all individuals ages 16 years and older.

Source: Authors' estimates based on data from the Puerto Rican Community Survey and the American Community Survey, U.S. Census Bureau.

and by educational attainment. Thus, Table 2 depicts observed data along two related, nonetheless different, dimensions of workers' labor-market position, both of which could indicate a bias in migratory flows.

Consistent patterns among men and women migrants emerge in Table 2. Men who have attained a bachelor's or a graduate degree are more likely to migrate (2.31) if they are in low-wage occupations than those who earn above the low-wage threshold. However, men with college degrees earning above low-wage levels are close to parity as indicated by the .97 parity ratio. Women with bachelor's or graduate degrees are overrepresented in both low and higher segments of the job market. Women in the low-wage segment are almost twice as overrepresented (1.93) in the flows, and women in non-low-wage occupations are also significantly overrepresented (1.67), though the latter have a somewhat lower propensity to migrate than those in the low-wage segment. To the extent that there is an exodus of talent or brain drain indicated by the data, the observed pattern is consistent with an under-placement of highly educated individuals. In other words, the overrepresentation of highly educated emigrants might be responding to a lack of opportunity in their chosen fields of expertise. Further examination of the parity ratios show a consistency of greater-than-one parity ratio indicating a gender bias in emigrant flows—women active in the labor force and in non-low-wage occupations leave the island at a disproportionate rate regardless of educational level.

In contrast to emigrants, Puerto Rican migration from the mainland to the island shows a consistent pattern of overrepresentation for cohorts with higher educational levels. Parity ratios are greater than one for both men and women, and the more educated the higher the parity ratios. In particular, as is the case for emigrants, immigrants with bachelor's, professional or graduate degrees who are employed in

low-wage occupations have the highest ratios, of 2.53 for men and of 2.33 for women. In addition, parity ratios for low-wage workers are higher than those for non-low-wage workers for almost all educational levels. The observed pattern for immigrants, when taken in conjunction with the data for emigrants previously discussed, suggests that the most overrepresented among the workers in migratory flows are the most educated, not the least educated. Furthermore, the data suggests that given similar educational levels, college graduates who are low-wage earners are more likely to migrate.

Occupational Selectivity

Occupations are a second proxy for workers' skills often used in the literature to assess migrants' selectivity. Parity ratios for migrants across occupations are shown in Table 3. Puerto Rican emigrants, both men and women, are overrepresented in all occupational segments for which data is available, except in managerial and professional occupations. Managers and professionals are the highest paid workers and have the smallest wage gap of all segments, though the wage gap for women is markedly greater than for men. Women in both countries earn substantially lower wages than men across all occupations. For men, the highest parity ratios are for sales and clerical occupations (2.88 non-low-wage, 2.43 low-wage), and low-wage workers in construction and maintenance occupations (2.92). These occupational segments

TABLE 3. PARITY RATIOS OF MIGRANTS BY LABOR MARKET STANDING AND OCCUPATIONS (INCLUDES POPULATION AGES 16 YEARS AND OLDER IN THE LABOR FORCE)

			PUERTO RICANS RETURN MIGRATION TO PR, *LOS QUE REGRESAN*, RELATIVE TO WORKERS IN THE U.S.			PUERTO RICANS MIGRATION TO THE U.S., *LOS QUE SE VAN*, RELATIVE TO WORKERS IN PR		
	Average Wage in U.S. ($)	% of Workers	Non-Low Wage	Low Wage	Average Wage in P.R. ($)	% of Workers	Non-Low Wage	Low Wage
MEN								
Management, Professional, etc.	48,102	31.5%	1.13	0.00	39,796	22.6%	0.46	0.26
Service	25,367	13.1%	0.99	3.77	16,227	11.5%	1.38	1.32
Sales and Clerical	23,859	17.9%	0.86	1.78	15,994	15.6%	2.88	2.43
Farming, Fishing, etc.	9,541	0.9%	---	---	6,831	0.5%	---	---
Construction, Maintenance, etc.	25,010	17.0%	1.38	2.10	13,498	18.1%	1.08	2.92
Production, Transportation, etc.	31,804	18.2%	0.14	1.85	29,951	31.6%	1.07	---
WOMEN								
Management, Professional, etc.	34,390	37.7%	0.17	---	15,124	33.8%	0.65	---
Service	17,199	20.2%	0.87	0.06	8.827	33.5%	1.07	1.84
Sales and Clerical	21,491	34.6%	0.88	2.60	11,897	21.9%	1.57	2.04
Farming, Fishing, etc.	8,901	0.3%	---	---	6,852	0.4%	---	---
Construction, Maintenance, etc.	12,675	0.7%	---	---	11,040	0.4%	---	---
Production, Transportation, etc.	18,417	6.1%	1.47	---	11,090	10.2%	---	---

* Includes population not in the labor force and all individuals ages 16 years and older.

Source: Authors' estimates based on data from the Puerto Rican Community Survey and the American Community Survey, U.S. Census Bureau.

exhibit significant wage gaps, and together represent over one-third of the male labor force. Emigrant women in sales and clerical (1.57 non-low-wage, 2.04 low-wage), and service (1.84) occupations have the highest parity ratios.

As indicated in Table 3, parity ratios for low-wage immigrant men are greater than one for occupational groups with the exception of managers and professionals, indicating a small overrepresentation in this segment. Non-low-wage men are also overrepresented in the construction and maintenance occupations, and both men and women in production occupations. For women, only the sales and clerical occupations in the low-wage segment (2.60) and in production and transportation occupations (1.47) in the non-low-wage segment are overrepresented. However, men in low-wage sector service occupations migrate at almost four times (3.77) their peers in the non-low segment. Thus, the observed data by occupational segments suggests that low-wage men are more prone to immigrate to the island than their counterparts in the non-low-wage segment. Besides the noted overrepresentation in low-wage sales and clerical occupations, there is no other discernable pattern for women immigrating to the island. In general, when both migrants to and from the island are considered, low-wage designation is correlated to overrepresentation in migratory flows, except for managers and professionals. Circular flows (here used to refer to overrepresentation of an occupational segment among both emigrants and immigrants) seem to be present in service, sales and clerical, and construction among men, and sales and clerical among women. And, in these flows, low-wage workers have higher overrepresentation in all but one of the occupational groups.

Structural and Labor Market Selectivity

The observed migration patterns by occupational segments seem consistent with the reserve-army hypothesis. However, since several factors are simultaneously in play, we used logistic regression analysis to ascertain patterns of selectivity in migratory flows. Table 4 depicts the predicted percentage probability that an individual migrates to the U.S. based upon low-wage status and education. The values presented in the table represent the estimated percentage probability that a male or female worker who is either low-wage or non-low-wage migrates to the U.S. based upon the presence of or conditional to their level of education when other factors are held constant—i.e., the other variables included in the equation are held constant at their mean. The models include controls for place of birth, English language fluency, and age, critical characteristics identified in other studies as influencing an individual's decision to migrate.

A core research question of this study is whether low-wage status is a significant factor in determining whether or not an individual will migrate from the island to the mainland, or to return from the mainland to the island. The coefficient of the low-wage variable in the logistic regressions is significant for both flows, but the magnitude of the odds ratio is substantially higher (78.92) for migration from the island to the mainland than for return migration (1.10). [See Table A3 in Appendix A for detailed results for the logistic models of the likelihood of Puerto Rican migration to the U.S. and Puerto Rico.] This finding, the significance of the low-wage coefficient in the logistic regressions, provides credence to the reserve-army hypothesis to the extent that it signifies that low-wage workers are more prone to migrate. However, as important, the magnitude of the estimated probabilities of migration indicate that, though there is some return migration, for the period under investigation of 2006–2008, the overwhelming flows are from Puerto Rico to the mainland.

TABLE 4. ESTIMATED PERCENTAGE PROBABILITY OF MIGRATION TO THE UNITED STATES BY LABOR MARKET STANDING AND EDUCATIONAL ATTAINMENT

	PUERTO RICANS RETURN MIGRATION TO PR, *LOS QUE REGRESAN*, RELATIVE TO WORKERS IN THE U.S.		PUERTO RICANS MIGRATION TO THE U.S., *LOS QUE SE VAN*, RELATIVE TO WORKERS IN PR	
	Non-Low Wage	Low Wage	Non-Low Wage	Low Wage
MEN				
High School Graduate	0.05	0.35	3.73	4.46
Complete Some College or an Associate's Degree	0.07	0.32	3.62	3.56
Bachelor's Degree, Graduate or Professional degree	0.06	0.27	4.24	4.22
WOMEN				
High School Graduate	0.05	0.27	4.42	4.47
Complete Some College or an Associate's Degree	0.06	0.21	4.39	4.36
Bachelor's Degree, Graduate or Professional degree	0.06	0.18	5.09	5.10

Source: Authors' estimates based on data from the Puerto Rican Community Survey and the American Community Survey, 2006-08, U.S. Census Bureau.

As shown in Table 4, low-wage status raises the probability that an individual will migrate from the mainland to the island, but all conditional probabilities are less than one percent of the population, fairly low in comparison to those who leave the island. For emigrants, conditional probabilities by educational attainment fluctuate from 3.6 to 5.10, a significantly higher probability of migration across educational levels and for both men and women. Low-wage men with high school completion have a slightly higher probability of emigration (4.46) than those with non-low-wage standing (3.73) when compared to those with less than a high school education. For men who have completed some college or hold an associate degree, the probabilities of emigration when they are in the low-wage segment are 3.56, and 3.62 for the non-low-wage segment. For men with a bachelor's or graduate degree, the probabilities are 4.24 and 4.22, respectively. A similar pattern is observed for emigrant women. For those with high school completion, the probabilities of migration are of 4.42 and 4.47, for those with some college, 4.39 and 4.36, and with bachelor's and graduates degrees, 5.09 and 5.10.

The pattern that emerges from the results from the model for return migrants indicates that, for both men and women, low-wage workers have a higher probability of migrating to the mainland than their migrant peers in non-low-wage occupations. Also, the probability of migration is lower for the more educated low-wage workers, those holding a bachelor's, graduate or professional degree (.27 for men and .18 for women).

Table 5 presents the predicted probability of migration based upon low-wage or non-low-wage designation and occupations.10 As in the prior table, probabilities of migration from the island to the mainland are higher than those for immigration, indicating a negative net migration flow from the island. The probabilities of emigration for both men and women in professional and managerial occupations (1.21 for non-low-wage for men and 1.62 for women, 1.06 for low-wage men and 1.45 for women), technology and finance occupations (1.70 and 2.05), and transportation occupations (1.61 and 1.52, 1.67 and 1.56) are

TABLE 5. ESTIMATED PERCENTAGE PROBABILITY OF MIGRATION TO THE UNITED STATES BY LABOR MARKET STANDING AND OCCUPATIONS

	PUERTO RICANS RETURN MIGRATION TO PR, *LOS QUE REGRESAN*, RELATIVE TO WORKERS IN THE U.S.		PUERTO RICANS MIGRATION TO THE U.S., *LOS QUE SE VAN*, RELATIVE TO WORKERS IN PR	
	Non-Low Wage	Low Wage	Non-Low Wage	Low Wage
MEN				
Technology & Finance	---	0.66	1.70	---
Professional & Managerial	0.53	0.09	1.21	1.06
Domestic Services	0.07	0.01	6.00	5.95
Services	7.73	2.80	3.54	3.47
Sales	1.77	0.95	1.61	12.74
Clerical	6.98	1.06	4.80	4.69
Agricultural	2.28	0.41	3.38	3.37
Construction	1.42	0.23	4.08	4.05
Transportation	0.99	0.95	1.61	1.67
Self-Employed	0.16	0.03	2.70	2.63
WOMEN				
Technology & Finance	0.61	2.49	2.05	---
Professional & Managerial	0.09	0.34	1.62	1.45
Domestic Services	0.01	0.04	7.01	7.12
Services	1.35	5.18	4.22	4.16
Sales	2.74	1.22	4.20	1.65
Clerical	0.65	4.62	5.37	5.67
Agricultural	0.39	1.49	4.07	4.04
Construction	0.24	0.93	4.94	4.90
Transportation	2.74	1.21	1.52	1.56
Self-Employed	0.06	0.10	3.19	3.13

Source: Authors' estimates based on data from the Puerto Rican Community Survey and the American Community Survey, 2006–08, U .S. Census Bureau.

lower than those for other occupations. These are the occupations with the higher salaries and a high concentration of more educated workers. Otherwise, emigration probabilities hover in the 3.1 to 7.1 range. Domestic services (6.00 for non-low-wage for men and 7.01 for women, 5.95 for low-wage men and 7.12 for women), construction (4.08 and 4.94, 4.05 and 4.90) and clerical (4.80 and 5.37, 4.69 and 5.67) are occupations where above-average probabilities indicate a certain degree of occupational selectivity. However, only sales occupations for men show a significantly higher probability for workers with low-wage status. In all other occupations, probabilities for emigrants in low-wage segments are fairly similar to those in non-low-wage segments of the labor market. Based on the analysis of the

detailed probabilities by occupations for both men and women, though there is an exodus of workers in high earnings occupations, these flows are much lower than those in occupations with lower earnings and that typically require lower education.

Low-wage standing is clearly a factor inducing higher probability of immigration for women in technology (2.49 for low wage, 0.61 for non-low-wage), services (5.18, 1.35), and clerical (4.62, 0.65). However, low-wage standing is not generally a factor for immigrant men, and in several occupations non-low-wage standing induces higher probabilities of immigration than for those with low-wage standing. Immigrant men in services (2.80 low-wage, and 7.73 non-low-wage), clerical (1.06, 6.98), and agriculture (0.41, 2.28) have lower probabilities of immigration in low-wage than in non-low-wage segments. A similar pattern of lower probabilities of immigration in low-wage than in non-low-wage segments is observed for women in sales (1.22, 2.74) and transportation (1.21, 2.74) occupations. As in the case for those leaving the island, the estimated probabilities of migration by occupations indicate that there is no disproportionate tendency for workers in the high earnings, high education occupations to return to the island. Nonetheless, the probabilities for services, clerical, and agricultural occupations for men, and sales and transportation occupations for women, which indicate a return migration of non-low-wage workers, are consistent with a flow of return migrants that benefited from their work experience in the mainland, thus lending conditional support to the training-ground argument.

When patterns of occupational selectivity for migrants to Puerto Rico is considered in conjunction to those migrating to the mainland, a circular-migration pattern is apparent only for workers in clerical occupations. Workers in domestic services and construction have the widest gap in terms of the probabilities of emigration and immigration, suggesting an exodus from the island and possibly occupational mobility in the U.S.[11]

Discussion of Findings and Conclusions

In this study we analyzed the occupational and educational selectivity underscoring Puerto Rican migration to and from the U.S. using consolidated data from the ACS for the 2006 to 2008 period. Workers' occupations in the receiving region and educational achievement are used as proxies for skills. We sought to test the extent to which various theories help to explain Puerto Rican migratory flows in recent years. Our analyses of the observed patterns of migration reveal that migrants with higher levels of education are overrepresented in migratory flows for both men and women and both to and from the island. These findings provide some credence to an elite- circular-migration argument, where the most educated are overrepresented among emigrants and immigrants, a proposition that is hardly made in the Puerto Rican migration literature. However, when significant net migration is considered, these findings also suggest a loss of human capital typically associated with the brain drain proposition. In other words, more highly educated working-age individuals leave the island than return. The segmentation of the observed data by low-wage status provides limited support to the proposition that those in the low-wage segment of the labor market are consistently more prone to be overrepresented in migratory flows than those in the non-low-wage segment.

The findings resulting from the statistical models show a more ccomplex and accurate picture of the migratory flows. The logistic model measured the effects of education and occupational status while holding constant other factors such as age, nativity, and other characteristics. First, the estimated probabilities of migration to the U.S. are, across the board, higher than the comparable probabilities of migration to the island. Over

time, the cumulative effect of these patterns will result in a sustained net outflow of workers from Puerto Rico across all educational levels and occupations for both men and women irrespective of low-wage status. Low-wage status, as suggested by observed patterns, is a statistically significant factor inducing migration, after controlling for other labor market conditions and workers' characteristics. Furthermore, the estimated probabilities of migration by occupations show intricate patterns of selectivity. Analyses by occupations suggest some degree of circularity among clerical and service workers for both men and women and are consistent with the predictions of the reserve-army hypothesis.

OUR ANALYSES OF THE OBSERVED PATTERNS OF MIGRATION REVEAL THAT MIGRANTS WITH HIGHER LEVELS OF EDUCATION ARE OVERREPRESENTED IN MIGRATORY FLOWS FOR BOTH MEN AND WOMEN AND BOTH TO AND FROM THE ISLAND.

To summarize, our analysis suggests two primary patterns evident in recent migration flows of Puerto Ricans. First, those with college degrees are more likely to migrate in either direction, especially if they are in low-wage occupations. Second, low-wage standing, regardless of education, increases the likelihood that an individual will migrate to the mainland or to the island. However, after controlling for factors other than education, occupation, and low-wage status, such as age, place of birth, English fluency, and unemployment, the estimated probabilities of immigration and emigration by occupational groups indicate a more complex pattern. First, there is no evidence that workers in high earning occupations of technology and finance or professional and managerial are more likely to leave or return to the island. Second, there is minimal evidence of circular migration within any occupational category. A circular-migration pattern is apparent only for workers in clerical occupations. Finally, a limited number of occupations (services, clerical, and agricultural occupations for men, and sales and transportation occupations for women) with high probability of a return migration of non-low-wage workers lend conditional support to the training-ground argument.

Given these findings, the primary conclusion of the study is that while conventional theories of Puerto Rican migration are useful in explaining aspects of the skills characteristics of migrant worker, the patterns of selectivity predicted by existing theories of migration are not unmistakably identifiable in current flows. And, given the economic crisis eroding employment growth and job security in Puerto Rico, the data and analysis presented in this study suggest that we are entering a new phase in the history of migratory flows where a significantly high—by historical standards—net outflow of skilled and unskilled workers from the island has become the new normal.

NOTES

1 The training-ground argument served as policy rationale as well. This view served as tacit support for a policy promoting migration as a core component of the economic development strategy known as Operation Bootstrap.

2 Studies of changes in the local wage structure after 1990 indicate that wage increases on the island remain strongly associated with emigration (Borjas 2008).

3 According to Dr. Manuel Gómez, director of the Resource Center for Science and Engineering at University of Puerto Rico (UPR), "there is definitely a brain drain in Puerto Rico. About 40% of the engineers who graduate from UPR Mayagüez go directly to work in the mainland U.S." (As cited in Thurston 2008). Also, see Santiago and Rivera-Batiz (1996) and Sotomayor (2009).

4 The PRPB uses two questionnaires to collect data, one for departures and one for arrivals. These questionnaires have changed several times throughout the years. The categories of the data presented in this study have been reorganized to facilitate the interpretation of the information and to make it consistent throughout all the years included in the study. The questionnaire used by the PRPB from 1983 to 1984 and from 1986 to 1987 was used as a base questionnaire since this questionnaire was used for the longer period of time. The data for the whole second period under examination, 1991 to 2000, was compiled using a new questionnaire adopted in 1991.

5 Most studies on Puerto Rican migration use data on departures and arrivals of passengers to estimate net movement of passengers as a proxy for net migratory flows. These figures are compiled by the Puerto Rico Port Authority and include gross data not adjusted for the purpose of the trip, the length of the stay, the age of the population, or destination and origin of the traveler. The PRPB estimates of migratory flows are different from those of the Port Authority and can be adjusted to control for age or other characteristics.

6 In this study, we have selected Puerto Ricans by birth or parentage who are migrants and whose destination or origin is the United States. Migrants to and from other countries, as well as foreign-born persons, have been excluded from the population under study. In order to make the figures reported here as consistent as possible, missing values were treated in the most rigorous way. Cases with missing values for one of the variables included in the study were excluded from the population. For this reason, the figures reported in the tables represent a different population from those reported in previous reports by the PRPB.

7 See Godoy (2003) for an elaboration of this point.

8 Because of budgetary reasons, data collection has been inconsistent over the years, with noticeable gaps in the continuity of the survey.

9 It implies, for example, that if a person migrated to the mainland and was employed in a given occupation categorized as low wage, then we assume that the person was employed in a low-wage occupation prior to departure in Puerto Rico.

10 For the estimation of the model, occupational data was disaggregated, as much as possible. Instead of six categories used in Table 6, we were able to include eleven binary variables as described in Appendix A. In particular, we were able to estimate results for Technology and Finance as a separate group from Professional and Managers. This decomposition provides a more detailed picture of the higher earnings occupations and an assessment of the so-called "brain drain" argument.

11 Since this is not longitudinal data, it is not possible to determine whether lower probability for return migration indicates a temporary stay or occupational mobility.

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APPENDIX

The probabilities of migration used in the analysis of selectivity are derived from odds ratios estimated through logistic regression analysis. Logistic regression analysis is used to assess the relative importance of the various characteristics when predicting the likelihood that an individual would move from one area to the other (that is, from Puerto Rico to the mainland or from the mainland to Puerto Rico). Logistic regression is a generalized linear model used with binomial dependent variables.Like many forms of regression analysis, it makes use of several predictor variables that may be either numerical or categorical. In our regression model, we presume the decision to move is based upon a variety of human capital characteristics, structural factors, and wages, as explained in more detail in the text.

Operationally, the migration model is specified as:

$$\text{logit}\,(Mji)=\alpha j + (\Sigma k \beta k Hki + \Sigma l \beta l Lli + \Sigma m \beta m Pm + \Sigma j \beta j Sji)$$

Where:

M = is a dichotomous variable that indicates that the individual moved to the U.S. or to Puerto Rico the prior year.

H = is a vector of human capital characteristics, including education, age, English language fluency, and place of birth.

L = is a dichotomous variable that indicates that the individual's occupation commanded less than 2/3 of the median income in the year prior to migration in the individual's given metropolitan area; 426 occupational categories and 517 SMSA's were used for the estimates derived from the model.

S = is a vector of structural factors in the receiving and the sending region, such as unemployment and occupations. The rate of unemployment is the percent of unemployment of the occupational category in the year prior to migration. For estimates, 426 occupational categories and 517 SMSA's derived from the model were used for the estimates.

The operational migration model includes all individuals in the labor force, but not those economically inactive. Thus we are including both the employed and the unemployed. In doing so, all individuals in the sample have a wage variable and occupation variable, but do not necessarily have an employment-status variable. The distribution of the sample population as included in the analysis is described in Table A1 below.

Descriptive tables and the results from the logistic models are included below.

TABLE A1. PUERTO RICAN MIGRATION TO AND FROM THE UNITED STATES BY LABOR FORCE STATUS AND SAMPLE SIZE (PERSONS 16 YEARS OF AGE AND OLDER IN THE LABOR FORCE)

	PUERTO RICANS RETURN MIGRATION TO PR, *LOS QUE REGRESAN*, RELATIVE TO WORKERS IN THE U.S.			PUERTO RICANS MIGRATION TO THE U.S., *LOS QUE SE VAN*, RELATIVE TO WORKERS IN PR		
	Non-Low Wage	Low Wage	Sample Size	Non-Low Wage	Low Wage	Sample Size
MEN						
NILF	7	18	25	24	56	80
LF, but not employed	5	4	9	8	6	14
Employed	29	6	35	110	22	132
Sample Size	41	28	69	142	84	226
WOMEN						
NILF	10	19	29	25	94	119
LF, but not employed	2	6	8	9	7	16
Employed	13	15	28	103	34	137
Sample Size	25	40	65	137	135	272

*Not all individuals are given a workforce status under the ACS, thus sample size will not match

TABLE A2. DESCRIPTIVE STATISTICS FOR VARIABLES INCLUDED IN THE LOGISTIC MODEL

		MIGRATION TO THE U.S.				MIGRATION TO P.R.			
VARIABLE	DESCRIPTION	MEAN	STD. DEV.	MIN.	MAX.	MEAN	STD. DEV.	MIN.	MAX.
Low Wage	See below	0.332	0.471	0	1	0.603	0.489	0	1
Tech Finance	Technical or financial occupation	0.167	0.128	0	1	0.013	0.114	0	1
Professional	Professional occupation	0.047	0.213	0	1	0.044	0.206	0	1
Services	Service occupation	0.169	0.374	0	1	0.082	0.275	0	1
Domestic	Domestic occupation	0.094	0.248	0	1	0.016	0.127	0	1
Clerical	Clerical occupation	0.094	0.282	0	1	0.061	0.240	0	1
Agriculture	Agricultural occupation	0.002	0.048	0	1	0.004	0.065	0	1
Construction	Construction occupation	0.027	0.163	0	1	0.030	0.170	0	1
Transportation	Transportation occupation	0.057	0.232	0	1	0.045	0.207	0	1
Other production	Other production occupation	0.037	0.19	0	1	0.210	0.140	0	1
Military	Employed in the military	0.004	0.063	0	1	0.001	0.015	0	1
High School	Completed high school	0.194	0.395	0	1	0.207	0.405	0	1
Some College/ Associates	Some college education or associates degree	0.108	0.311	0	1	0.148	0.355	0	1
Bachelors, Graduate or Professional	Completed a bachelor's, graduate or professional degree	0.107	0.309	0	1	0.073	0.261	0	1
Born in United States	Individual born in the U.S.	0.95	0.217	0	1				
Born in Puerto Rico	Individual born in P.R.					0.365	0.481	0	1
Female	Individual is female	0.531	0.49	0	1	0.512	0.499	0	1
Age 18–25	Individual is between 18 and 25	0.107	0.31	0	1	0.122	0.328	0	1
Age 56+	Individual is over 56 years old	0.286	0.451	0	1	0.145	0.352	0	1
English	Speeaks English well or very well	0.129	0.336	0	1	0.200	0.140	0	1
Self-Employed	Individual is self-employed	0.214	0.489	0	1	0.033	0.179	0	1
Unemployment Rate	See below.	0.222	0.298	0	1.75	0.140	0.268	0	1.9

TABLE A3. RESULTS OF LOGISTIC MODELS OF LIKELIHOOD OF PUERTO RICAN MIGRATION TO THE UNITED STATES AND PUERTO RICO

	TO THE UNITED STATES		TO PUERTO RICO	
VARIABLE	ODDS RATIO	Z-SCORE & P>Z	ODDS RATIO	Z-SCORE & P>Z
Low Wage	78.92	164.09***	1.10	5.97***
Tech Finance	8.48	25.77***	0.47	-14.50***
Professional	1.13	1.74*	0.26	-17.17***
Services	23.74	125.07***	1.01	1.04
Domestic	0.14	-21.58***	1.59	14.14***
Clerical	16.12	80.35***	1.28	14.01***
Agriculture	5.00	14.25***	0.87	-1.45
Construction	3.12	23.84***	1.07	2.56***
Transportation	18.16	75.86***	0.31	-20.55***
Other production	46.24	98.87***	0.90	-4.17***
Military	154.78	45.34***	2.97	24.29***
High School	0.72	-15.35***	0.94	-3.17***
Some College/ Associates	0.44	-29.71***	1.09	4.81*
Bachelors, Graduate or Professional	0.66	-13.21***	1.40	14.79***
Born in United States	0.56	-17.23***		
Born in Puerto Rico			1.55	36.04***
Female	0.74	-20.63***	1.05	4.10***
Age 18-25	0.48	-30.73***	1.08	5.47***
Age 56+	0.60	-24.41***	1.11	5.60***
Self-Employed	0.34	-35.78***	0.65	-13.56***
Unemployment	30.67	180.61***	4.19	13.77***
Number of Observations		395,915		705,453
Log Likelihood		86,338		4,736
LR Chi2		0.0000		0.0000

*** Indicates variable is statistically significant below the 0.01 level
** Indicates the variable is statistically significant below the 0.05 level
*Indicates the variable is statistically significant below the 0.05 level