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Marie T. Mora, Alberto Dávila, and Havidán Rodríguez*

Puerto Rico’s most recent economic woes and weak labor demand, particularly for low- to middle-skilled workers, has led to massive net outmigration from the island to the continental United States. As we discuss elsewhere, compounding the effects of persistently high poverty and unemployment rates, the socioeconomic wellbeing of island residents has further deteriorated since 2006 due to: (1) the imposition of sales taxes in 2006 and 2015; (2) a significant reduction in public sector jobs; (3) a sharp increase in electricity prices resulting from escalating oil prices until recently; and (4) a significant loss in the number of manufacturing jobs due to the expiration of Section 936 of the Internal Revenue Code in 2006. Island-wide, the job losses between 2006 and 2011 were particularly pronounced in the low- and middle-skill occupational sectors. It is worth noting that the latter change did not mirror the job polarization (i.e., the “hollowing out” of skill distribution across jobs) that occurred on the U.S. mainland (e.g., Jaimovich and Siu 2012; Acemoglu and Autor 2011).

These changes arguably had a disproportionate effect on low- to middle-income (skill) groups, and we have found evidence they were over-represented in the island-to-mainland migration flow (Mora, Dávila, and Rodríguez 2015a, 2015b). Such a population shift has implications for both the sending and the receiving communities.

At the same time, a little explored alternative to geographical migration is occupational migration; that is, workers in middle-skilled jobs can move into low-skilled (and in some cases, high-skilled) occupations. If so, despite a disparate decrease in labor demand on the island for low- and middle-skilled workers (which should have driven their earnings and employment down, thus compounding the deterioration in their socioeconomic situation), the inflow of relatively more productive middle-skilled workers displaced into low-skilled jobs could have increased the earnings in the low-skilled sector.

To gain empirical insight into this possibility, we use microdata from the 2006-2011 American Community Surveys (ACS) and the Puerto Rican Community Surveys (PRCS) in the Integrated Public Use Microdata Series (IPUMS, provided by Ruggles et. al. 2015). One of the challenges behind tracking flows into different

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1 This short article stems from a larger body of research we are conducting on Puerto Ricans on the island and U.S. mainland during Puerto Rico’s ongoing economic crisis (Mora, Dávila, and Rodríguez 2015a, 2015b).

2 To illustrate, we estimate that the number of middle-skilled jobs fell by 2.1 percent on the U.S. mainland between 2006 and 2011, while the numbers of both low-skilled and high-skilled jobs increased (by 1.2 percent and 1.0 percent, respectively). In contrast, jobs in Puerto Rico were lost in all three skill categories during this time, with the largest decline occurring among low-skilled positions (11.4 percent), closely followed by middle-skilled positions (10.9 percent), and then high-skilled positions (3.6 percent). See Mora, Dávila and Rodríguez (2015b).

3 These datasets (which include samples of approximately one percent of the population in the 50 states, the District of Columbia, and Puerto Rico) contain rich information on socioeconomic and demographic characteristics.
occupational sectors at the macro level pertains to data availability. Ideally, these flows would be tracked through large longitudinal datasets in which the pre- and post-employment characteristics and conditions can be observed. To our knowledge, such a dataset does not exist. An alternative approach involves creating a pseudo-longitudinal dataset by constructing synthetic cohorts in time-consecutive datasets.

Therefore, we track individuals between the ages of 25 and 59 in 2006 in subsequent years through individuals between the ages of 26 and 60 in 2007, 27 and 61 in 2008, and so forth. We focus on this age range because it captures individuals of prime working age. Changes in the underlying skill levels among members of the cohort in different occupational classifications should be reflected through changes in their relative earnings unaccounted for by observable characteristics.

Combining the ACS with the PRCS allows us to analyze the earnings of Puerto Ricans on the island and mainland while separating workers into the three occupational-skill categories: high-skill, medium-skill and low-skill. Because earnings also change with respect to underlying labor market conditions, we use non-Hispanic workers on the mainland as the base group for comparison.

Figure 1 displays the earnings differences between Puerto Ricans and non-Hispanics on the mainland in the three occupational classifications unexplained by differences in observable socioeconomic and demographic characteristics, such as education. Despite having considerably low unexplained earnings, Panel A indicates that island-born Puerto Ricans in low-skilled jobs, particularly in Puerto Rico, gained against otherwise similar stateside non-Hispanics with respect to these earnings after 2006. To illustrate, island-born island resident Puerto Ricans in low-skilled positions earned 42 percent less than comparable non-Hispanics on the mainland in 2006; by 2011, this difference shrank to 26 percent. A less pronounced, but similar progress was made by island-born Puerto Ricans on the mainland.

One potential explanation for this phenomenon is that medium-skill workers moved into low-skill jobs, pushing up low-skill sector earnings. Also, this result could be the outcome of the large outmigration of low-skill labor from the island to the mainland U.S., although this would not explain the improvement on the mainland. Furthermore, it may reflect a disproportionate impact of the mainland’s Great Recession on non-Hispanics in low-skill positions. Another explanation is that the labor-force participation rate of low-skill workers fell more rapidly than that of other skilled workers, thus leaving the low-skill workers with higher observable and unobservable skills in the labor market. Finally, it could reflect the growing geographic dispersion of Puerto Ricans (e.g., Mora, Dávila, and Rodríguez 2015a; Meléndez and Vargas-Ramos 2013), who may be tapping into better networking and employment opportunities.

Regardless of the specific cause, despite significant job losses in the low-skilled occupational sector on the island, those employed in such positions fared better in a relative sense after the economic crisis than before it started. This was not the case for island-born Puerto Ricans in high-skilled positions, nor for mainland-born Puerto Ricans (shown in Panel B). These changes also served to narrow the unexplained earnings gaps between island-born Puerto Ricans living on the island versus mainland among those in low-skilled occupations.

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4 For details into the construction of these occupational-skill categories, see Mora, Dávila, and Rodríguez (2015b).
5 For the list of variables and methodological details, see the section on “Changes in Unobservable Characteristics Based on Unexplained Earnings Differentials” in Mora, Dávila, and Rodríguez (2015b).
In all, these results point to an additional socioeconomic outcome that has arisen from the economic crisis in Puerto Rico, suggesting occupational-skill adjustment effects. At the same time, these issues warrant further investigation to better understand the relationship between geographic migration and occupational sorting.

Figure 1: Unexplained Earnings Differentials for Puerto Rican Groups in the Synthetic Cohort with Mainland-Born Non-Hispanics Residing on the U.S. Mainland, by Occupational Skill Level: 2006-2011

Source: Authors’ estimates using the 2006-2011 ACS and PRCS in the IPUMS.
Notes: This synthetic cohort includes island- and mainland-born Puerto Ricans, and mainland-born non-Hispanics, who were ages 25-59 in 2006 (ages 30-64 in 2011) and attached to the workforce. Puerto Ricans born outside of the island and mainland are excluded, as are non-Hispanics born outside of the mainland. See Mora, Dávila, and Rodríguez (2015b) for the construction of the occupational skill categories as well as for the empirical details behind estimating these unexplained earnings differentials.
It is worth noting that if recent proposals to foster more employment opportunities through increasing labor market competitiveness on the island were to be enacted (e.g., Krueger, Teja and Wolfe 2015; Federal Reserve Bank of New York 2012), the geographic and occupational migration dynamics would likely change. While we acknowledge that our timeframe of study—2006 to 2011—is relatively short, it covers an important period when the economic conditions further deteriorated on the island. It is of policy relevance to continue tracking these conditions over longer periods of time to determine the extent to which these short-term changes affect the long-term socioeconomic outcomes of Puerto Ricans on both the island and U.S. mainland.

References
The Effects of Skills on Economic Inequality across Race and Ethnicity in the U.S.

Anita Alves Pena*

This research examines how skills relate to wage inequality across racial and ethnic groups in the U.S using multifaceted skill and earnings data from the OECD’s newly-released Programme for the International Assessment of Adult Competencies (PIAAC).\(^6\) Specifically, this research (1) summarizes this new skill and earnings data and (2) quantifies the relative importance of skill and other human capital indicators, of rates of returns to these variables, and of unobservable factors (e.g., institutions, discrimination, etc.) in determining economic inequality for different races and ethnicities in the U.S.

Three primary skill measures, based on literacy, numeracy, and problem solving categories, are available in PIAAC. Table 1 summarizes how these skill measures vary within and across Hispanics, Whites, Blacks, and other. This table presents means, standard deviations, and 10\(^{th}\), 50\(^{th}\), and 90\(^{th}\) percentiles of skill level measures. Table 1 also presents the differences of the 50th and 10th and of the 90th and 50th skill percentiles (50-10 and 90-50 skill differentials). A low (high) differential corresponds to low (high) inequality of skills in the relevant part of the skill distribution.

There is notable variation in skills across race and ethnicity (measured by means) and within racial and ethnic groups (measured by standard deviations and percentile differentials). Literacy skills vary from a low average of skill points for Hispanics to a high average for those identifying as white, a pattern plausibly related to variation in language backgrounds. Numeracy and problem solving skills, as measured by the PIAAC tests, are on average lowest for Black participants (Hispanics have the second lowest average) and are highest for Whites. These averages describe midpoints of the distributions of skills in each racial and ethnic group.

Standard deviations, on the other hand, summarize the spread of the skill distributions and therefore provide preliminary insight about skill inequality. In contrast to the standard deviation (which gives an overall measure of dispersion around the mean of the skill distribution), 50-10 and 90-50 skill differentials measure inequality of lower and higher skilled people within each grouping. By all of these measures, skill inequality is lowest for Whites and highest for Hispanics.

I explore the relationship between skills (skills are related but not perfectly correlated with formal education) and wage differences, which results on earnings inequality. Figure 1 illustrates (natural) log wage differentials based on 50-10 and 90-50 percentiles. The wage measure is based on hourly earnings excluding bonuses for wage and salary earners. The 50-10 log wage differential describes wage inequality between those earnings in the middle of the distribution and the bottom 10 percent. The 90-50 differential does the same for the top 90 percent of earners relative to the median.

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\(^6\) This short article is based on a working paper with the same title that was presented at the 2015 Southern Economics Association Annual Meetings (New Orleans, LA) in November of 2015 and is available from the author by request (anita.pena@colostate.edu)
Substantial wage inequality within and across racial and ethnic groups is evident. Wage inequality is highest for the “other” race category (which may not be surprising, nor compelling, as this category combines Asian/Pacific Islanders with all others). Other patterns, however, are that wage inequality is higher for the upper end of the wage distribution and is higher for Whites than for Hispanics and Blacks (most dramatically in the lower part of the earnings distributions).

Table 1: Distribution of Individual Average Test Scores, by Race/Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Panel A: Literacy Skills</th>
<th>Panel B: Numeracy Skills</th>
<th>Panel C: Problem Solving Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentile</td>
<td>Differential</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mean</td>
<td>sd</td>
<td>10</td>
</tr>
<tr>
<td>Hispanic</td>
<td>233.49</td>
<td>52.24</td>
<td>162.30</td>
</tr>
<tr>
<td>White</td>
<td>282.51</td>
<td>43.23</td>
<td>226.27</td>
</tr>
<tr>
<td>Black</td>
<td>243.93</td>
<td>44.49</td>
<td>185.19</td>
</tr>
<tr>
<td>Other</td>
<td>271.54</td>
<td>48.38</td>
<td>210.06</td>
</tr>
</tbody>
</table>

Source: PIAAC U.S. sample and author’s calculations.

The longer paper provides econometric decompositions to separate effects of observed skill levels, of wage responses to variations in skill levels, and of unobserved residual components across the racial and ethnic groupings. Calculating decompositions separately for the lower (50-10) and the higher (90-50) parts of the wage distribution (in addition to for means and standard deviations) provides intuition about how differences in the effects of observable and unobservable components across groups vary within the overall wage distribution and whether differences are most concentrated among the poor or rich across the racial and ethnic groups studied.

Preliminary findings include that unobservable components (as opposed to observable levels) and returns to comprehensive skills dominate as explanations of inequality. When contributions of non-skill determinants (age, education, experience, and gender) to earnings inequality are included, the importance of observable
quantities increases, most especially for the lower parts of the wage distributions of Hispanics and Blacks. Still, however, unobservable factors are non-negligible.

Results have implications for understanding the costs and benefits of human capital improvement programs aimed at increasing skills, especially those programs targeting racial and ethnic minorities. This study also helps understanding how unobservable factors inclusive of formal and informal institutions that different racial and ethnic groups interact with in the U.S. remain critical contributors to inequality.
Crime and Institutions: 
Impacts on Sector Specific FDI to Latin America and the Caribbean region 

Luisa Blanco & Isabel Ruiz*

It has long been recognized that Foreign Direct Investment (FDI) has been a motor for economic development in Latin America and the Caribbean countries (Borensztein et al, 1998). Latin America has benefited in many ways from these inflows and therefore, not only academics but also policy makers have sustained a quest to investigate, determine and discern the drivers and determinants of FDI into the region. Of particular importance when looking at FDI is to consider the role of institutions and its interplay with violence and crime. While Latin American countries have made great advances in terms of institutional improvements, the region still remains as one of the most violent regions in the world. In a recent paper co-authored with Rossitza Wooster (Portland State University) and Charlie Sawyer (Texas Christian University), we study the impact of crime and institutions on sectoral FDI to Latin America and the Caribbean, paying particular attention to the interplay between crime and institutional quality.

We look at both crime and institutions, as crime is likely to be related to the institutional environment of a country. Moreover, as noted above, in the case of Latin America, the relation between crime and institutions seems paradoxical. While there has been a reported improvement in the quality of institutions in Latin America, crime has also increased and it is at the forefront of the public policy agenda in this region. In the last decade crime rates have increased significantly, leading to the region receiving the title of one of the most violent regions of the world (Di Tella et al., 2010; UNDP, 2013). A recent study about crime and violence in Latin America states that the homicide rates in Latin American countries are considered by the World Health Organization to be at an epidemic level (UNDP, 2013). The statistics are staggering. According to a World Bank report, Latin America and the Caribbean countries not only account for over 30 percent of the world’s homicides but also include seven of the top-ten countries with the world’s highest homicide rates. In addition, 42 cities in the region make the list of the 50 cities with the highest homicide rates in the world (World Bank, 2013).

The divergence between improvements in institutional quality along with increasing crime rates may have potentially important impacts on the trajectory of FDI. There is evidence in the literature that in Latin America, violent crime has generated distrust in institutions (Blanco, 2013; Blanco and Ruiz, 2013; Corbacho et al. 2015). Distrust in institutions can in turn be reflected in weaker business networks, and it can increase the costs of setting up and expanding businesses in Latin America. Therefore, crime should not be overlooked and needs to be taken into account in the study of the determinants of FDI.

In our empirical analysis we look at the determinants of sectoral FDI and use three different indicators related to violent crime: homicide rates, crime victimization index, and organized crime index. We use sectoral FDI for the 1996-2010 period for 18 Latin American and Caribbean countries for which we were able

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7 This short article is based on a working paper available online at the Social Science Research Network (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2607682). Please refer to the working paper for more detailed explanation of the methodology used in our analysis.

8 Please refer to the working paper version for an explanation of the methodology used in our empirical analysis.
to get data on FDI and crime (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, and Venezuela). We find that there is a significant correlation between the institutional and crime variables, where the significance of institutional variables in our FDI model tends to go away when the crime variables are added to the model. In particular, we find that crime victimization and organized crime are statistically significant in most estimations for the tertiary sector, where increases on crime victimization and organized crime are associated with lower FDI in that sector.

Our analysis provides important insights related to the motivations of FDI and the importance of conducting sectoral analysis. We did not find a significant impact of crime on FDI in the primary sector. This makes sense as FDI in the primary sector is largely motivated by the availability of natural resources in a specific country. Therefore, we might expect firms to be indifferent to crime and our results corroborate this. A similar story applies to FDI in the secondary sector. In few instances, we found that our crime variables had a significant effect on FDI in the secondary sector, but this was not a robust finding. FDI in the secondary sector is motivated by cost advantages in the form of low labor costs and investment is also motivated with the purpose of serving the global market. From our findings, we could hypothesize that when firms chose to invest in the secondary sector in Latin America and the Caribbean, the rate of return is potentially high enough to offset the costs derived from crime. In the tertiary sector, firms are motivated in general, to invest with the purpose of serving that specific market. Investment in this sector is associated with tourism, education, financial services, real estate, among others. Thus, the impact of crime is likely to affect only the tertiary sector, which is what our analysis shows. Our analysis indicates that lower levels of FDI in the tertiary sector are to be expected if crime continues to be an issue in this region, which will preclude these economies towards developing this sector.

To develop a deeper understanding of the interconnection of institutions and crime for capital flows, further research at the firm level that focuses on the motivations of FDI is warranted. Data collected through interviews with top managers of multinational enterprises could provide important insights on how institutional deficiencies and high crime rates affects investment decision, and whether they will be discouraged by these environments or accommodate for these deficiencies. Previous experience in a specific country is likely to play a role mitigating some of the detrimental effects of low institutional quality and crime, and this could be studied with firm level data.

References
About the Hispanic Economic Outlook Committee of the American Society of Hispanic Economists –
Formed in early 2009, this Committee was designed to monitor and report on a host of Hispanic economic issues. The views expressed in these reports are those of the authors, and do not necessarily represent the views of their respective employers or of ASHE. All errors in fact or interpretation belong to the authors.

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