

Migration, Geographic Destinations, and Socioeconomic Outcomes of Puerto Ricans during *La Crisis Boricua*: Implications for Island and Stateside Communities Post-Maria

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ABSTRACT

Hurricane Maria struck Puerto Rico at a time the island was encountering what had already been described as a humanitarian crisis brought upon by more than a decade of a severe economic crisis. In this manuscript, we provide an overview of the conditions that led to and resulted from *La Crisis Boricua*, including the record level of net outmigration that occurred even before Hurricane Maria. We also analyze the overrepresentation of non-Puerto-Rican migrants (based on self-identification) in the recent island-mainland migration flow. Moreover, we discuss interstate differences in the socioeconomic characteristics, including the rates of impoverishment, among recently arrived Puerto Ricans from the island in the largest receiving areas. This information can be used to inform policymakers, social workers, and social scientists about potential challenges incoming migrants may encounter as they settle into their mainland communities. Finally, we highlight some of the challenges and opportunities Puerto Rico and Puerto Ricans will continue to face while rebuilding. [Key words: Demographic shift; Island-Mainland Migration; Economic crisis; Hurricane Maria; Poverty; Puerto Ricans]

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With wind speeds of 155 miles per hour, just two miles shy of a Category 5 hurricane and equivalent to an EF-3 tornado, Hurricane Maria ripped through Puerto Rico on September 20, 2017, leaving behind a trail of catastrophic destruction, suffering, and death. In the immediate aftermath, Maria left the island's then-3.3 million American citizens without electricity (over a million of whom would remain without it for more than four months), running water, telecommunications, and transportation systems. Other critical necessities, such as food supplies, drinking water, and medicine were in short supply. Nearly a year later, the official death toll was raised after considerable public pressure from 64 to 2,975 fatalities,¹ which represented 0.09 percent of Puerto Rico's entire population.

During the initial aftermath of Hurricane Maria, the media reported on Puerto Rico's critical social and economic issues confronting the island's population, as well as an anticipated massive outmigration, but less publicized was that the island had already been described as encountering a humanitarian crisis resulting from a severe economic crisis surging for more than a decade. There is no question that Hurricane Maria exacerbated the effects of this crisis—which we refer to as *La Crisis Boricua*² (Mora, Dávila and Rodríguez (henceforth, MDR), 2017a)—and intensified the net outmigration from the island, already at a record high. However, with a bankrupt government, a shrinking and rapidly aging population, an already deteriorated infrastructure, and a weak business sector and labor market, Maria has prolonged the uncertain and challenging near- and long-term future of the Commonwealth.

In this manuscript, we first provide an overview of the conditions that led to and resulted from *La Crisis Boricua*. One of these outcomes has been the record level of net outmigration, which, as we report below, was over 597,000 people between 2006 and 2017. The vast majority of this group moved to the mainland, including into Florida (an “old new” destination) and other non-traditional areas. We also show that a non-trivial number of these island-to-mainland migrants did not identify themselves as Puerto Rican. We then discuss interstate differences in the socioeconomic

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characteristics among recently arrived Puerto Ricans from the island. As part of this discussion, we provide a detailed analysis of their poverty rates to illustrate that Puerto Ricans moving to the mainland are not homogeneous with respect to their socioeconomic outcomes. While at the time of writing this manuscript, the data were not available to fully analyze these differences post-Maria, all estimates of the major destination areas point to the same areas where pre-Maria migrants were moving, particularly Florida (e.g., Hinojosa, Román and Meléndez 2018; see also MDR 2019). It follows that the socioeconomic and demographic characteristics of pre-Maria migrants can be used to inform policymakers, social workers, and social scientists about potential issues post-Maria migrants may encounter as they settle into their mainland communities. Finally, we highlight some of the challenges and opportunities we anticipate Puerto Rico will encounter as the island continues to recover from Maria.

Background on La Crisis Boricua

Hurricane Maria struck at a time when the Commonwealth and its 3.3 million residents had been encountering more than a decade of an unrelenting economic crisis. La Crisis Boricua technically started in 2006—the year we refer to as “the perfect storm” (MDR 2017a)—although it had been brewing for years if not decades beforehand. One major factor that precipitated La Crisis Boricua was the complete expiration of Section 936 of the Internal Revenue Service Code on December 31, 2005; Section 936 had provided U.S. corporations in Puerto Rico tax breaks on goods produced in Puerto Rico. Its repeal resulted in a scaling back and, in some cases, relocation of businesses, and a corresponding loss of jobs in both labor-intensive and capital-intensive industries.³ These losses essentially led to a domino effect of lost tax revenue, a loss in public sector jobs as the government worked to restructure its budget, and a loss of bank deposits and capital, thus leading to additional employment losses. Moving forward, if the recently approved 12.5-percent tax on income from intellectual property in Puerto Rico is implemented (e.g., Coto 2017; Mazzei 2017),⁴ a continued scaling back of manufacturing firms (especially in medical manufacturing) and additional job losses on the island are expected, independent of Hurricane Maria.

Many of these conditions overlap and have fed into the severity of La Crisis Boricua and the massive population exodus from the island both pre- and post-Maria.

Since 2006, the island has only had one year of positive economic growth (in 2012), prompting scholars to refer to this period as “Puerto Rico’s Depression” and “lost decade” (e.g., Caraballo Cueto and Lara 2016). Even under its optimistic scenario, the economic projections made by the Puerto Rico Planning Board (Junta de Planificación) in 2016 indicated that the economic contraction would continue through at least fiscal year 2017. Estudios Técnicos, Inc. (a Puerto Rican economics consulting firm) projected in

late 2016 that the contraction would continue until 2020, and it would not be until 2034 that Puerto Rico's economy would be restored to its 2006 level. Following the decimating impacts of Maria on the island's industry and the expected imposition of the intellectual-property tax noted above, the timeline of these projections appears unattainable.

Some of the major challenges the island faces relate to the net outmigration and ensuing significant demographic shift, its unprecedented debt and "oversight" legislation, and, consequently, the lack of resources and financial autonomy to rebuild. Other critical factors include a perennially weak labor market and a dilapidated infrastructure, including for healthcare. Many of these conditions overlap and have fed into the severity of La Crisis Boricua and the massive population exodus from the island both pre- and post-Maria.

Migration and Demographic Shift. Even before Hurricane Maria, as we report elsewhere (MDR 2017a), La Crisis Boricua led to the largest number of net outmigrants from the island, and the second largest on a scale relative to the population size (the largest being during the Great Migration of the 1950s). Coupled with low fertility rates and a high life expectancy, the recent net outmigration has left Puerto Rico with a dwindling and rapidly aging population. The island's population declined on net by nearly half a million people, from 3.8 million in 2006 to 3.3 million in 2017.⁵ At the same time, the average age of the island's population increased by 4.5 years (from 36.2 years to 40.7 years) and the percentage of the population ages 65 and older rose by six percentage points (from 12.9 percent to 18.9 percent) between 2006 and 2016.⁶ To compare, the U.S. mainland population also grew older during this time, but it did so more slowly, with the average age rising by 1.8 years (from 36.7 years to 38.5 years), and the percentage ages 65 and older rising by 2.8 percentage points (from 12.4 percent to 15.2 percent of the population). This demographic shift has important ramifications for the future of the island's economy, labor force, and its deteriorating and overstretched healthcare sector.

Puerto Rico's Debt and PROMESA. Hurricane Maria hit Puerto Rico at a time when the government did not have viable fiscal policy options nor the legislated authority to rebuild. With the island's loss in credit ratings on municipal bonds in 2014, the government's unprecedented and expanding public debt (described in 2015 by the then-governor as a "death spiral") at \$74 billion plus another \$49 billion in unfunded pension obligations, and a series of defaults on debt payments starting in July 2015, even without subsequent federal legislation, the island's government would have been unable to use traditional fiscal policy tools to rebuild the economy and reverse the tide of net outmigration. As we have previously discussed (MDR 2017a, 2017b), attempts to restructure its budget starting in 2006 led to a significant loss in public-sector jobs; a corresponding reduction in public services; and the imposition of a relatively high sales tax (*Impuesto a las Ventas y Uso* – IVU), first implemented at 7.0 percent in 2006 but raised in 2015 to 11.5 percent, a level higher than any state sales tax.

Unable to file for federal protection under Chapter 9 of the U.S. Bankruptcy Code due to Puerto Rico's status as a U.S. territory, the federal government's response to provide "assistance" was the Puerto Rico Oversight, Management, and Economic

Stability Act (PROMESA), signed into law by President Obama in June 2016. The PROMESA Oversight Board was essentially granted unilateral power over Puerto Rico's finances and the island's economic future. As we note in other work (MDR 2017a), criticisms of the Board include that it does not address Puerto Rico's chronic socioeconomic issues such as its weak labor market or widespread poverty; its lack of accountability to the Puerto Rican people; the lack of experience in economic reform of the Board members (e.g., Furth 2016); and the interpretation by many that the charge and scope of the Board signal Puerto Rico's *de facto* colonial status as opposed to a self-governing territory.⁷ As such, the Puerto Rican government's hands remain tied with respect to budgetary decisions to assist the island in rebuilding after Hurricane Maria without approval from the Oversight Board.

Weak Labor Market. For years, the labor market in Puerto Rico has been characterized by high unemployment rates, low labor force participation rates (LFPRs, which are some of the lowest in the world), and low employment population ratios (e.g., MDR 2017a, 2017b). Between 2006 and 2016, among civilians ages 16 and older, the unemployment rate and LFPR were, respectively, 17.4 percent and 46.1 percent on the island, compared to 7.9 percent and 64.1 percent on the mainland. In our previous work (MDR 2017a), we further reported that the unemployment rate would have been considerably higher on the island if the LFPR had not declined during La Crisis Boricua. As noted earlier, Puerto Rico lost a significant number of jobs in the manufacturing industry with the expiration of Section 936, as well as in the public sector, as the government attempted to address its fiscal crisis. The significant loss in jobs has been one of the factors that led to the massive net exodus from the island in recent years. Indeed, work-related issues—moving because of a job or to find a job on the mainland—were the primary reasons *two-thirds* of migrants aged 25-64 left Puerto Rico in the midst of La Crisis Boricua (MDR 2017a).

In light of the island's weak labor market conditions, moreover, it is not surprising that poverty rates have remained high for years. To illustrate, we estimate that the average poverty rate in Puerto Rico was 45.2 percent between 2006 and 2016, which more than thrice exceeded the mainland's average poverty rate of 14.7 percent during this time and more than twice exceeded the highest state poverty rate (22.1 percent, in Mississippi). Still, as we discuss later in this manuscript, the poverty rates among recent Puerto Rican migrants in mainland traditional settlement areas tend to be considerably higher than on the island (see also MDR 2017a).

Deteriorating Healthcare Infrastructure. The decrease in public-sector employment and under-funded healthcare systems exacerbated the deteriorating socioeconomic conditions in Puerto Rico during La Crisis Boricua. We discuss elsewhere (MDR 2017a) that in 2016, 92 percent of the island's *municipios* were categorized by the U.S. Health Resources and Services Administration as Medically Underserved Areas (Levis 2016), and the population's healthcare system was expected to continue to deteriorate even before Maria due to declining income and state funding along with "the graying of Puerto Rico's doctors" (*New York Times* 2017). The outmigration of physicians has

compounded the overstretched nature of the healthcare industry and the aging of the doctors (e.g., Allen 2016). For insight into the scale, we estimate that the number of physicians and surgeons in Puerto Rico declined more sharply (by 26.4 percent, from 8,870 to 6,527) than the population (12.2 percent), while their average age increased (from 48.0 to 52.0 years) between 2006 and 2016. As the disproportionate outmigration of younger people has likely continued post-Maria, the increasingly elderly population remaining in Puerto Rico will continue to strain the overstretched healthcare system.

Outmigration and the Puerto Rican Diaspora: 2006–2017 (Pre-Maria)

As these changes indicate, Puerto Rico was already in crisis mode before Hurricane Maria. For more details behind the massive population exodus, as shown in Table 1, the island's total population declined on net by more than 468,000 residents (from

Table 1: Estimates of Net Migration from Puerto Rico: 2006–2017

Characteristic	Estimates
Population of Puerto Rico, July 1, 2006	3,805,214
Population of Puerto Rico, July 1, 2017	3,337,177
Total change in population between 2006 & 2017	-468,037
Natural increase (live births – deaths) between July 1, 2006 & July 1, 2017	129,164
Estimated net migration from Puerto Rico between July 1, 2006 & July 1, 2017	-597,201
Net migration as percentage of 2006 population	-15.7%
Estimated net migration from Puerto Rico between July 1, 2006 & July 1, 2016	-528,923
Estimated net migration from Puerto Rico to the U.S. mainland	-503,092
Estimated net migration from Puerto Rico to other countries or other U.S. territories	-25,831

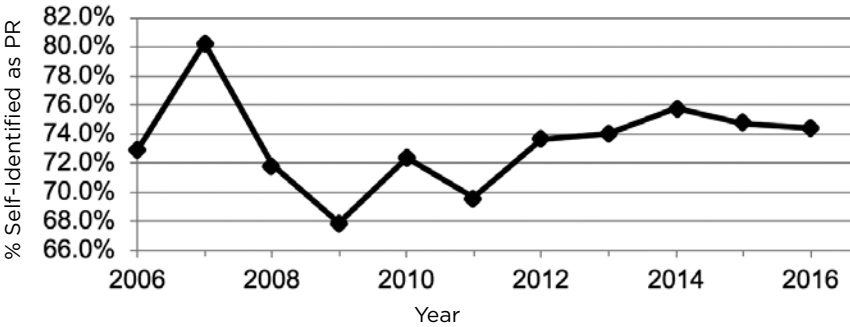
Source: Authors' estimates using data from the U.S. Census Bureau for population size and natural increase (<http://www.census.gov/popest/estimates.html>), most recently from December 2017; and the 2006-2016 ACS/PRCS data from the IPUMS.

Notes: The population estimates pertain to July 1, 2006 – July 1, 2017. As such, the effects of Hurricane Maria are not included.

Figure 1: Percent of Recent Migrants on the Mainland and Island Residents Who Self-Identify as Puerto Rican: 2006-2017

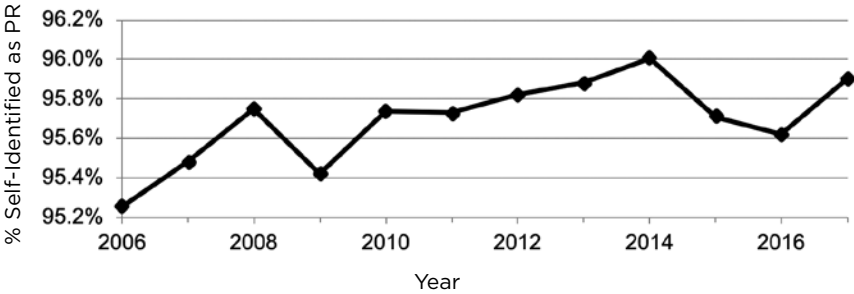
Panel A:

Percent of Recent Island-to-Mainland Migrants Who Self-Identify as Puerto Rican



Panel B:

Percent of Recent Island Residents Who Self-Identify as Puerto Rican



Source: Authors' estimates using 2006-2016 ACS and PRCS data in the IPUMS; and the U.S. Census Bureau (2018a) for 2017.

Notes: Ethnic self-identification is based on the Hispanic ethnicity question. Appropriate sampling weights are employed. The 2017 data for Panel A were not publicly available when this manuscript was written. The 2017 data for Puerto Rico were only collected through mid-September by the U.S. Census Bureau.

3.8 million to 3.3 million) between July 1, 2006, and July 1, 2017. Natural increase was positive over the 12-year period, with over 129,000 more live births than deaths on the island.⁸ As such, more than 597,000 people migrated from the island on net to the U.S. mainland and other countries between 2006 and 2017—the largest number of net out-migrants in the island’s recorded history. On a relative scale, this represented a 15.7 percent loss of the island’s 2006 population, the year *La Crisis Boricua* began, resulting in the largest relative population loss since the Great Migration of the 1950s. At that time, net-outmigration represented more than one-fifth (21.3 percent) of the island’s population (MDR 2017a). Meléndez and Hinojosa (2017) projected shortly after *Maria*, the island would lose another 477,335 residents to the mainland by 2019. This means that within two years of *Maria*, the island may lose close to the same number of residents due to net outmigration as during the previous 12 years, thus compounding the demographic shift and significant population decline.

It should be noted, however, that while the vast majority of these migrants move to the U.S. mainland, there are net outflows to other countries as well (MDR 2017a). As seen in the bottom part of Table 1, over 503,000 people moved from the island to the continental U.S. between July 1, 2006 and July 1, 2016, while nearly 26,000 moved to other countries. Future studies should explore the international dimension of the Puerto Rican diaspora.

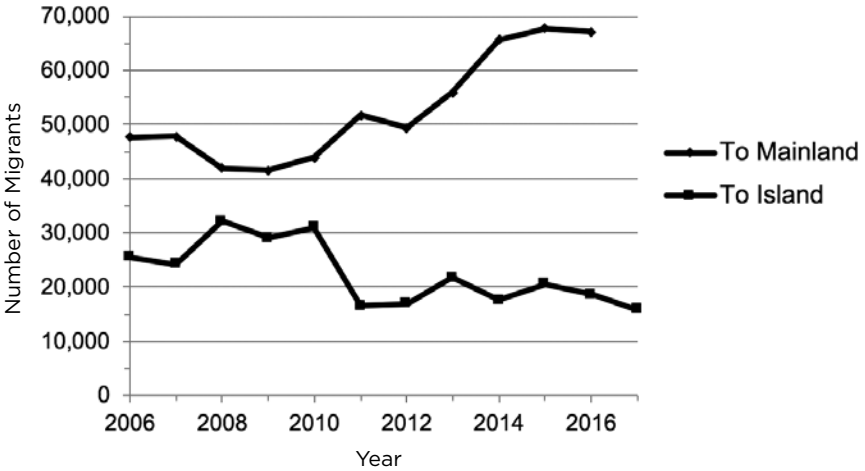
Moreover, not all of the migrants identify themselves as Puerto Rican in the Hispanic ethnicity question in the ACS and PRCS, suggesting the island’s population loss of Puerto Ricans, while massive, is not quite as large as the total number of net out-migrants suggests. As seen in Panel A of Figure 1, since peaking in 2007, on an annual basis self-identified Puerto Ricans represented between two-thirds (67.8 percent in 2009) and three-quarters (75.8 percent in 2014) of migrants from the island to the mainland. However, with only one exception between 2009 and 2014, there was an increased presence of self-identified Puerto Ricans in the annual migrant outflow. Since 2009, these changes generally mirrored the changes in the percentage of island residents who identified themselves as Puerto Rican (see Figure 1, Panel B). The percentage of island residents who reported Puerto Rican ethnicity subtly increased annually from 95.4 percent in 2009 to a high of 96.0 percent in 2014; while it fell in 2015 and 2016, this share increased again to 95.9 percent before *Maria*’s landfall in 2017.

Comparing the two panels of Figure 1 reveals several interesting findings. First, the number of Puerto Ricans who left the island since 2006 – while large – is by definition, smaller than the total number of people who migrated. Second, migrants who did not identify themselves as Puerto Rican were significantly overrepresented in the net migration flow. For example, in 2016, one-fourth (25.5 percent) of the migrants to the continental U.S. did not self-identify as Puerto Rican, which was nearly six times greater than the 4.4-percent representation of non-self-identified Puerto Ricans among island residents that year, suggesting those remaining behind had stronger ethnic ties to the island. Third, Figure 1 illustrates how changes in the self-identified Puerto Rican representation among the migrant outflow parallel subtle changes in the self-identified ethnic representation of island residents.

Figure 2: Island-Mainland Migration of Puerto Ricans by Year: 2006-2017

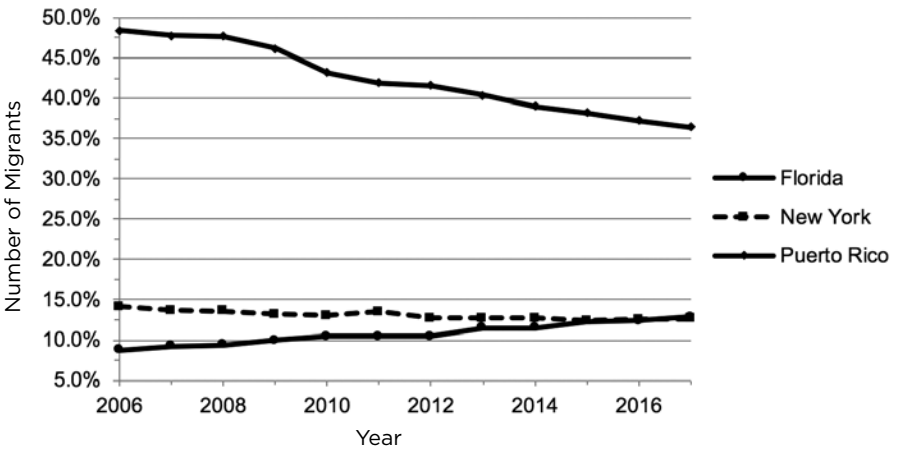
Panel A:

Island-Mainland Migration



Panel B:

PR Population in Specific Areas



Source: Authors' estimates using 2006-2016 ACS and PRCS data in the IPUMS, and the U.S. Census Bureau (2018) for 2017.

Notes: These estimates only include those who self-identified as Puerto Rican in the Hispanic ethnicity question. Panel B indicates the percentage out of the total Puerto Rican population living in the three areas shown. Appropriate sampling weights are employed. The 2017 data for Puerto Rican migrants from the island in Panel A were not publicly available when this manuscript was written. The 2017 data for Puerto Rico were only collected through mid-September by the U.S. Census Bureau.

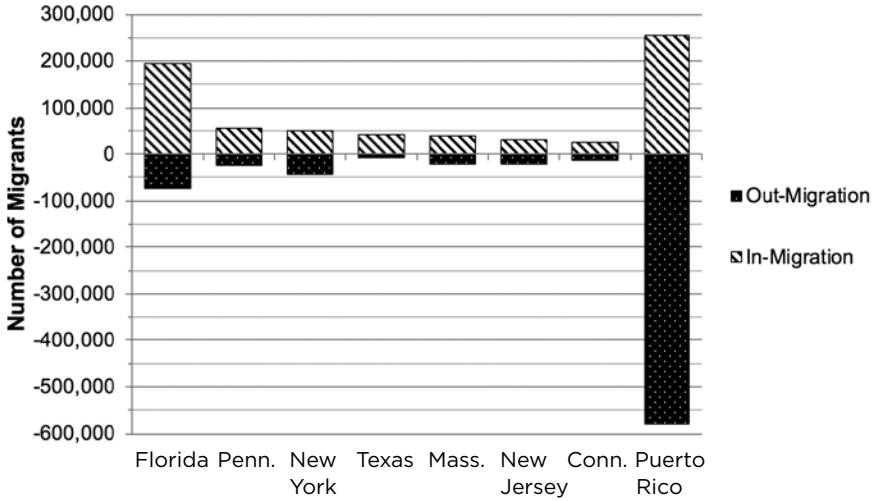
Still, the disproportionate number of non-Puerto-Rican migrants should not be interpreted as a sign that the Puerto Rican diaspora is modest. The numbers of self-identified Puerto Ricans moving stateside are historic and dwarf the numbers of those moving to the island, particularly after 2010. For visual clarity, Panel A in Figure 2 presents the numbers of self-identified Puerto Ricans moving to the island on an annual basis between 2006 and 2017, and from the island between 2006 and 2016 (2017 data were not yet publicly available). Coinciding with the recovery in the mainland labor market after the Great Recession, with few exceptions, the number of Puerto Ricans leaving the island escalated after 2010, although this tendency started slowing after 2014. The number of those moving from the mainland to the island fell sharply between 2010 and 2011, and then fell again in 2017 before Hurricane Maria.

Panel B in Figure 2 provides additional insight into the Puerto Rican diaspora by showing how the geographic distribution of the self-identified Puerto Rican population was shifting away from the island before Maria, a point we extensively discuss in our book (MDR 2017a). Between 2006 and 2017, the percentage of the Puerto Rican population who lived on the island sharply declined on an annual basis. While in 2006 nearly half of all Puerto Ricans resided in Puerto Rico, by 2017 (based on data collected through mid-September), this figure was just over one-third (36.4 percent). This figure further shows that the share of the Puerto Rican population residing in New York slightly fell during this time, from one out of seven (14.1 percent) to one out of eight (12.7 percent) Puerto Ricans.

At the same time, this figure illustrates how the representation (and number) of Puerto Ricans living in Florida (considered to be an “old new” destination area)⁹ has steadily increased since 2006. Florida received a full third of all migrants from the island since the start of *La Crisis Boricua* and was a net receiver of interstate migrants (MDR 2017a), which resulted in its prominence as a major Puerto Rican settlement area. By 2017, one out of every eight Puerto Ricans (12.8 percent) resided in Florida (an increase from one out of 12 (8.8 percent) in 2006), such that Florida surpassed New York as the state with the largest number of Puerto Rican residents (an estimated 1.13 million versus 1.11 million). With the intensified outmigration following Hurricane Maria, all estimates indicate that the Puerto Rican population in both Florida and New York increased, especially in Florida (Hinojosa, Román, and Meléndez 2018; MDR 2019).

As discussed below, these migration patterns have implications for both island and mainland communities. To better visualize these geographic shifts in the settlement patterns of Puerto Ricans, Figure 3 displays the numbers of Puerto Ricans who moved between the island and the seven largest receiving states between 2006 and 2016: Florida (which received 33.4 percent of all incoming migrants from Puerto Rico), Pennsylvania (which received 9.4 percent), New York (8.4 percent), Texas (7.1 percent), Massachusetts (6.5 percent), New Jersey (5.1 percent), and Connecticut (4.3 percent). This figure also shows migration into and out of Puerto Rico.

Figure 3: Island-Mainland Migration of Puerto Ricans by Largest Receiving Areas: 2006-2016



Source: Authors' estimates using 2006-2016 ACS and PRCS data in the IPUMS.

Notes: These estimates only include those who self-identified as Puerto Rican based on the Hispanic ethnicity question. Appropriate sampling weights are employed. These flows account for migration between Puerto Rico and the mainland; they do not include interstate nor international migration. Because these are aggregated over the timeframe, people who moved back and forth between the island and mainland are counted more than once.

At least three striking features can be observed. First, Puerto Rico represented the largest receiving area of island-mainland Puerto Rican migrants between 2006 and 2016; more migrants moved from the states to the island than from the island into any single state during La Crisis Boricua (see MDR (2017a) for more details). Second, more than twice as many Puerto Ricans left the island than those who arrived. As such, on a net basis, Florida represented the largest receiving area of Puerto Rican migrants, a position the state has maintained post-Maria (e.g., Hinojosa, Román, and Meléndez et al. 2018; MDR 2019). Third, while Texas ranked fourth (behind Florida, Pennsylvania, and New York) among the states with respect to incoming migrants from the island, it ranked second (after Florida) when considering *net* migration between the island and mainland from 2006 to 2016. Because post-Maria migration estimates point to destination patterns similar to those among pre-Maria migrants, despite its newness as a destination area, Texas is likely one of the key states impacted by the post-Maria migration.

Geographic Differences and Implications of the Characteristics of Incoming Migrants

What are the implications for the major receiving areas on the mainland? As we discuss in other work (MDR 2017a), the average characteristics of Puerto Ricans migrating stateside before Hurricane Maria as well as the reasons they were moving varied considerably depending on their stateside destination. To illustrate, Table 2 shows selected average socioeconomic and demographic characteristics of recent Puerto Rican migrants between the ages of 25 and 64 in the seven largest receiving states between 2006 and 2016.¹⁰ For comparison, we also provide these characteristics for Puerto Ricans on the island.

Of the states shown, recent migrants in Texas fared the best between 2006 and 2016 with respect to residing above the poverty line; 13.9 percent of the new Puerto Rican adults in Texas were impoverished, which was less than half of the next lowest poverty rate (32.0 percent, in Florida), and a third of the poverty rate among island residents (41.0 percent). The recent migrants who fared the worst in this regard (even more so than Puerto Ricans who did not leave the island) tended to be those who settled in traditional receiving areas. Nearly six out of ten new migrants of prime working age in Pennsylvania, New York, Massachusetts, and Connecticut lived below the poverty line between 2006 and 2016, compared to four in ten of adults in Puerto Rico.

Between 2006 and 2016, less than one-third (30 percent) of those in Massachusetts and Connecticut were employed, compared to half in Florida and New Jersey, and nearly three-quarters (72.7 percent) in Texas.

It is not surprising that these differences conform to differences in other characteristics observed in Table 2. For example, in most cases recent migrants in the traditional settlement states had relatively low employment rates and schooling levels. Between 2006 and 2016, less than one-third (30 percent) of those in Massachusetts and Connecticut were employed, compared to half in Florida and New Jersey, and nearly three-quarters (72.7 percent) in Texas. Moreover, recent migrants in Massachusetts and Connecticut had less than 11 years of schooling on average and approximately 60 percent did not speak English well. Those in other traditional areas also had less than a high school diploma on average, which was below the average schooling (12.5 years) among Puerto Ricans in the same age range who lived on the island.¹¹ In contrast, recent Puerto Rican migrants in Texas and to a lesser extent in Florida had relatively high levels of education (14.4 years and 13.1 years, respectively) and English fluency rates.

Therefore, coupling the differences in the average characteristics of pre-Maria migrants with the similarities in the pre- and post-Maria migration destination areas, the integration process of Puerto Ricans moving into Florida and Texas post-Maria will likely differ from those moving into New York and other traditional

Table 2: Selected Average Characteristics of Recent Puerto Rican Island-to-Mainland Migrant Adults by Receiving Area, and of Puerto Ricans in Puerto Rico: 2006–2016

Characteristic	Florida	Penn.	New York	Texas	Mass.
Poverty rate	31.99%	59.08%	58.28%	13.91%	58.41%
Employed	51.60%	44.55%	38.33%	72.71%	30.31%
Education	13.090	11.871	11.848	14.408	10.778
Age	39.940	37.161	41.737	36.187	42.726
Limited English fluency	36.07%	46.21%	40.48%	18.05%	59.94%
N (unweighted)	693	137	183	186	156
N (weighted)	105,276	24,646	21,251	24,576	18,434
Characteristic	New Jersey	Conn.	Other States	Puerto Rico	
Poverty rate	37.96%	57.35%	37.63%	40.1%	
Employed	49.35%	29.52%	57.10%	51.1%	
Education	11.873	10.190	12.791	12.491	
Age	40.437	42.540	38.383	44.057	
Limited English fluency	38.32%	59.03%	34.17%	63.39%	
N (unweighted)	119	83	558	168,743	
N (weighted)	15,572	11,815	71,795	19,655,323	

Source: Authors' estimates using 2006-2016 ACS and PRCS data in the IPUMS.

Notes: These estimates only include adults between the ages of 25 and 64 who self-identified as Puerto Rican in the Hispanic ethnicity question. Appropriate sampling weights are employed. Recent migrants include those who migrated to the mainland within the past 12 months. The poverty rates exclude those living in group quarters. The unweighted N is the sample size and the weighted N is the estimated size of the population the sample reflects over the entire time frame, such that people are counted more than once in Puerto Rico.

Puerto Rican settlements. For example, as with pre-Maria migrants (MDR 2017a), those going to Texas might encounter greater issues related to work that matches their skills or finding housing close to their jobs (in light of their relatively high employment and education levels), whereas those moving into traditional areas might be more likely to encounter challenges in terms of transitioning into the labor force, returning to school, or becoming fluent in English (given their relatively low employment rates, schooling levels, and English-language proficiency).

A More Detailed Analysis of Poverty Rates. Differences in employment/population ratios, educational attainment, English fluency, and other characteristics among Puerto Ricans partly explain geographic variations in the incidence of poverty across states and between the mainland and island. At the same time, we know from our previous work that observable characteristics do not fully explain these differences (e.g., MDR 2017a), raising questions about their integration and near- and long-term socioeconomic outcomes in their new communities. For more insight, we next present the role that such characteristics play in the interstate differences in poverty rates among the newly settled Puerto Rican migrants on the mainland, with a specific breakdown for the role of education (in light of the stark contrast in average schooling levels across the receiving areas) versus other characteristics. For this analysis, we use U.S.-born non-Hispanic whites as the comparison group, as their poverty rates reflect basic structural and economic conditions on the mainland.

In particular, following the Oaxaca-type decomposition method (Oaxaca, 1973), we estimate the following probit regression models for non-Hispanic whites between the ages of 25 and 64 to obtain their structure of the incidence of poverty, first related to education and then accounting for additional characteristics:

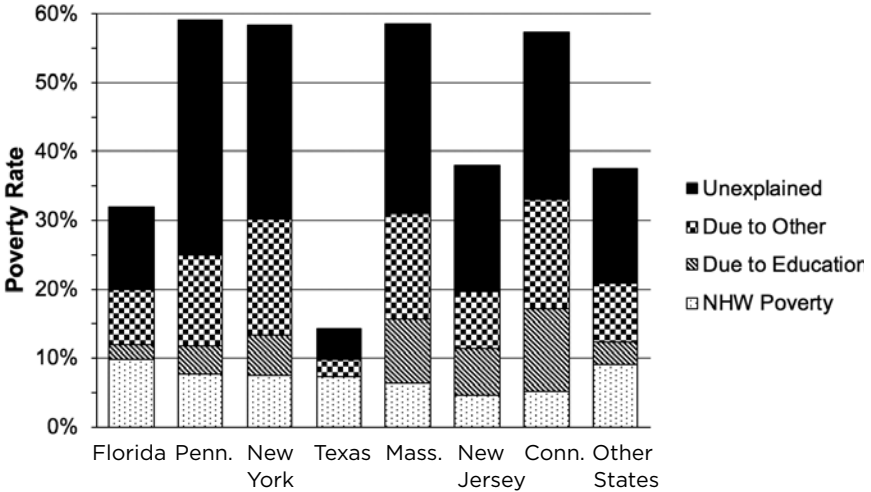
(1) *Resides in Poverty* = $f(\text{Education})$, and

(2) *Resides in Poverty* = $f(\text{Education}, \text{Other Human Capital}, \text{Employment}, \text{Demographic}, \text{Time})$,

where the dependent variable *Resides in Poverty* equals one for individuals residing below the poverty line and equals zero otherwise. In Equation (2), the vector *Other Human Capital* includes characteristics typically associated with the likelihood of being impoverished in the literature, including age (as a proxy for experience), age2 (to account for nonlinear effects of age on socioeconomic outcomes), and limited English-language fluency. *Employment* is a binary variable equal to one for individuals who were employed (and equals zero otherwise),¹² while the vector *Demographic* includes the demographic characteristics of gender, family structure (marital status (including married and spouse present; married and spouse absent; single, never married; and divorced, widowed, and separated) plus the number of children at home), and residence outside of a metropolitan area. Finally, *Time* includes a set of binary variables indicating the year of the survey to account for changes in structural conditions that changed over the duration of the timeframe analyzed.¹³

We then apply these probit regression estimates to residents in each state to impute their likelihood of being impoverished, given their education levels and other

Figure 4: Total and Decomposed Poverty Rates of Recent Puerto Rican Migrants versus U.S.-Born Non-Hispanic Whites by Major Receiving Area on the Mainland: 2006-2016



Source: Authors' estimates using 2006-2016 ACS and PRCS data in the IPUMS.

Notes: These estimates only include adults between the ages of 25 and 64 who were not residing in group quarters. Puerto Ricans only include those who self-identified as such in the Hispanic ethnicity question. Appropriate sampling weights are employed. The total height of the combined rectangles equals the total poverty rate of recent Puerto Rican migrants from the island in the area. Adding together the "Unexplained," "Due to Other," and "Due to Education" poverty-rate gaps equals the total gap in poverty rates between recent Puerto Rican migrants and U.S.-born non-Hispanic whites (NHWs) on the mainland in each area. The "Due to Education" gap in Texas is not visible because it is essentially zero (-0.3 percentage points). Details can be obtained from the authors. The unweighted (weighted) sample sizes of recent Puerto Rican migrants were 675 (representing 103,702 people) in Florida; 123 (23,692) in Pennsylvania; 173 (20,394) in New York; 165 (22,807) in Texas; 151 (18,058) in Massachusetts; 116 (15,262) in New Jersey; and 83 (11,815) in Connecticut.

socioeconomic and demographic characteristics. Based on Equation (1), the difference between these predicted outcomes for recent Puerto Rican migrants and U.S.-born non-Hispanic whites yields the Puerto Rican/non-Hispanic-white poverty-rate differential explained by differences in their educational attainment. Comparing the results from Equations (1) and (2), we can estimate how much the differences in other characteristics between Puerto Ricans and non-Hispanic whites further contribute to their respective poverty rates. The remainder of the differential reflects the portion that these observable characteristics do not explain. For ease of interpretation, we present the results from this decomposition analysis in Figure 4 for recent Puerto Rican migrants in the largest receiving states (also see Note 13).

Consistent with our previous work covering a shorter time frame (MDR 2017a), the poverty rates of recent Puerto Rican migrants in all areas between 2006 and 2016 were considerably higher than those of U.S.-born non-Hispanic whites, with the largest differences occurring in Pennsylvania (59.1 percent versus 7.7 percent, or 54.1 percentage points), Massachusetts and Connecticut (over 52 percentage points), and New York (50.8 percentage points); the smallest ones occurred in Florida (22.1 percentage points) and particularly in Texas (6.6 percentage points). Differences in education and other observable characteristics between recent Puerto Rican migrants and non-Hispanic whites explain considerable portions of these poverty-rate differentials (shown by the segments of “Due to Education” and “Due to Other”); nevertheless, Texas aside, the unexplained gaps remain in the double digits.

Taking the case of Florida, for example, Figure 4 shows that recent Puerto Ricans migrants had an average poverty rate of 32.0 percent between 2006 and 2016, which tripled the 9.9-percent poverty rate among U.S.-born non-Hispanic white adults. Of the 22.1-percentage-point disparity between the two groups, differences in education accounted for a modest 2.0 percentage points, while other observable characteristics accounted for an additional 7.9 percentage points. This leaves an unexplained poverty-rate gap of 12.2 percentage points (the solid shaded portion).

The relative unexplained poverty rate was highest among recent Puerto Rican migrants in Pennsylvania (34.2 percentage points), as gaps in their average education levels and other traits combined only accounted for about a third of the total differential of 51.4 percentage points (4.0 percentage points from schooling, and 13.2 percentage points from other characteristics). The unexplained poverty-rate differentials were also considerable in New York and Massachusetts (around 28 percentage points) as well as Connecticut (over 24 percentage points). In contrast, recent Puerto Ricans in Texas fared the best (4.4 percentage points) in terms of unexplained poverty-rate differentials with U.S.-born non-Hispanic whites, but even in that state, education gaps did not play a role (since their schooling levels were relatively high), while other observable characteristics only explained a third (2.2 percentage points) of the total impoverishment gap. The magnitude of the unexplained poverty-rate differential is admittedly small in Texas compared to such differentials in other states, but it remains non-trivial. This result may stem from the relatively large incidence of “overeducation” we previously identified for Puerto Ricans in Texas (MDR 2017a), in which their earnings were below those of non-Hispanic whites with similar skills.

In all, these differences indicate that Puerto Ricans moving into the traditional receiving areas encounter integration and socioeconomic challenges different from those in new destinations. Past socioeconomic disparities, including those historically transmitted through the labor market and other forms of institutional discrimination (e.g., Veléz 2015; Burgos and Rivera 2012; Vélez and Burgos 2010; Enchautegui 1992; Rodríguez 1992; Rodríguez 1989), may continue to be perpetuated among post-Maria migrants in these communities. Indeed, recently Diversitydatakids.org (2016) reported that based on a series of neighborhood-level indicators related to education,

health/environment, and social and economic opportunities, Puerto Ricans living in the northeast, especially in traditional settlement areas (including in New York, Pennsylvania, and Massachusetts) have had the lowest access to such opportunities. Their opportunities were greater in Florida and particularly in Texas.

Therefore, social workers, community activists, and policymakers (including at the local level) should keep in mind the potentially different needs (such as employment assistance and school enrollment) to best facilitate the successful short-term integration and long-term socioeconomic outcomes of post-Maria migrants and their families. In the newer destination areas such as Texas, in which Puerto Rican migrants appear to be faring relatively well, but not as well as expected given their relatively high skill levels. It follows that assistance for new migrants might yield greater returns in such areas if efforts focus on disseminating information on employment opportunities best aligned to workers' skills or housing near their work.

Discussion and Concluding Remarks

With its 3.2 million American citizens in 2018, Puerto Rico has a larger population than 21 states as well as Washington, DC. Yet unlike states, Puerto Ricans on the island do not have voting representation in the U.S. Senate and House of Representatives, nor can they cast a vote in Presidential elections. Post-Maria, the Puerto Rican diaspora (already at a record level due to *La Crisis Boricua*) has intensified, and will likely have long-term effects on both the island and mainland well beyond the traditional Puerto Rican communities. These effects include continued demographic shift, an increased presence in areas beyond traditional Puerto Rican stateside communities, and a potential greater impact in local, state, and national elections.

Moreover, in light of the geographic differences in the socioeconomic and demographic characteristics of recent migrants from Puerto Rico, a "one size fits all" approach to assist these migrants with settling into their new stateside communities would presumably be less efficient than tailoring such assistance to meet their needs. Given the relative socioeconomic success of Puerto Ricans moving to Florida and especially to Texas *vis-à-vis* traditional destination areas, the migrants in these areas may be better served through assistance in finding employment matched to their skills or housing near their jobs. In contrast, given their high poverty rates as well as low average schooling levels, low rates of English proficiency, and low employment rates in traditional settlement areas, efforts might be better spent in assisting recent migrants with finding work, affordable housing, or opportunities to return to school.

In terms of impediments to alleviate the conditions on the island, without Hurricane Maria the island was already working through the implications of its \$123 billion in debt (\$74 billion in public debt and \$49 billion in unfunded pension obligations). Beyond lacking financial capital, Puerto Rico currently lacks the authority and autonomy to rebuild the island's economy and infrastructure due to PROMESA. As we have noted elsewhere (e.g., MDR 2017a), with PROMESA and the Oversight Board's charge (which is not accountable to Puerto Rico); the island's net popula-

tion loss (although not all of the out-migrants self-identify as Puerto Rican); a possible restructuring of the island's income taxes and minimum wages; the potential 12.5-percent intellectual property tax on mainland-owned companies in Puerto Rico; the slow rebuilding of the island's infrastructure; the overstretched healthcare sector; and the island's high sales tax,¹⁴ Hurricane Maria compounded the challenges Puerto Rico was encountering after more than a decade of *La Crisis Boricua*.

The island's demographic shift has been notable, particularly in terms of the shrinking and rapidly aging population due to massive outmigration and low fertility rates on island, which we expect has only been exacerbated by the aftermath of Maria. Beyond the continued population exodus, consequences in prolonging the humanitarian crisis include additional suffering, disease/illness (both physical and mental), and fatalities affecting millions of American citizens in Puerto Rico, especially when considering the island's medically underserved status. The longer the crisis takes to address, the longer will be the vicious cycle of net outmigration, demographic shift, and economic decline.

There are some potential glimmers of hope, however. One is that the rebuilding and aid should serve as an economic stimulus and conceivably slow the tide of net outmigration. In fact, in October 2018, FocusEconomics predicted positive economic growth on the island in fiscal year 2019, which would be its first positive growth since 2012. Another is that rebuilding the island's infrastructure provides opportunities to incorporate greater efficiencies and strategically target industries aligned with the island's competitive advantages, including its location and educated population. Moreover, Hurricane Maria has increased awareness about Puerto Rico's status and relationship with the mainland, which could result in support and action from Congress to help address Puerto Rico's chronic socioeconomic issues, such as its perennially weak labor market and high rates of impoverishment. This possibility is more likely now than in the past in light of the 5.6 million (and rising) Puerto Ricans on the mainland who have Congressional representation and a vote in Presidential elections.

ACKNOWLEDGEMENTS

We thank Edwin Meléndez, Héctor Cordero Guzmán, María Enchautegui, José Caraballo Cueto, Mario Marazzi-Santiago, Xavier Totti, the *CENTRO Journal* reviewers of this manuscript, and various participants at the 2017 Puerto Rican Studies Association Summit on Puerto Rico/Puerto Ricans; the April 2018 “Meet the Authors” at the Center for Puerto Rican Studies, Hunter College; and the American Society of Hispanic Economists’ panel discussions at the 2018 Allied Social Science Association annual meetings and the 2018 Western Economic Association annual meetings. All errors in fact or interpretation are our own.

NOTES

¹ The estimated 2,975 fatalities was based on a Puerto Rican government-commissioned report by George Washington University’s Milken Institute School of Public Health (2018). However, other widely circulated estimates placed the death toll considerably higher (e.g., Kishore et al. 2018).

² Our use of this term is not meant to suggest that the crisis was “made in Puerto Rico.” As we discuss in our book (MDR 2017a), Puerto Rico’s complicated relationship with the U.S., including U.S. policies that directly affect the island but are outside of the island’s control, set the stage for the crisis years, if not decades, before 2006.

³ We estimated a loss of 37,400 (28.5 percent) of manufacturing jobs between 2006 and 2014 (MDR 2017b). While we cannot tie all of these job losses to the expiration of Section 936, a considerable number would have been directly related. It should also be noted that these losses were in both labor-intensive and capital-intensive manufacturing jobs, although based on our estimates (MDR 2017b), less educated workers were seemingly disproportionately displaced.

⁴ The federal tax overhaul approved by Congress in December 2017 includes a 12.5-percent tax on intellectual property held in “foreign jurisdictions.” Despite its territorial status, Puerto Rico is considered to be “foreign” for tax purposes.

⁵ Previous estimates of Puerto Rico’s 2006 population placed it at 3.9 million; however, the U.S. Census Bureau downwardly revised this figure to 3.8 million in its intercensal estimates.

⁶ Unless otherwise noted, our estimates are based on the annual American Community Surveys (ACS) and the Puerto Rico Community Surveys (PRCS) in the Integrated Public Use Microdata Series (IPUMS), provided by Ruggles and associates (2018). Since 2006, these datasets have included an approximate one-percent sample of all residents in the 50 states, Washington, DC, and Puerto Rico on an annual basis. The 2017 IPUMS data were not available when this manuscript was written.

⁷ For example, in response to PROMESA, Nobel Laureate Joseph Stiglitz and Martin Guzman (2017) described Puerto Rico as “*de facto* an American colony” and the April 2017 *Harvard Law Review* (2017) stated that “PROMESA is much closer to legislation envisioned within a colonial relationship than a federal one; the Puerto Rican people certainly seem to see it as such...”

⁸ It is worth noting that the magnitude of the natural increase declined on an annual basis over the 12 years, such that between 2016 and 2017, it turned negative, with 1,065 fewer live births than deaths (28,267 versus 29,332), thus expediting the net population loss that year (U.S. Census Bureau 2017b).

⁹ As we note in other work (e.g., MDR 2017a), Florida started emerging as a major destination

area for Puerto Ricans in the 1970s, when migration patterns shifted due to the de-industrialization and relatively high cost-of-living in the traditional settlement areas (e.g., Delorme 2013; Silver 2010).

¹⁰ For a more detailed discussion of how recent Puerto Rican migrants compared to other Puerto Ricans on the mainland with respect to their geographic differences in socioeconomic and demographic characteristics, including birthplace, see MDR (e.g., 2017a).

¹¹ The relatively low education levels among recent Puerto Rican migrants in traditional settlement areas *vis-à-vis* Puerto Ricans on the island fits with our previous work showing that highly educated migrants were not disproportionately represented in the net migration flow (e.g., MDR 2017a, 2017b). Further suggestive evidence can be found in the island's rising real Gross Domestic Product per capita and real Gross National Product per capita between 2010 and 2016 (Jansen 2018), which is consistent with the case that more productive workers were less likely to migrate on average. The issue of how the skill distribution of island-mainland migrants has affected real output produced by workers remaining on the island goes outside of the scope of this manuscript, but it serves as a worthy topic for future exploration.

¹² We are aware that employment itself is a socioeconomic outcome (as is labor force participation). While this issue goes beyond the scope of our study, future scholars should more fully explore the overlapping factors between employment and the incidence of poverty among Puerto Rican migrants living stateside, taking into account whether they left the island for work-related purposes or other reasons.

¹³ The empirical results from estimating the probit regression models (which can be obtained from the authors) conform to those reported in the literature. For example, education, age, English-language fluency, being employed, being male, living with a spouse, the absence of children, and residing in metropolitan areas each significantly related to a lower likelihood of residing below the poverty line, *ceteris paribus*. The coefficients on each of the regressors are statistically significant at the one-percent level except for age; however, the joint effect of age and age2 is statistically significant at the one-percent level. The total sample size of U.S.-born non-Hispanic whites used in this analysis was 11,622,219. The sample sizes of recent Puerto Rican migrants in each state are reported in the footnote to Figure 4.

¹⁴ The relatively high cost of living on the island has also been attributed to the 1920 Jones Act (also known as the Merchant Marine Act), as transported goods between the island and mainland must be shipped via U.S.-owned, U.S.-built, and U.S.-crewed carriers.

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