



November 16, 2017

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Chairman  
Puerto Rico Fiscal Oversight and Management Board  
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268 Ave. Muñoz Rivera  
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**SUBJECT: POPULATION PROJECTIONS**

Dear Mr. Carrión and Mrs. Jaresko:

Greetings from the Puerto Rico Institute of Statistics (PRIS). Thank you for the opportunity to provide you with a briefing on the outlook for Puerto Rico's population projections.

**I) Introduction**

PRIS is an independent public entity of the Government of Puerto Rico, with fiscal and administrative autonomy that allows it to operate as a private entity, but with authority over the statistical policy of Puerto Rico public entities. It was created only just about 10 years ago, out of a concern for the quality of Puerto Rico data and statistics, and with the mission of coordinating Puerto Rico's statistical and data gathering systems, so as to ensure universal and timely access to comprehensive and reliable statistics on Puerto Rico.

While we have made important contributions during these past 10 years, our work has been hampered by several factors. At the end of the day, even with all the contributions we have made,

there are still significant improvements that need to be made to the methodologies used by the Government to produce key economic and financial statistics. We look forward to working with the Fiscal Oversight and Management Board to ensure these improvements take place.

## **II) Population Projections**

This summer, the U.S. Census Bureau updated its population projections for Puerto Rico. The revised population projections reduced considerably the path of the population of Puerto Rico over the next 4 decades. By 2025, the U.S. Census Bureau expects Puerto Rico's population to dip under 3 million for the first time since 1975. By 2050, the Bureau expects Puerto Rico's population to be slightly above 2 million for the first time since before 1950. (*See the top-left panel of the attached handout*).

In the top-right panel, these projections are expressed in Annual Rates of Growth. For the most part, Puerto Rico has experienced positive population growth rates. Since 2005, however, the rates have turned negative, on account of declining birth rates and increasing outward migration.

Between 2017 and 2026, the projections call for the population to decline by an average 1.4% annually. In contrast, the population assumptions of the current certified Commonwealth Fiscal Plan are based on a reduction of 0.2% annually during this time period.

As such, we strongly urge the Fiscal Oversight and Management Board to examine carefully the expected population dynamics, so that any future Fiscal Plan adequately reflects this new reality.

## **III) Migration Wave**

These projections are the result of a migration wave that has affected Puerto Rico for over 10 years. In the middle left panel, we have included the net migration assumed in the Census Bureau's population projections. Under the revised projections, the migration wave is expected to have largely ended by 2025, with net migration hovering around 20 thousand annually for the rest of the forecast horizon.

In absolute terms, this migration wave is the largest recorded in history, surpassing the Great Migration of Puerto Ricans to the United States in the 1950s, when about half a million people on net moved to communities stateside.

There is little doubt that the devastation caused by Hurricanes Irma and María on Puerto Rico will have an effect on the existing migration wave. There is broad consensus that the devastation will increase the wave or at the very least extend its lifetime. While we agree with this consensus, we believe it is way too premature to speculate on the magnitude of these effects.

That said, the devastation caused by Hurricanes Irma and María will surely impact people's travel and migration decisions with respect to Puerto Rico for many more months to come, if not years.

Every day people are making these decisions based on the pace of recovery vis-à-vis the opportunities afforded elsewhere.

When we speculate about this impact with little or no scientific evidence, we may inadvertently send a message that motivates people to migrate that might not have done so otherwise. Speculation about how many people will leave Puerto Rico on account of the Hurricanes can also create an environment of *fait accompli* where no matter how quickly the recovery takes place, Puerto Rico will lose or already has lost a certain number of residents or students, amongst others.

More importantly, the data that might allow us to have a sense of the effect of the Hurricanes on net migration has yet to be published. In specific, we are referring to the Air Passenger Data published by the U.S. Bureau of Transportation Statistics (BTS). During the month of January 2018, the BTS will publish data on domestic flights for the month of October, which will be our first glimpse of the Hurricane's impact on the net movement of people out of Puerto Rico.

#### **IV) Air Passenger Data**

In calendar year 2016, there were 84 thousand more air passengers flying out of Puerto Rico than passengers flying into Puerto Rico, according to the BTS. This represents more than 2% of the population of Puerto Rico, which during a single year flew out of Puerto Rico on net.

In fact, over the last three calendar years (2014, 2015 and 2016), Puerto Rico has registered a net passenger movement out of Puerto Rico of over 80 thousand people each year, which represents a significant acceleration of the migration wave, with respect to previous years. See middle-right panel.

So, suppose you believe that the Hurricanes will cause an additional 100 thousand people to move away from Puerto Rico. Assuming this number is expressed in net terms (not absolute terms), then it is equivalent to about an additional year or two of the net migration that Puerto Rico has experienced over the past three years.

If, on the other hand, you believe that the Hurricanes will cause 15% of the population to move away from Puerto Rico, and assuming this is expressed in net terms as well, then an additional 6 to 9 years of the net migration that Puerto Rico has experienced over the past three years would be necessary. Alternatively, it could occur in a shorter time span, but that would require the migration wave to accelerate even further.

If anything, with the reduced number of flights that has occurred since María, the migration wave may have decelerated slightly in the near term. Once airport operations return to normal, we expect the migration wave to return to its elevated pace, and to accelerate a bit further on account of the Hurricanes. But, the magnitude of this acceleration remains unknown until additional data becomes available.

I want to take this opportunity to emphasize the importance of analyzing this type of data on a net basis, not on an absolute basis. For instance, according to the BTS, about one million people flew

out of Puerto Rico on an absolute basis during October, November and December of last year, 2016. Absent Maria, we would have expected a similar million people to fly out of Puerto Rico during October, November and December of the present year. Most of these folks would not necessarily have been migrating away from Puerto Rico. However, in the post-Maria environment, some of the press coverage has suggested that these folks are in fact migrating away from Puerto Rico. While some of these folks might certainly choose to migrate away on account of the Hurricanes, we believe it is still too early to tell.

The bottom-left panel shows the release schedule for the Air Traffic Data of the U.S. Bureau of Transportation Statistics.

## **V) Twin reductions: Population and Government Workforce**

Finally, while the population of Puerto Rico has been falling for more than a decade, it is worth noting that the Government's workforce has also declined. The bottom-right panel includes a chart which plots the number of State and Municipal Government workers, as a percent of the population. This percent has gradually declined from 8% in the 1990s to just 6% in the most recent years.

In order for this percent to decline, it must be the case that the number of State and Municipal Government workers has decreased at a faster pace than the population reduction. This is an observation that the Board may want to consider when it comes to adjusting the Commonwealth Fiscal Plan on account of increased migration.

## **VI) Conclusion**

To conclude, we want to take this opportunity to reiterate to the Fiscal Oversight and Management Board that the Puerto Rico Institute of Statistics stands ready to work with you to ensure you have all of the information you need to fulfill your mandate under the Puerto Rico Oversight, Management and Economic Stabilization Act (PROMESA).

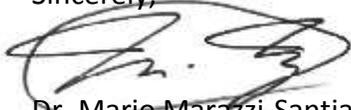
To this end, PRIS has been planning to begin preparing annual population projections this year. While the U.S. Census Bureau does a very good job with its population projections, they will be updating these forecasts only once every 4 years. Given Puerto Rico's rapidly changing population dynamics, we believe it has come time for Puerto Rico to have high-quality annually-updated population projections at the municipal level. We expect to publish our first projections in the spring of 2018, and we are hopeful they will be very useful to the Board when the Commonwealth's Fiscal Plans get updated in future years.

In the meantime, we also believe it is important for Puerto Rico to develop a data source on air flights that is more timely and accessible, so that in future Hurricanes we can have faster information to gauge their effects on net migration. This brand new project would require the collection of new information from a series of stakeholders in the transportation and logistics industries in Puerto Rico. The goal would be to publish data that is updated on a daily basis on each

flight (and boat) with information such as the number of passengers transported, amongst many others. With the support of the Fiscal Oversight and Management Board, PRIS can execute this project without requiring additional budgetary resources.

For further information, I may be reached by phone at (787) 993-3336 or by email at [mario.marazzi@estadisticas.pr](mailto:mario.marazzi@estadisticas.pr).

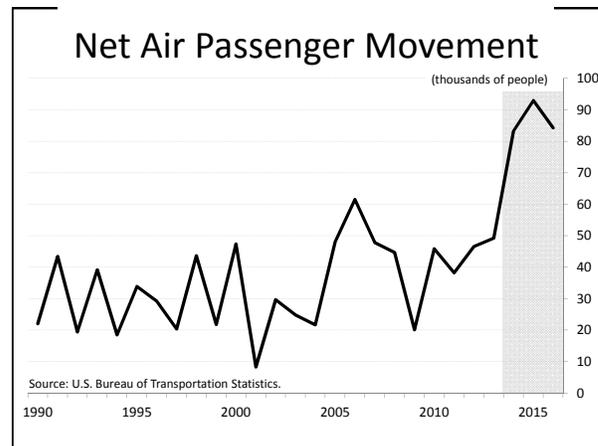
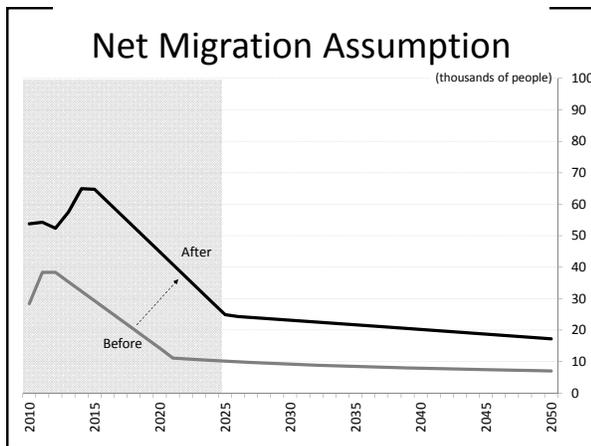
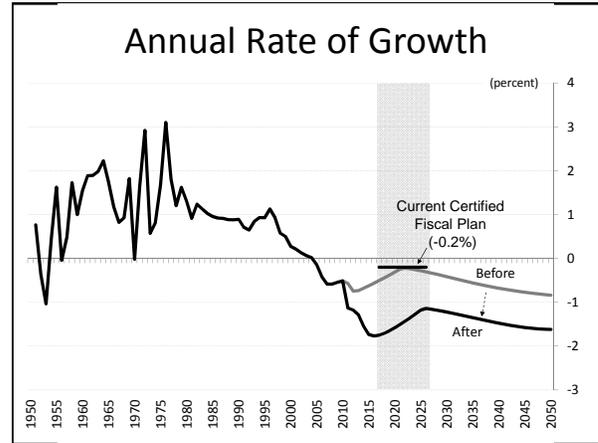
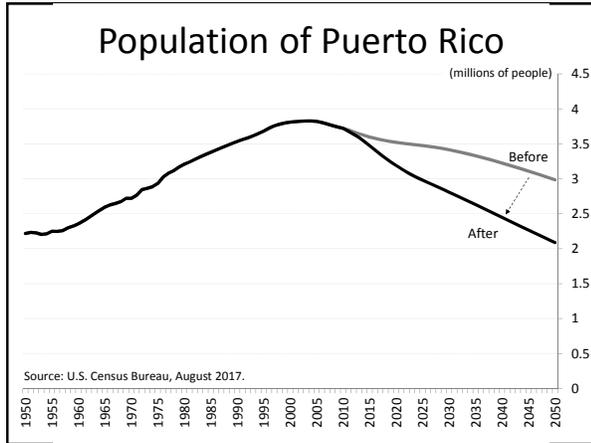
Sincerely,

A handwritten signature in black ink, appearing to read 'Dr. M. Marazzi-Santiago', written over a circular stamp or seal.

Dr. Mario Marazzi-Santiago  
Executive Director



## Revised Population Projections (pre-María)



### Release Schedule – Air Passenger Traffic

Date of Publication	Domestic Flights	All Flights
December 14, 2017	September 2017	June 2017
Mid-January 2018	October 2017	July 2017
Mid-February 2018	November 2017	August 2017
Mid-March 2018	December 2017	September 2017
Mid-April 2018	January 2018	October 2017
Mid-May 2018	February 2018	November 2017
Mid-June 2018	March 2018	December 2017

