

# Impact of Public Housing Prevalence Bias on Medicare Compensation for Physicians in Puerto Rico

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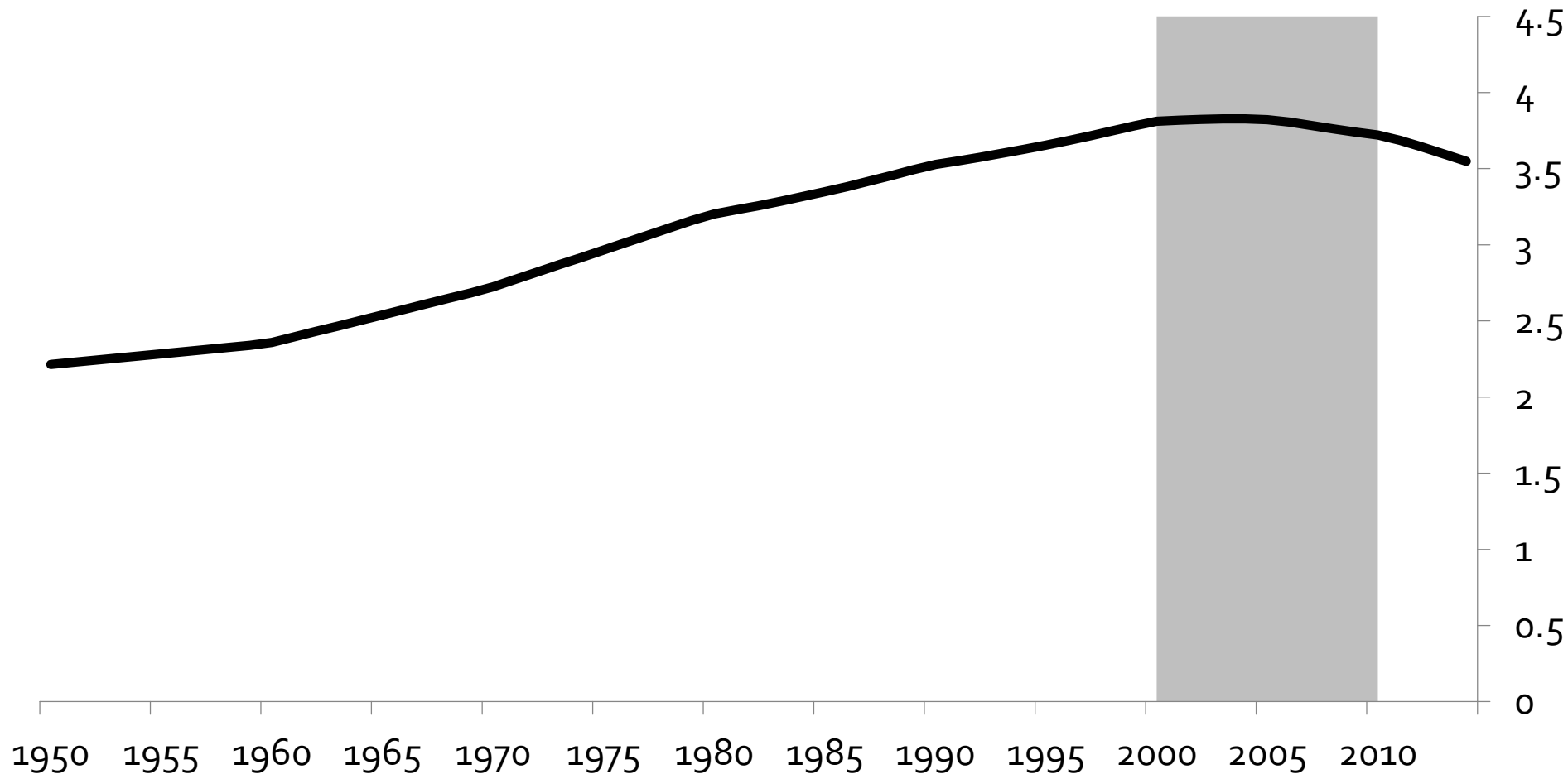


Instituto de Estadísticas  
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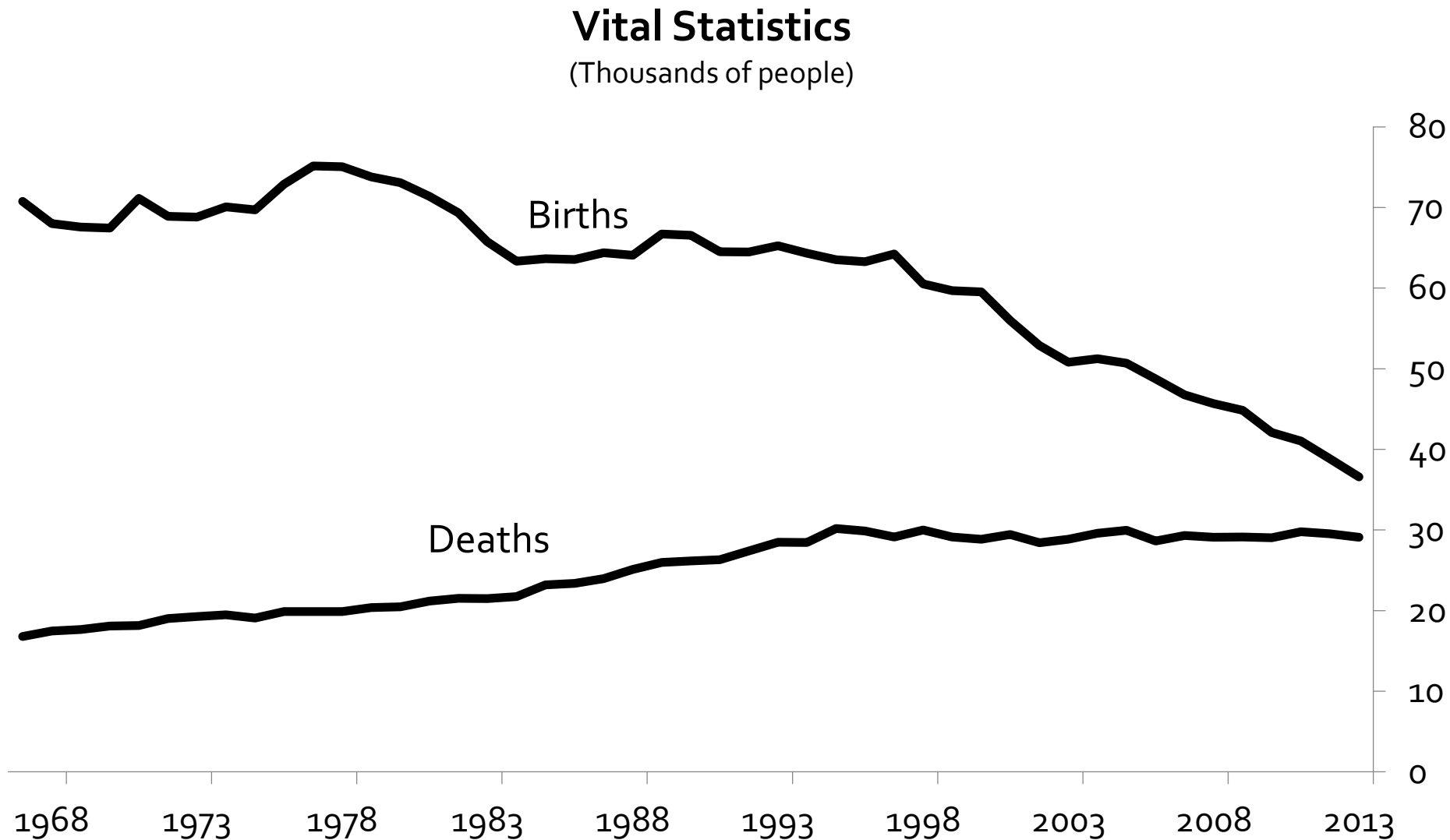
# Demographic Context

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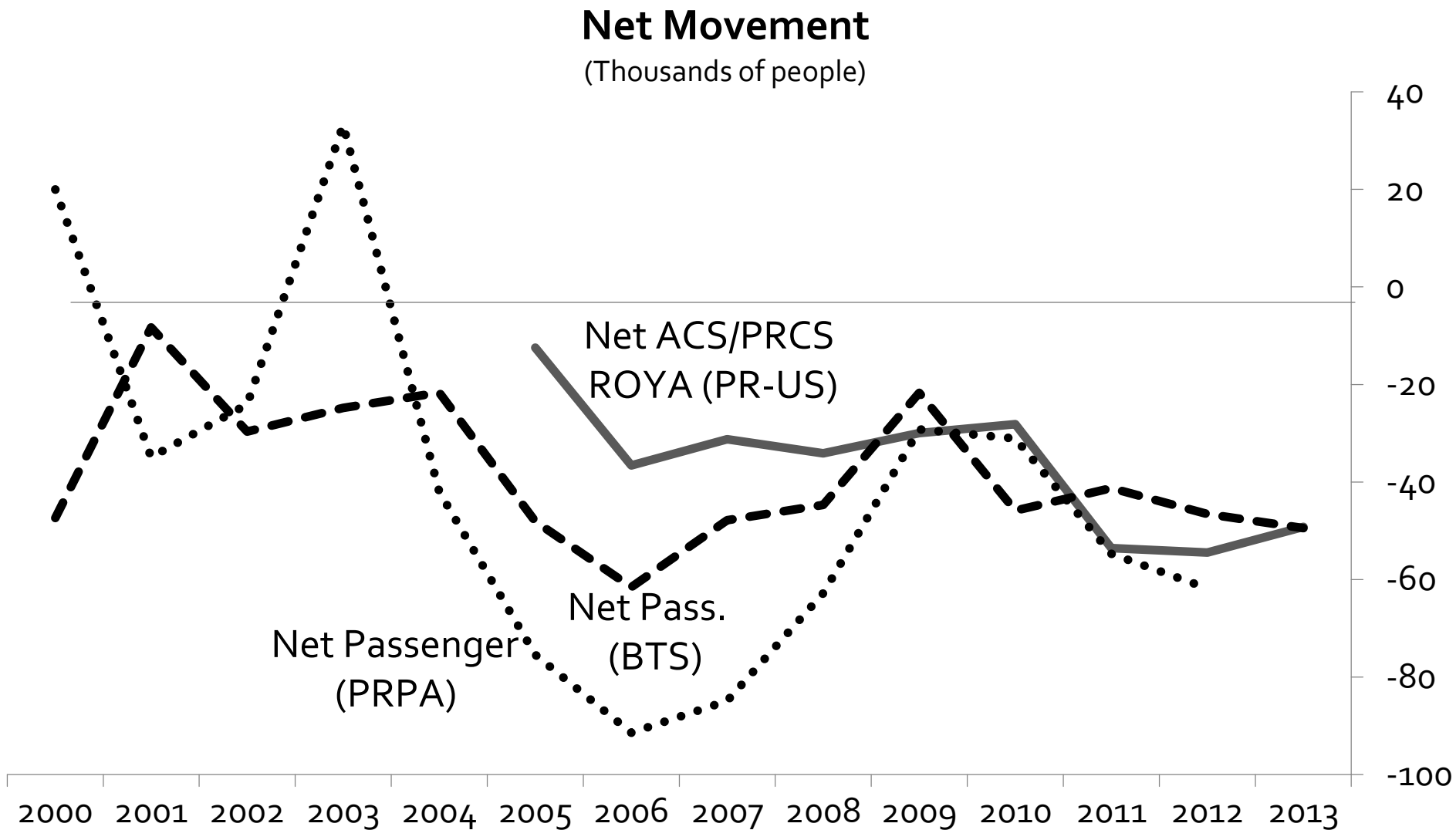
**Population of Puerto Rico**  
(Millions of people)



# Demographic Context

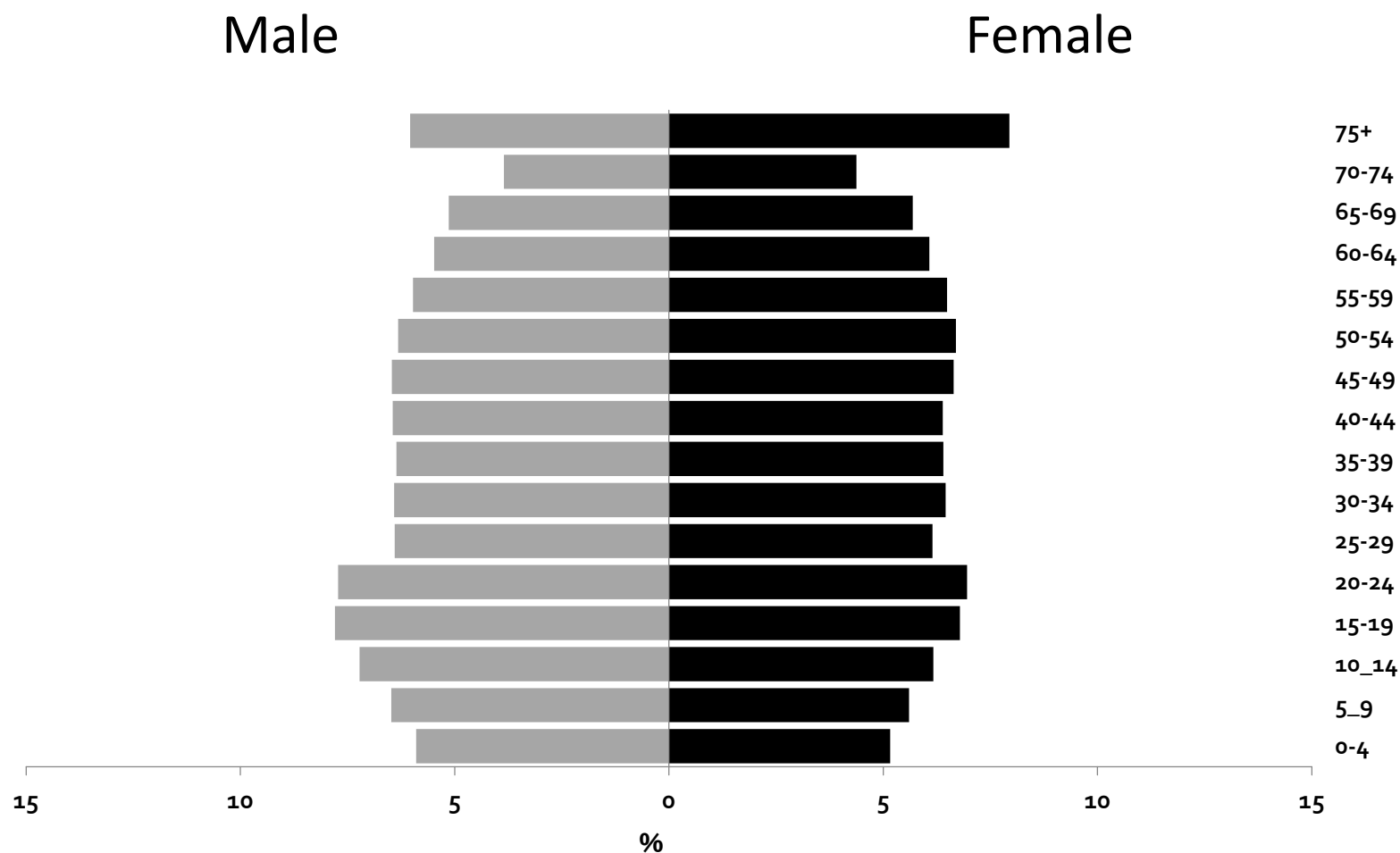


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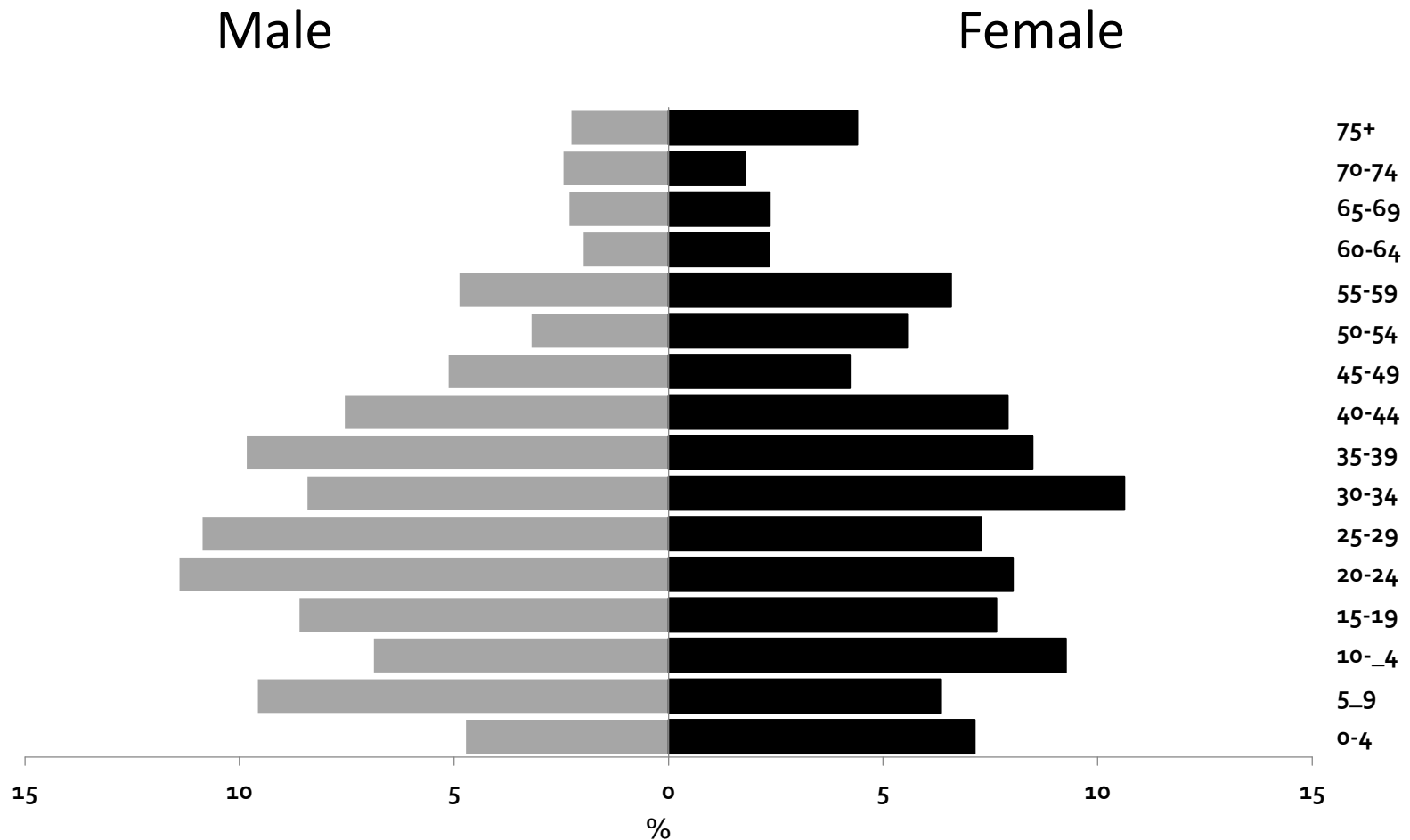
# Population Pyramid

## (Total Population, Puerto Rico, 2013)



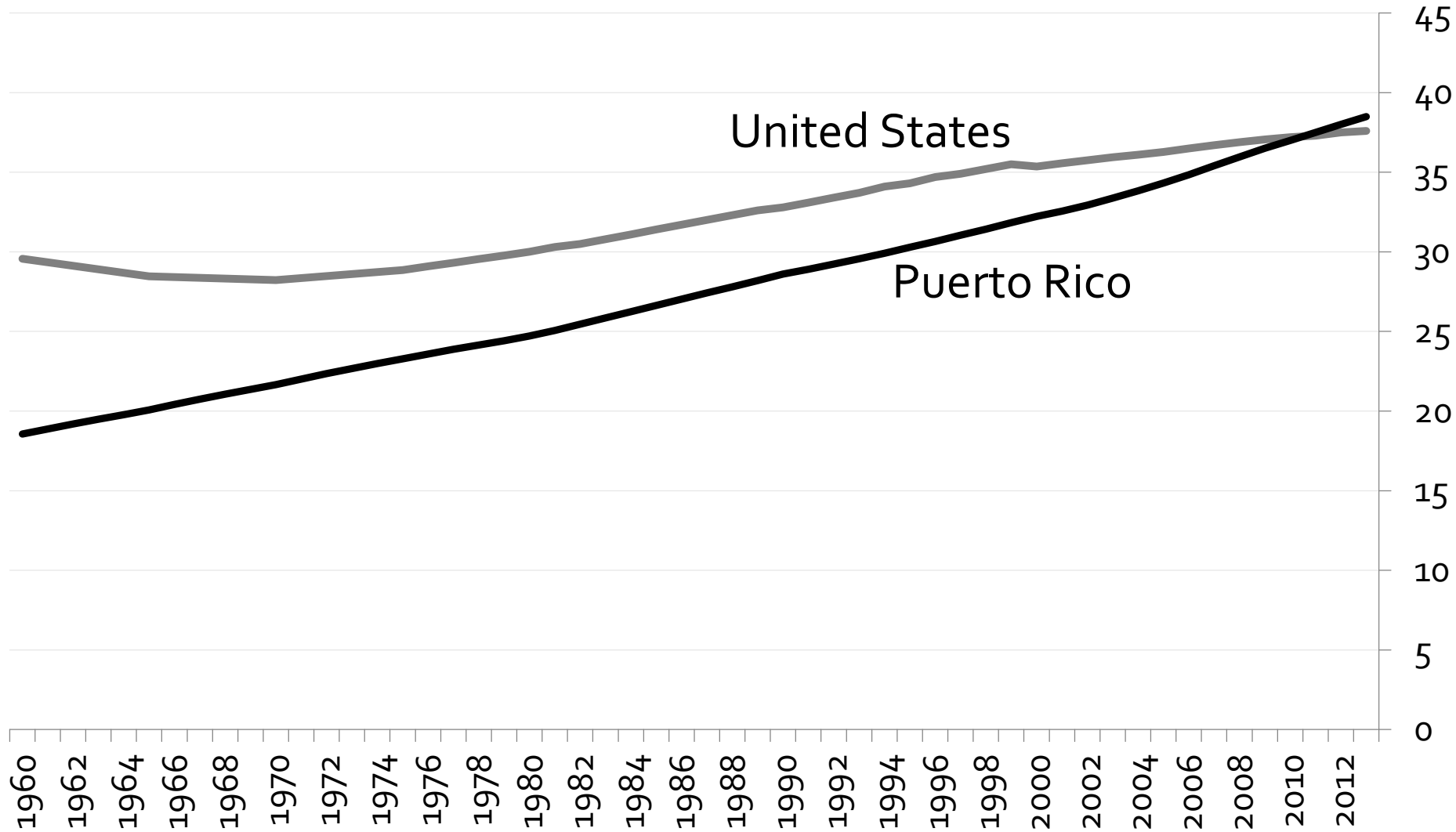
# Population Pyramid

## (Migrants from Puerto Rico to U.S., 2013)



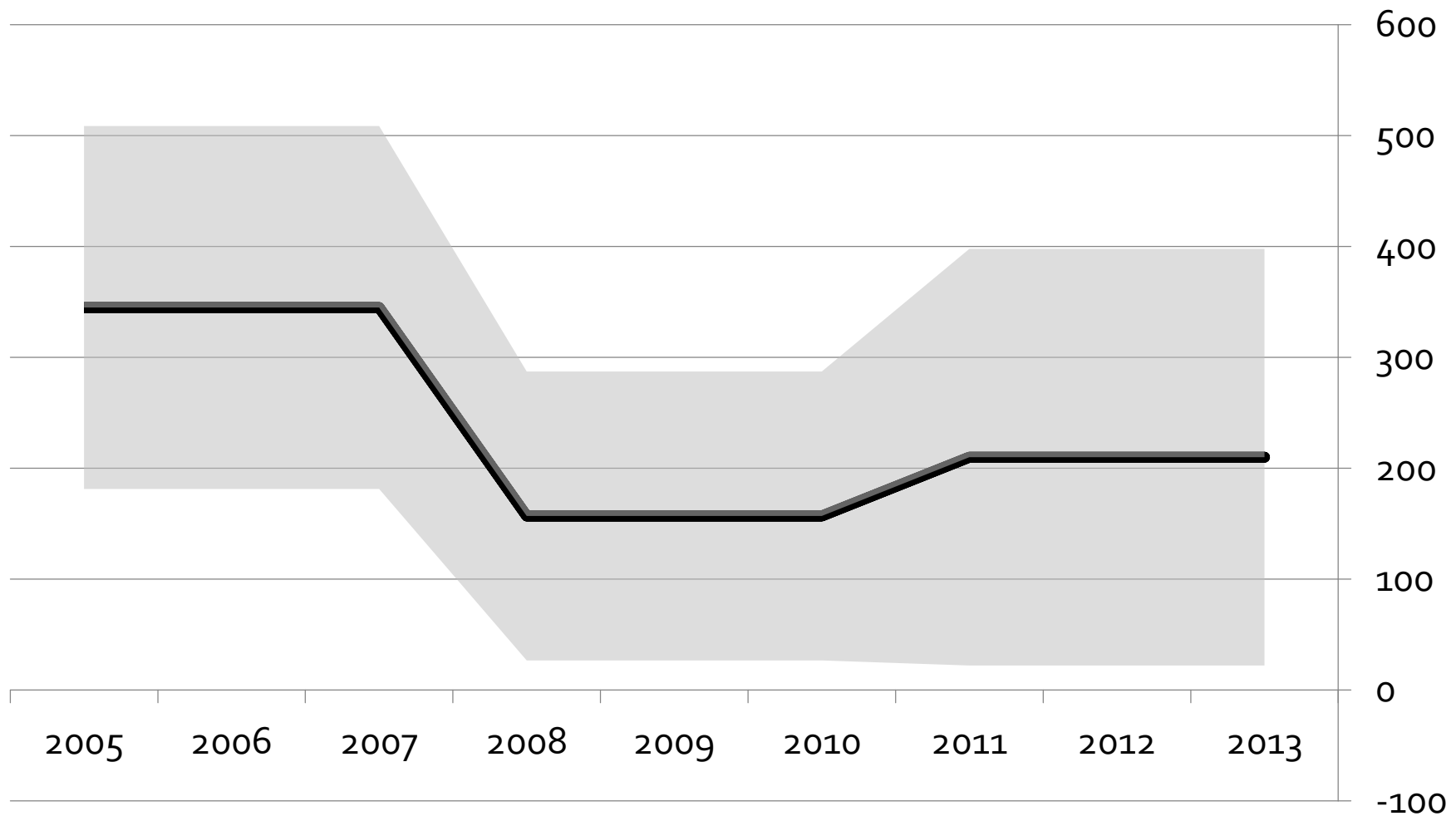
# Population Aging

(median age in years)



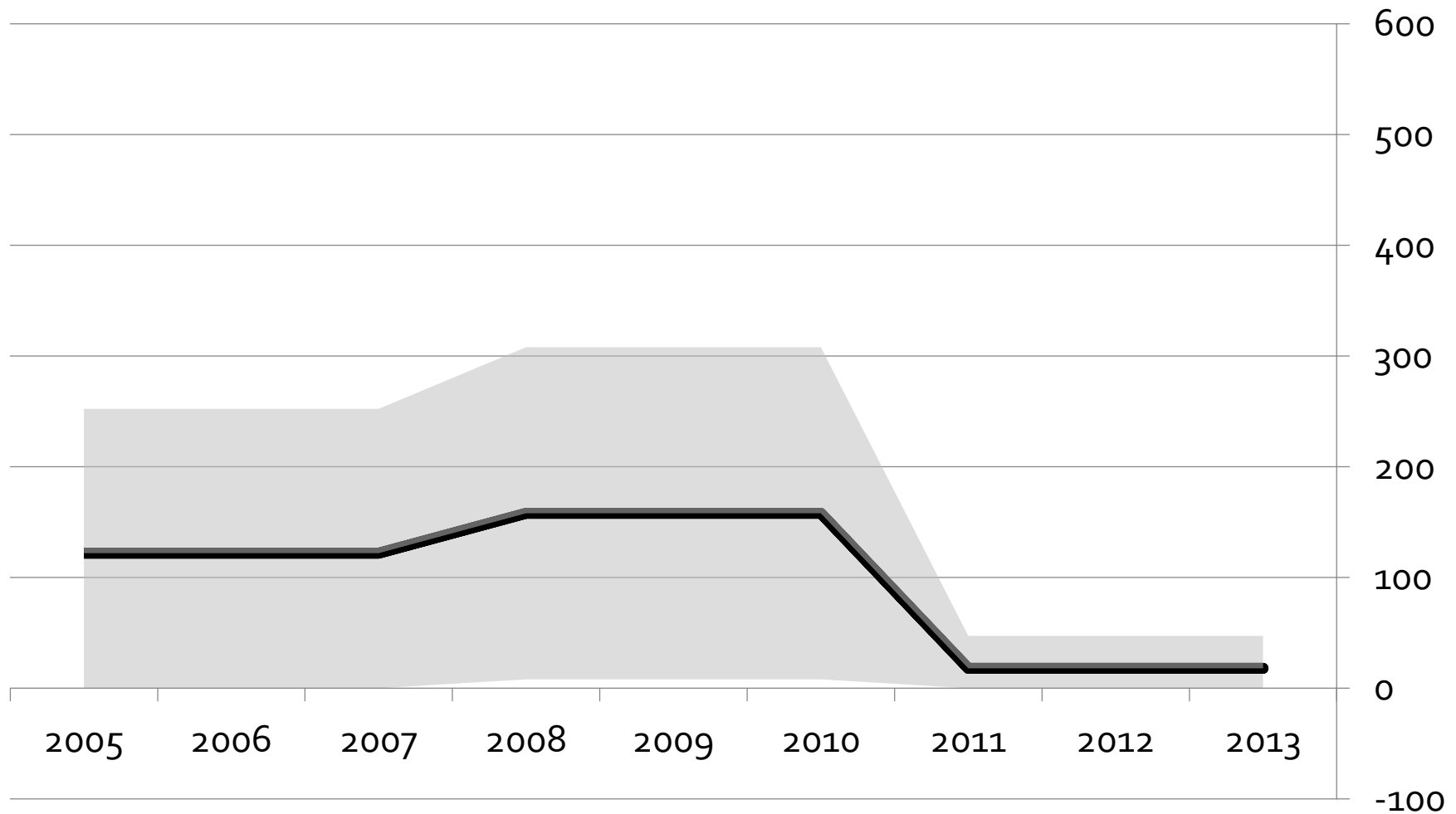


# Number of doctors that emigrate to the United States



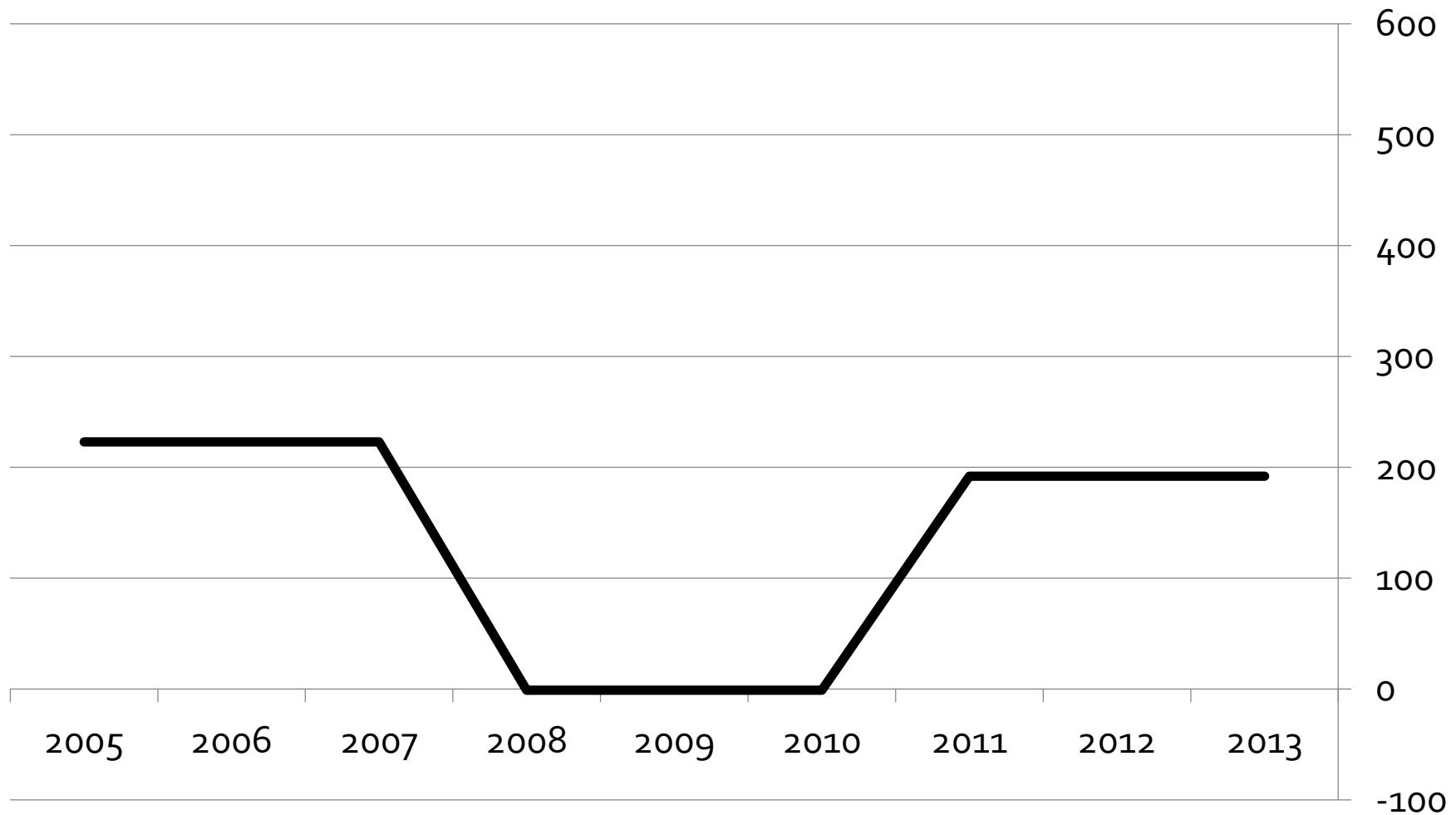
Source: American Community Survey, Public Use Microdata Sample (PUMS), 3-year estimates, U.S. Census Bureau.

# Number of doctors that immigrate from the United States



Source: Puerto Rico Community Survey, Public Use Microdata Sample (PUMS), 3-year estimates, U.S. Census Bureau.

# Number of doctors that migrate to the United States, on NET



Source: American Community Survey, Public Use Microdata Sample (PUMS), 3-year estimates, U.S. Census Bureau.

# Over the 9-year period (2005-13)

- It averages to 138 doctors on net every year; or 1,242 doctors during the whole 9-year period.
- According to the *Puerto Rico Community Survey*, there were 10,445 doctors in Puerto Rico during the latest 3-year period (2011-13).
- Therefore, the net migration of doctors over the 9-year period is equivalent to **12% of all doctors living in Puerto Rico.**

# One Reason Doctors Might Leave

Impact of Public Housing Prevalence Bias on Medicare  
Compensation for Physicians in Puerto Rico

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# Medicare Physician Fee Schedule

- Doctors are paid for treating Medicare patients according to the Physician Fee Schedule, the components of which are reviewed every 3 years.
- The Physician Fee Schedule compensates doctors based on 2 factors: the complexity of the procedure done to the patient and an estimated local cost of operation (GPCIs).

# Geographic Practice Cost Indexes (GPCIs)

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- GPCIs are calculated in different ways using varying data sources.
- GPCI data sources have changed over time.
- **Puerto Rico has the lowest GPCIs among all 89 payment localities.**

# Sources of data for Geographic Practice Cost Indexes (GPCIs)

GPCI components	Source of data
<b>Physician Work (PW) GPCI</b>	Occupational Employment Statistics – BLS/DTRH
<b>Practice Expense (PE) GPCI</b>	
Employee Wage	Occupational Employment Statistics – BLS/DTRH
Purchased Services	Occupational Employment Statistics – BLS/DTRH
Office Rent	American/P.R. Community Surveys – U.S. Census Bureau
Equipment, Supplies, etc.	Equals 1.00 for all counties
<b>Malpractice Premium (MP) GPCI</b>	Malpractice Premiums– State Insurance Commissioner Data



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# Malpractice Premium GPCI

- In 2012-13, the Puerto Rico Institute of Statistics requested the Puerto Rico State Insurance Commissioner provide up-to-date malpractice premium data to improve the accuracy of the Malpractice Premium (MP) GPCI.

⇒ the MP GPCI of Puerto Rico increased 18%.

# Sources of data for Geographic Practice Cost Indexes (GPCIs)

GPCI components	Source of data
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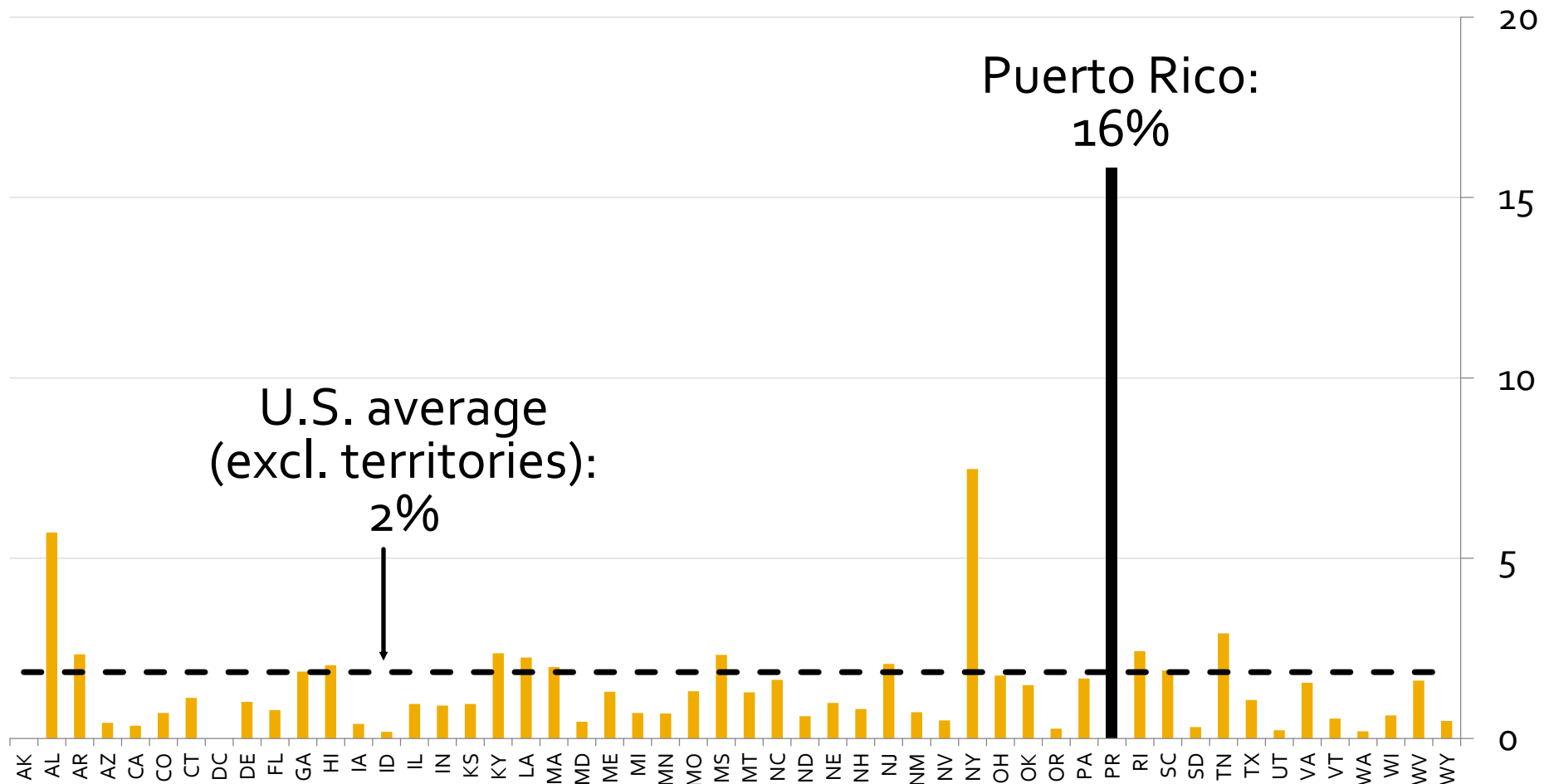
# Office Rent component of PE GPCI

- The Median Gross Rent of a 2 bedroom apartment (including energy costs) from the American/Puerto Rico Community Surveys in each location is used as a proxy for the rent of a doctor's office.
- To the extent the error of this proxy is approximately constant over locations, then the use of this proxy might make some sense.

# Public Housing Prevalence Bias

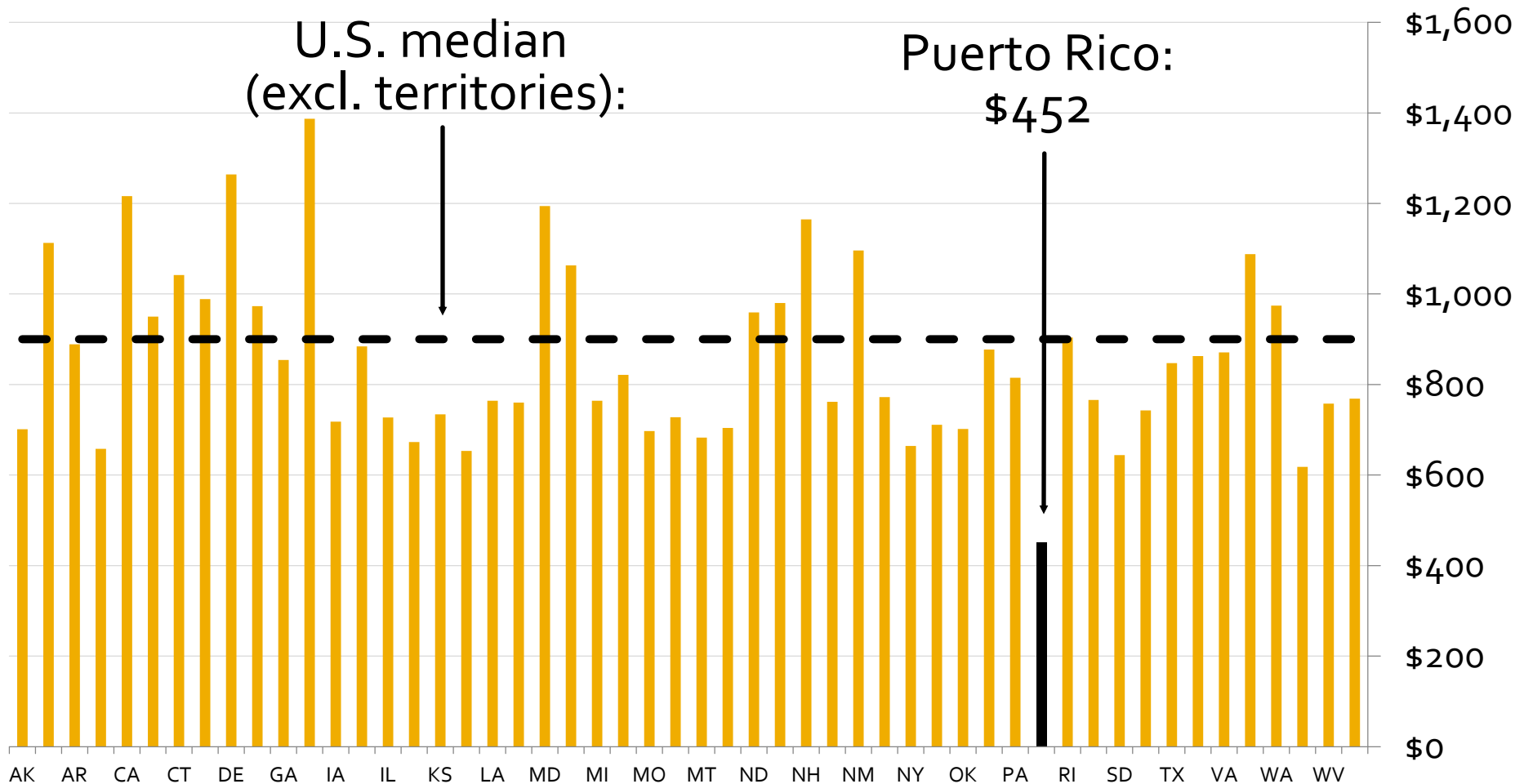
- Public housing tends to depress median housing rents.
- In those locations where there is a greater prevalence of public housing, one would naturally expect median housing rents to be lower.

# Percent of 2-BR Renter-Occupied Housing Units in Public Housing



Source: Report Characteristics Report, HUD as of May 31, 2015; American and Puerto Rico Community Survey, U.S. Census Bureau, 2013 3-year estimates.

# Median Gross Rent of Renter-Occupied Housing Units



Source: American and Puerto Rico Community Survey, U.S. Census Bureau, 2013 3-year estimates.

# Research questions to answer

- Have differences in the prevalence of non-market housing (i.e. public housing) generated a bias in the residential rent statistics prepared by the Centers for Medicare and Medicaid Services to estimate the Office Rent component of the GPCIs?
- If so, what has been its impact?
- Are there alternative methods that CMS could employ to correct for this bias?



# Methodology

- Use Public Use Microdata Sample (PUMS) of the 2008-10 ACS/PRCS of the U.S. Census Bureau to estimate the median gross rent of a 2-bedroom renter-occupied housing unit in each of the 89 PFS payment localities.
- Re-estimate the median gross rent after controlling for (excluding) housing units that are likely to be rented on a non-market basis (such as public housing).
- Use simple criteria developed by HUD to identify non-market housing units. Using internal administrative data, HUD prepares estimates for the rent paid by public housing tenants in each of its regions, and then uses these as thresholds: Housing units that pay a rent that is equal to or lower than this rent threshold are considered to be either assisted housing or otherwise at a below-market rent.

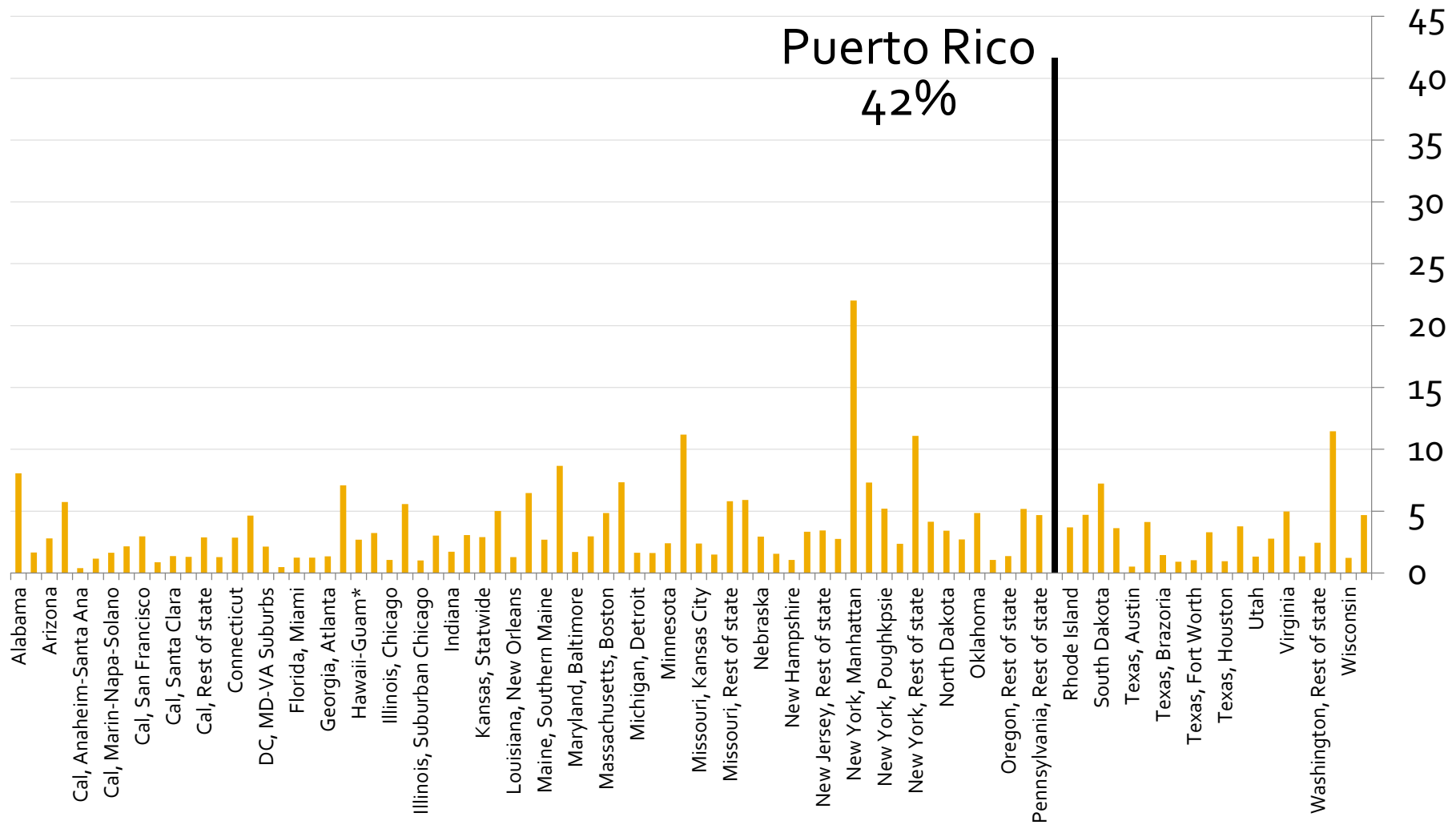
# Methodology

- Hypothesis test:
  - Ho: Controlling for differences in the prevalence of non-market housing does not significantly change the median gross rent of a 2-bedroom housing unit.
  - Ha: Controlling for differences in the prevalence of public housing does significantly change the median gross rent of a 2-bedroom housing unit
- Use Mann-Whitney U non-parametric test for 2 indepen. variables to test for a statistically significant difference.
- Tests were performed at a 95% confidence level.
- Standard errors were computed using the replicate weights provided in the PUMS.

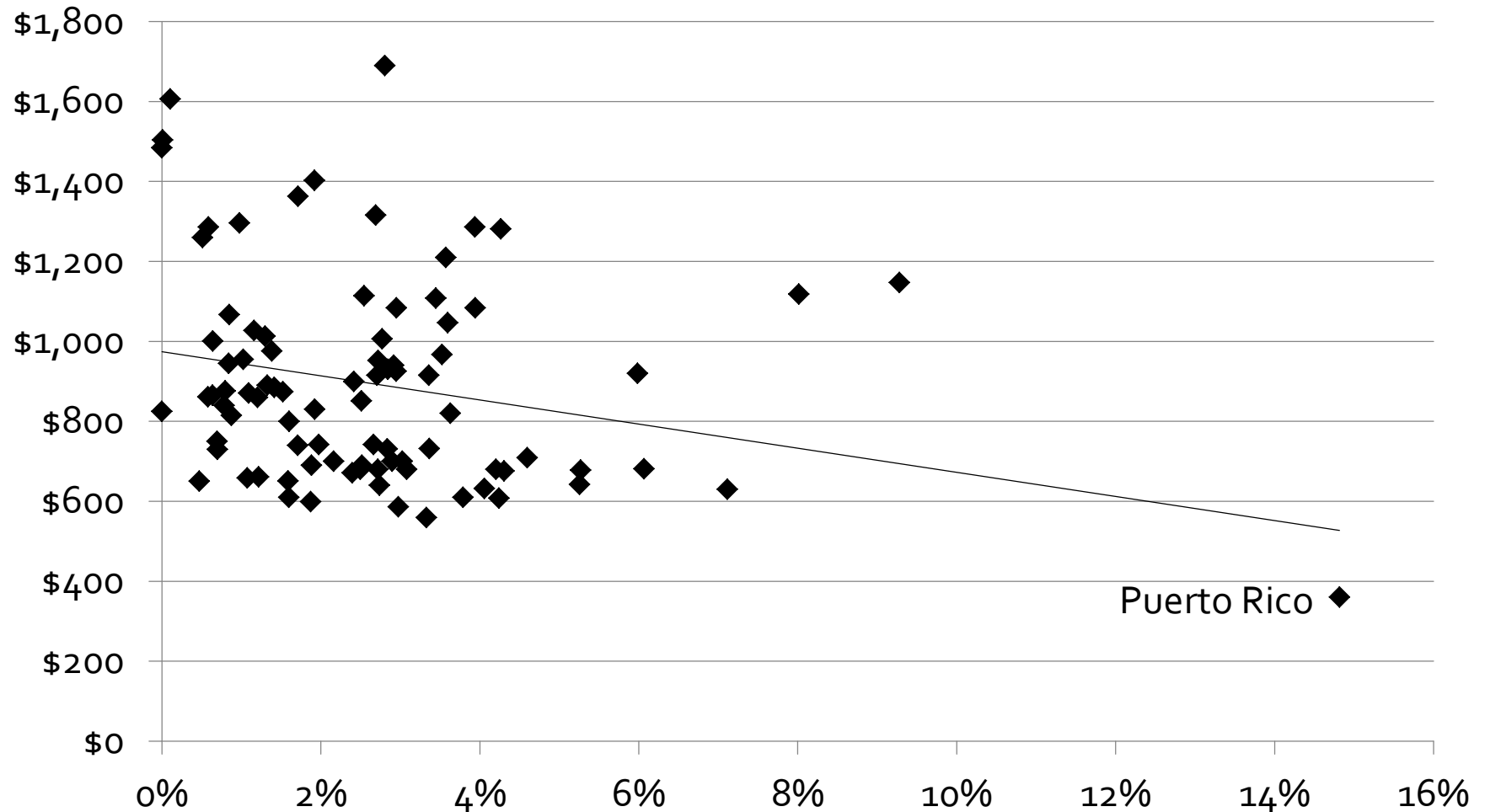
# Results

- After controlling for non-market rental housing, the median gross rent of a 2-bedroom housing unit changes in a statistically significant way in all PFS payment localities.
- Amongst all PFS payment localities, Puerto Rico obtains the lowest estimate for the median gross rent of a 2-bedroom housing unit (\$360).
- Once HUD public housing rent thresholds are applied, Puerto Rico continues to receive the lowest estimate for the median gross-rent of a 2-bedroom housing unit (\$510).
- But, in the case of Puerto Rico, this represents a statistically significant increase of 42%, markedly, the largest amongst all PFS payment localities.

# Percent increase in median gross rent after removing non-market housing units



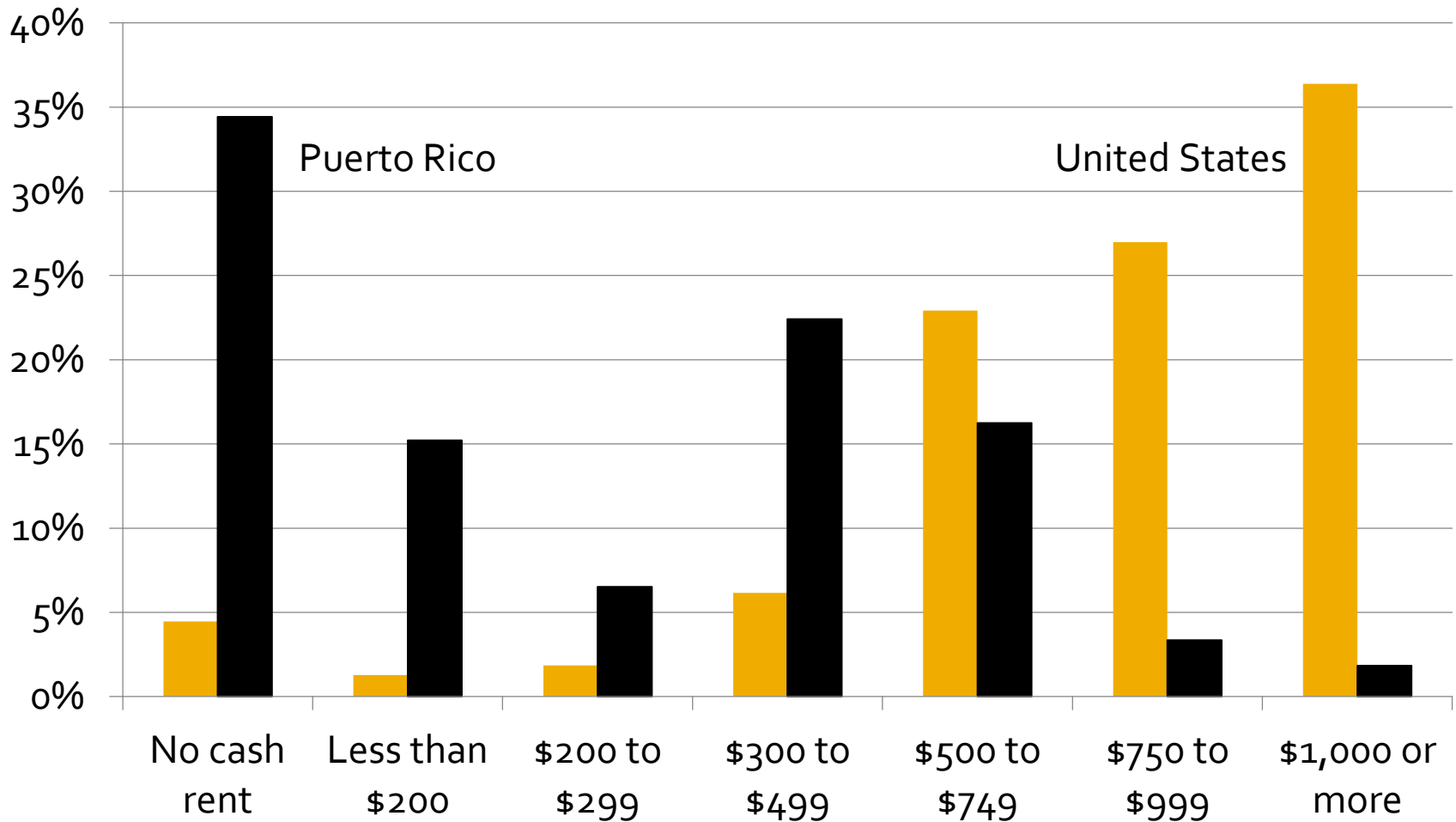
# Prevalence of Public Housing vs. Median Gross Rent



# Implications for Puerto Rico

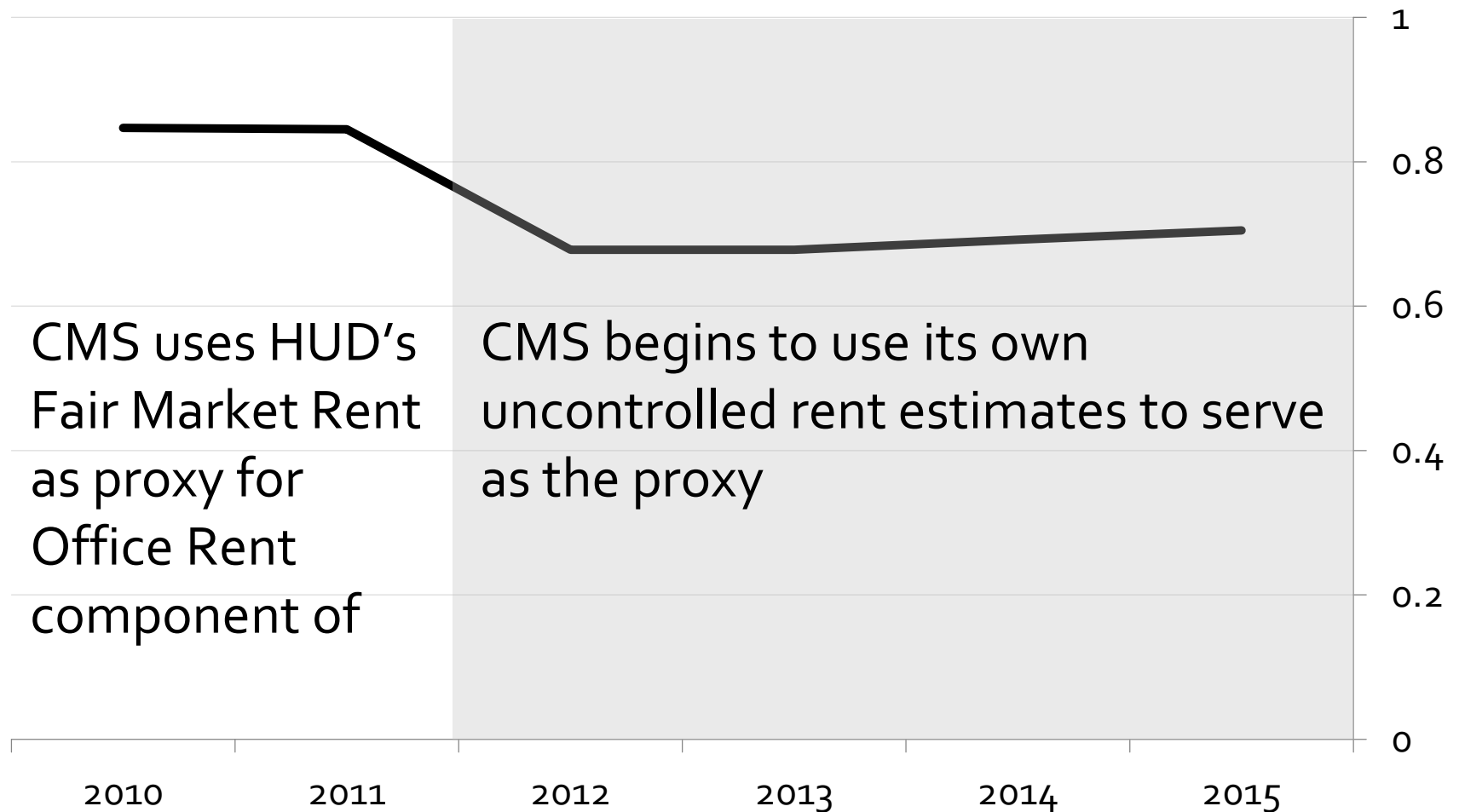
- Puerto Rico Practice Expense GPCI is under-estimated by 10%
- Puerto Rico GPCI is under-estimated by 4%
- \$7 - 15 million less in annual physician compensation through Medicare Part B.
- \$50 - \$60 million less in annual reimbursements through Medicare Advantage, because of the lower benchmark.
- Total impact (incl. indirect and induced effects) could reach as high as \$120 million annually; or about \$360 million since 2012.

# Distributions of Gross Rent of a 2-BR Housing Unit



Source: American and Puerto Rico Community Survey, U.S. Census Bureau, 2013 3-year estimates.

# Puerto Rico's Practice Expense GPCI



Source: Addendum E: Geographic Practice Cost Indices, Physician Fee Schedule, CY 2012-2015.



# Cost of Living Index (COLI) versus ACS/PRCS (Census Bureau)

				Median Gross Rent for 2BR housing unit from ACS/PRCS	CY 2015 Practice Expense GPCI
Chicago, IL MSA				\$940	1.037
San Juan, PR MSA				\$360	0.705
Beaumont, TX MSA				\$731	0.902

# Cost of Living Index (COLI) versus ACS/PRCS (Census Bureau)

	COLI – 1 <sup>st</sup> quarter of 2015			Median Gross Rent for 2BR housing unit from ACS/PRCS	CY 2015 Practice Expense GPCI
	Apartment rent	Energy	Sum		
Chicago, IL MSA	\$1,158	\$168	\$1,326	\$940	1.037
San Juan, PR MSA	\$848	\$438	\$1,286	\$360	0.705
Beaumont, TX MSA	\$1,045	\$173	\$1,218	\$731	0.902

# Recommendations

1. Correct for the Public Housing Prevalence Bias in the Office Rent component of Puerto Rico Geographic Practice Cost Index
  - a) Exclude housing units with rents below the non-market housing rent thresholds developed by HUD, when estimating the median gross rents.
  - b) Return to using the Fair Market Rents of HUD. The FMR is calculated with great care to control for differences in the quality of the housing stock, as well as for the prevalence of non-market housing. It is also based on the median gross rents obtained from ACS/PRCS. It is available in relatively smaller geographies (not just statewide), and can be easily converted to the PFS payment localities.
  - c) Tie Puerto Rico's office rent to a specific geography in the United States, for instance to Beaumont, TX or to Chicago, IL.
2. Implement one of the above corrections immediately.

# Conclusion

- First population decline in recorded history as a result of lower fertility and higher net outward migration.
- About 12% of doctors living in Puerto Rico migrated (on net) to the United States between 2005 and 2013.
- The calculation of the Office Rent component of the Practice Expense Geographic Practice Cost Index (GPCI) is biased by the relative prevalence of public housing in each PFS payment locality.
- Alternative data sources exist to resolve this situation.



# Instituto de Estadísticas de Puerto Rico

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