

Census Coverage Estimates for Puerto Rico

2020 Post-Enumeration Survey Estimation Report

By Krista Heim and Jinhee Hong

Issued August 2022

PES20-G-04



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*2020 Post-Enumeration Survey
Estimation Report*

PES20-G-04



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Director

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DSSD CENSUS COVERAGE MEASUREMENT MEMORANDUM SERIES #2020-G-04

MEMORANDUM FOR Patrick J. Cantwell
Chief, Decennial Statistical Studies Division

From: Timothy L. Kennel
Assistant Division Chief, Statistical Methods
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Subject: 2020 Post-Enumeration Survey Estimation Report:
Census Coverage Estimates for Puerto Rico

This report provides estimation results for Puerto Rico from the 2020 Post-Enumeration Survey. This report provides a summary of estimates of coverage for people and housing units.

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EXECUTIVE SUMMARY

This document summarizes the 2020 survey-based coverage estimates of the 2020 Census for people and housing units in Puerto Rico. The estimates for people are broken down by tenure (owner, renter), age, and sex. Estimates for housing units are broken down by occupancy and tenure. Coverage estimates are also provided for people and housing units in the San Juan-Bayamón Combined Statistical Area and in the balance of Puerto Rico. All comparative statements in this report have undergone statistical testing, and, unless otherwise noted, all comparisons are statistically significant at the 10 percent significance level. In the text, we provide margins of error for estimates at the 90 percent confidence level. The tables provide the standard errors.

The Post-Enumeration Survey (PES) estimated net coverage error rates using a statistical technique called “dual-system estimation.” The PES also estimated the components of coverage for people and housing units in Puerto Rico. These components include correct enumerations, erroneous enumerations, omissions, and whole-person census imputations.

Household Population Coverage

The following are the key findings for the household population in Puerto Rico.

- The PES estimated that the 2020 Census overcounted the population of Puerto Rico by 174,000 people (margin of error $\pm 74,000$). This represents a net coverage error rate of 5.7 percent (± 2.5 percent). This estimated rate is not statistically significantly different from the 4.5 percent (± 1.3 percent) overcount of the population of Puerto Rico in the 2010 Census.
- The estimated rate of erroneous person enumerations was 9.8 percent (± 0.9 percent) in the 2020 Census for Puerto Rico. The PES estimated 294,000 people ($\pm 30,000$) were erroneously enumerated due to duplication, while the remaining 25,000 ($\pm 7,000$) were erroneously enumerated due to other reasons.
- The PES estimated a person omission rate of 7.1 percent (± 2.2 percent) in the 2020 Census for Puerto Rico. These omissions include some people who were counted in the census as whole-person census imputations as well as people who were missed.
- The PES estimated that the 2020 Census overcounted the number of people in owned housing units in Puerto Rico. Owners had an overcount at 8.6 percent (± 2.8 percent). The renters did not have a statistically significant net coverage error.
- The PES estimated statistically significant overcounts in Puerto Rico for people aged 30 and older, adult males, and adult females.

Housing Unit Coverage

The following are the key findings for housing units in Puerto Rico.

- The PES estimated that the 2020 Census housing unit count in Puerto Rico did not have a statistically significant net coverage error. The PES estimated a net coverage error of -33,000 housing units ($\pm 49,000$). This represents a net coverage rate of -2.0 percent (± 2.9 percent). This estimated rate is not statistically significantly different from the net coverage error rate of 0.4 percent (± 2.3 percent) estimated for the 2010 Census, which was also not statistically significant.
- The PES estimated an erroneous enumeration rate of 7.6 percent (± 1.2 percent) for Puerto Rico housing units in the 2020 Census. The PES estimated 77,000 ($\pm 18,000$) housing units were erroneously enumerated due to duplication of another housing unit, while 45,000 ($\pm 8,000$) were erroneously enumerated due to other reasons.
- The PES estimated a housing unit omission rate of 9.5 percent (± 2.5 percent) in the 2020 Census for Puerto Rico.
- The PES estimated that the 2020 Census undercounted the number of vacant housing units in Puerto Rico by 5.8 percent (± 3.9 percent).

1. INTRODUCTION

As part of the 2020 Census, the U.S. Census Bureau conducted the 2020 Post-Enumeration Survey (PES) to estimate coverage of the decennial census.¹

The major goals² of the PES (Kennel, 2019) were to:

- Provide measures of net coverage error.
- Produce measures of the components of coverage, including correct enumerations, erroneous enumerations, whole-person imputations, and omissions.
- Produce measures of coverage for demographic groups and key census operations.

This document summarizes the PES estimates of coverage for the 2020 Census of Puerto Rico. Puerto Rico is the largest and most populous territory of the United States and was treated as a separate governmental entity from the 50 states and the District of Columbia. As such, the sample was designed up front to allow for subpopulation estimates of coverage. Please note that all of our earlier PES coverage results did not include Puerto Rico as part of the coverage calculations.

Details on the estimation methodology for Puerto Rico can be found in Zamora and Heim (2022). The corresponding estimates for the United States can be found in Khubba et al. (2022), Hill et al. (2022), and Lawrence and Hong (2022). The coverage estimates in this report are for both people and housing units in

Puerto Rico by various characteristics.³ The PES did not produce estimates of coverage for the population living in group quarters (e.g., college dormitories and correctional facilities). Group quarters are out of scope because their populations can change significantly between census and PES enumeration interviews.

The 2020 Census faced many challenges, such as conducting fieldwork during the COVID-19 pandemic. For Puerto Rico, these challenges were compounded by natural disasters, including earthquakes in 2020 and the lingering devastation from Hurricane Maria.

The PES estimates are subject to sampling and nonsampling errors. Like the 2020 Census, the PES also faced challenges driven by the COVID-19 pandemic and general trends of decreasing response to surveys. In many circumstances, the PES made operational changes to mitigate or overcome these issues. The source and accuracy statements for people (Marra and Kennel, 2022a) and housing units (Marra and Kennel, 2022b), as well as forthcoming methodology memos, quality assessments, and reports about the quality of the PES, will document specific measures the Census Bureau took to ensure the quality of the 2020 PES.

Section 2 provides a high-level description of the PES methodology used to estimate census coverage. Section 3 discusses the coverage results for the total household population. Section 4 discusses the coverage results for people by demographic and tenure groupings. Section 5 discusses the coverage results for housing units by similar characteristics.

¹ In addition to operational assessments and evaluations, the Census Bureau has relied on two principal methods to evaluate the coverage of the decennial census. One method is the survey-based approach, which is the topic of this report. The other method is Demographic Analysis.

² There are no plans to use PES results to produce adjusted population estimates for the purposes of apportionment, and there will be no such recommendation.

³ The Census Bureau's Disclosure Review Board has reviewed this product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release: CBDRB-FY22-351.

2. METHODOLOGY

This section provides a brief overview of the methodology to estimate net coverage error and the components of coverage for Puerto Rico. For more information, refer to Zamora and Heim (2022), the Source and Accuracy documents (Marra and Kennel, 2022a and Marra and Kennel, 2022b) and forthcoming estimation design document (Zamora, 2022).

2.1 Net Coverage Estimation for People and Housing Units

Like previous post-enumeration surveys, the 2020 PES estimated the number of people in the population and the number of housing units using “dual-system estimation,” with the two systems being the survey and the census. With this technique, the survey independently listed housing units and interviewed people, asking where they lived on April 1, 2020 (the reference day for the census). This information was then matched to the census results and used to estimate how many people and housing units were in Puerto Rico. Estimates of net coverage are calculated by comparing census counts to these estimates. As with the 2010 post-enumeration survey (called the Census Coverage Measurement survey or CCM), the 2020 PES used logistic regression modeling to produce synthetic estimates of net coverage.

Synthetic estimates for Puerto Rico were calculated separately from the rest of the United States and used different logistic regression modeling variables. Unlike the United States estimates, no adjustments were made to sex ratios for the Puerto Rico household population. Housing unit net coverage estimates were calculated in a manner similar to the coverage estimates for people.

For more information on the net coverage error estimation for Puerto Rico, including logistic regression model descriptions and variables, refer to Zamora and Heim (2022).

2.2 Components of Coverage for People and Housing Units

We estimated the components of coverage for both the total census count and the PES estimate of the population. The estimation for components of coverage fell into four categories for people, and three for housing units:

- Estimates of correct enumerations.
- Estimates of erroneous enumerations.
- Estimates of omissions.
- Tabulations of whole-person census imputations (people only).

In documentation from recent post-enumeration surveys, the U.S. Census Bureau defined the net undercount as the Post-Enumeration Survey (PES) dual-system estimate (DSE) minus the census count. For 2020 PES reports, we reverse the sign and define the net coverage error as the census count minus the DSE:

$$\text{Net coverage error} = \text{Census} - \text{DSE}$$

A positive estimate indicates a net overcount (meaning the census count was higher than the estimated population size), while a negative estimate indicates a net undercount (meaning the census count was lower than the estimated population size).

Significance and margins of error are reported in this document at the 10 percent level using a two-tailed test.

Correct enumerations refer to people (or housing units) that were counted in the census in Puerto Rico on April 1, 2020, and should have been counted according to the PES. Erroneous enumerations include duplicates as well as people (or housing units) counted that should not have been. For example, a person may have been born after April 1, 2020, or was just visiting the country. An address may have not been a valid housing unit on April 1, 2020, as it was unfit for habitation or under construction. To estimate correct and erroneous enumerations, we used a design-based estimator with a calibration adjustment.

We estimated the total number of omissions in the census as well. Omissions are people (or housing units) that should have been correctly counted in the census but were not. Omissions include some people who were counted in the census as whole-person census imputations as well as people in the population who were missed by the census. The PES estimated the number of omissions by subtracting the estimate of correct enumerations from the dual-system estimate (DSE):

$$\text{Omissions} = \text{DSE} - \text{Correct enumerations}$$

Whole-person imputations are person records for which we did not receive enough characteristics to determine if the record was a correct or erroneous enumeration. As whole-person census imputations are a separate category from correct enumerations

and erroneous enumerations, our definition of omissions effectively treats these imputations as omissions.

2.3 Whole-Person Census Imputations

Count imputation occurred at the end of the 2020 Census to ensure that every housing unit had a final status and, if occupied, a population count. In this operation, housing unit status and size were filled in for addresses that lacked this response information. Count imputation was done for both the United States and Puerto Rico. For PES, tabulations of whole-person census imputations are a component of coverage for people, not housing units.

There are three types of count imputation. Status imputation included records where the address was not found during census operations or had conflicting or insufficient information associated with it, or when all people living at the address were marked as duplicates. Occupancy imputation was applied when it was evident that a housing unit was at the address, but no definitive information was available to determine if the housing unit was occupied or vacant. When an occupied housing unit was observed yet information on the total number of occupants was unavailable, household size imputation was used to fill in this information.

Whole-person census imputations where the population count was already known included situations where a proxy respondent or household resident knew the number of people living at a household but had very limited information about the occupants.

Count Imputation

1. Status Imputation—No information about the address; imputed as a valid housing unit or nonexistent. Those imputed as nonexistent were removed from the census files.
2. Occupancy Imputation—Existence of housing unit confirmed, but no information as to occupancy status; imputed as occupied or vacant.
3. Household Size Imputation—Occupied status confirmed, but no information as to household count; the household population count, greater than 0, was imputed.

Population Count Already Known for the Housing Unit

1. Whole Household—Population count known; all person records in the household are considered whole-person census imputations.
2. Partial Household—Population count known; some, but not all, people in the household are whole-person census imputations.

3. RESULTS OF CENSUS COVERAGE FOR THE TOTAL HOUSEHOLD POPULATION

This section presents estimates of net coverage and components of coverage for people in Puerto Rico.

3.1 Estimates of Net Coverage Error

Table 1 shows the estimates of net coverage for the household population in Puerto Rico (excluding group quarters) for post-enumeration surveys from 2010 and 2020. We estimated an overcount of 174,000 people ($\pm 74,000$) in the 2020 Census, a net coverage error rate of 5.7 percent (± 2.5 percent).

3.2 Estimates of Components of Coverage

This section reports the percentage of census records in Puerto Rico that were correct enumerations,

erroneous enumerations, and whole-person census imputations. It also shows the percentage of the PES population estimate that was correctly enumerated in the census or not correctly counted in the census (called an omission).

While the Post-Enumeration Survey can measure estimated undercounts and overcounts in the census, it cannot answer why a particular group experienced one of these coverage errors.

Table 1.
Net Coverage Error for the Puerto Rico Household Population

| Year | Census count | Net coverage error | | | |
|------------|--------------|--------------------|----------------|--------------------|--------------------------|
| | | Estimate | Standard error | Estimate (percent) | Standard error (percent) |
| 2020 | 3,248,000 | *174,000 | 45,000 | *5.66 | 1.53 |
| 2010 | 3,688,000 | *160,000 | 26,500 | *4.5 | 0.8 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

Note: Estimates and counts do not include people in group quarters and are rounded for disclosure avoidance. A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Figure 1 and Table 2 show the totals for the components of coverage for the census and PES for Puerto Rico. In Figure 1, the net coverage error is the difference in the height of the 2020 Census and PES bars.

The first part of Table 2 shows how the census population count of 3.2 million was distributed among correct enumerations, erroneous enumerations, and whole-person census imputations. We estimated that 88.0 percent (± 0.9 percent) of the census count was correctly enumerated, 9.8 percent (± 0.9 percent) was erroneously enumerated, and 2.2 percent was whole-person census imputations, which we did not classify as correct or erroneous. The estimate of correct enumerations uses the geographic requirement that the person was in a housing unit anywhere in Puerto Rico.

The PES estimated that 86.2 percent (± 0.9 percent) of the people counted in the census were correctly counted in the right basic collection unit (BCU) or in a neighboring BCU. A BCU is the smallest geographic level for 2020 Census data collection and roughly corresponds to a block.⁴

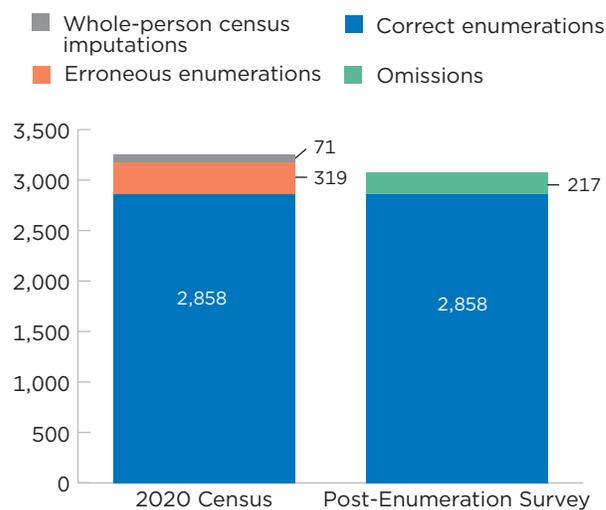
Table 2 also provides details about the 319,000 ($\pm 30,000$) erroneous enumerations in the 2020 Census for Puerto Rico. Of the total census count, 9.1 percent (± 0.9 percent) was erroneous enumerations due to duplication, and 0.8 percent (± 0.2 percent) was erroneous enumerations for other reasons. The 2020 Census included an unduplication operation to remove people counted in the census at two different places; however, this effort did not include Puerto Rico (Keller and King, 2021).

The final component of the census count was the 71,000, or 2.2 percent, whole-person census imputations.

The bottom of Table 2 summarizes the PES population estimate. The PES estimated that the household

⁴ More information is available in “The Design of the Post-Enumeration Survey for the 2020 Census” (Kennel, 2019) located at www.census.gov/programs-surveys/decennial-census/decade/2020/planning-management/plan/memo-series/2020-memo-2022_06.html.

Figure 1.
2020 Components of Coverage for the Household Population in Puerto Rico
(In thousands)



Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

population was 3.1 million people ($\pm 74,000$). The DSE is broken into two groups: correct enumerations and omissions. The correct enumerations estimate is the same 2.9 million ($\pm 30,000$) previously shown in the table. The PES estimated 217,000 ($\pm 72,000$) omissions. Omissions were people who should have been correctly enumerated in Puerto Rico but were not. Some of these people may have been accounted for by the 71,000 whole-person census imputations.

3.3 Whole-Person Census Imputations

The PES tallied 71,000 whole-person census imputations (2.2 percent) in the 2020 Census for Puerto Rico. Table 3 shows the whole-person imputations by type.

Table 2.

Components of Coverage for the Puerto Rico Household Population

| Component of coverage | 2020 | | | | 2010 | | | |
|---|-----------|----------------|---------|--------------------------|-----------|----------------|---------|--------------------------|
| | Estimate | Standard error | Percent | Standard error (percent) | Estimate | Standard error | Percent | Standard error (percent) |
| Census count | 3,248,000 | X | 100.0 | X | 3,688,000 | X | 100.0 | X |
| Correct enumerations ¹ | 2,858,000 | 18,000 | 88.0 | 0.55 | 3,318,000 | 19,300 | 90.0 | 0.5 |
| Enumerated in the same basic collection unit ² | 2,799,000 | 18,000 | 86.2 | 0.54 | 3,256,000 | 20,600 | 88.3 | 0.6 |
| Enumerated in the same municipio, though in a different basic collection unit | 36,000 | 4,000 | 1.1 | 0.13 | 32,000 | 5,500 | 0.9 | 0.1 |
| Enumerated in a different municipio | 23,000 | 4,000 | 0.7 | 0.12 | 31,000 | 3,900 | 0.8 | 0.1 |
| Erroneous enumerations | 319,000 | 18,000 | 9.8 | 0.55 | 290,000 | 19,300 | 7.9 | 0.5 |
| Due to duplication | 294,000 | 18,000 | 9.1 | 0.54 | 264,000 | 19,500 | 7.2 | 0.5 |
| For other reasons ³ | 25,000 | 4,000 | 0.8 | 0.11 | 26,000 | 3,000 | 0.7 | Z |
| Whole-person census imputations ⁴ | 71,000 | X | 2.2 | X | 80,000 | X | 2.2 | X |
| Estimate of population from the Post-Enumeration Survey ⁵ | 3,075,000 | 45,000 | 100.0 | X | 3,528,000 | 26,500 | 100.0 | X |
| Correct enumerations ¹ | 2,858,000 | 18,000 | 92.9 | 1.33 | 3,318,000 | 19,300 | 94.1 | 0.7 |
| Omissions ⁶ | 217,000 | 44,000 | 7.1 | 1.33 | 209,000 | 24,100 | 5.9 | 0.7 |
| Net coverage error ⁷ | *174,000 | 45,000 | *5.66 | 1.53 | *160,000 | 26,500 | *4.5 | 0.8 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

Z Represents or rounds to zero.

¹ For this table, someone who should have been counted is considered a correct enumeration if he or she was enumerated anywhere in Puerto Rico.

² More precisely, enumerated in the search area for the correct basic collection unit. For definitions of basic collection unit and search area, see accompanying text.

³ Other reasons include fictitious people, those born after April 1, 2020, those who died before April 1, 2020, etc.

⁴ These imputations represent people from whom we did not collect sufficient information. Their records are included in the census count.

⁵ This number is the PES estimate of people who should have been counted in the PES household universe. It does not include people in group quarters.

⁶ Omissions were people who should have been correctly enumerated in Puerto Rico, but were not. Many of these people may have been accounted for in the whole-person census imputations above.

⁷ A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Note: Estimates are rounded for disclosure avoidance. As a result, counts may not sum to totals shown.

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Table 3.

Puerto Rico Whole-Person Imputations by Type

| Whole-person census imputations | 2020 | | 2010 | |
|--|---------------|------------|---------------|------------|
| | Count | Percent | Count | Percent |
| Total | 71,000 | 2.2 | 79,500 | 2.2 |
| Count imputation | 18,000 | 0.6 | 47,500 | 1.3 |
| Status imputation | 18,000 | 0.6 | 45,200 | 1.2 |
| Occupancy imputation | 150 | Z | 1,200 | Z |
| Household size imputation | 300 | Z | 1,100 | Z |
| Population count already known | 53,000 | 1.6 | 32,000 | 0.9 |
| Whole household | 29,000 | 0.9 | 24,400 | 0.7 |
| Partial household | 24,500 | 0.8 | 7,500 | 0.2 |

Z Represents or rounds to zero.

Note: Percentage is out of the total census count, excluding people in group quarters.

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

4. RESULTS OF CENSUS COVERAGE FOR ADDITIONAL GROUPINGS FOR PEOPLE

This section summarizes the census coverage for demographic and tenure groupings for people in Puerto Rico. These include estimates of coverage by tenure, age, sex, and the San Juan-Bayamón Combined Statistical Area.

4.1 Tenure

Figure 2 and Appendix Table 1 provide net coverage error estimates by tenure for Puerto Rico. Appendix Table 1 also provides net coverage error estimates by tenure for the 2010 Census. For the 2020 Census, owners were overcounted while renters did not have a statistically significant net coverage error rate. Both owners and renters had estimated overcounts in the 2010 Census.

Figure 2 and Appendix Table 2 present the components of coverage by tenure.

4.2 Age and Sex Groups

Appendix Table 3 displays estimates of net coverage error by age group for Puerto Rico. In 2020, there was a statistically significant overcount of people aged 30 to 49 as well as people aged 50 or older. Appendix Table 4 presents the components of coverage for the 2020 Census by age group.

Appendix Table 5 displays estimates of net coverage error for the 2020 Census by sex for Puerto Rico. There were overcounts of adult males and adult females. The net coverage error rate for children was not statistically significant. Appendix Table 6 shows the estimated components of coverage by sex.

Appendix Table 7 presents estimated net coverage error results by age and sex for recent post-enumeration surveys. Females aged 30 to 49, and both males

and females aged 50 and over were overcounted in the 2020 Census and the 2010 Census. Males aged 18 to 29 and 30 to 49 did not have a statistically significant net coverage error rate in the 2020 Census, but were overcounted in the 2010 Census. Appendix Table 8 presents the components of coverage for the 2020 Census by age and sex group. Figure 2 presents both the net coverage error and components of coverage for the 2020 Census by age and sex groups. Females aged 50 and over had an overcount of 11.0 percent (± 2.8 percent). Males and females aged 50 and over showed levels of duplication that were not balanced by omissions, which led to overcounts for these groups.

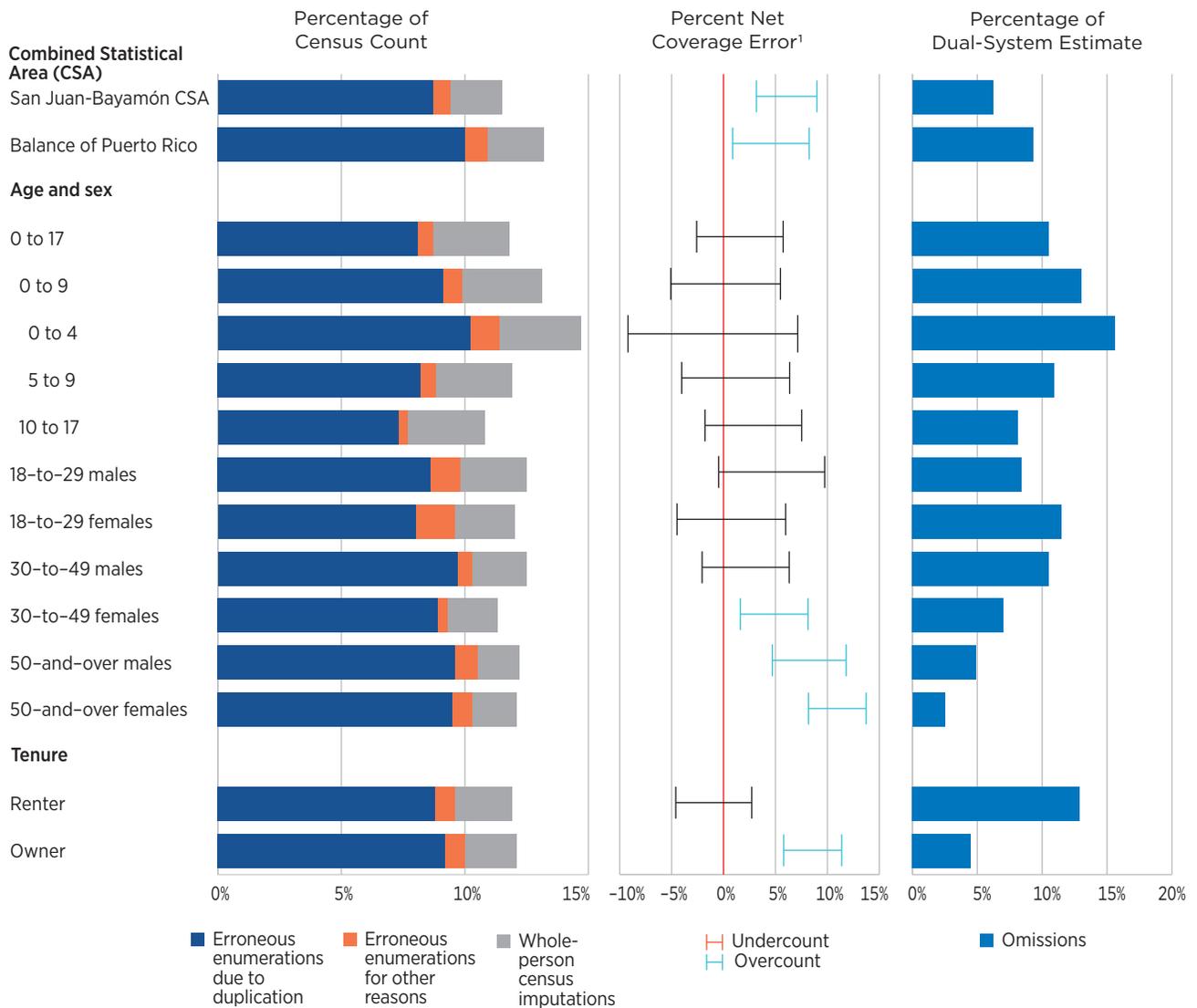
4.3 San Juan-Bayamón Combined Statistical Area

The PES measured coverage for the San Juan-Bayamón Combined Statistical Area (CSA) in Puerto Rico. CSAs are groupings of adjacent metropolitan or micropolitan statistical areas that have social and economic ties as measured by commuting to work.⁵ Figure 2 and Appendix Table 9 provide estimates of net coverage error both within the San Juan-Bayamón CSA and outside of the CSA for the 2020 Census. The PES estimated overcounts for the Bayamón CSA and for the balance of Puerto Rico.

Figure 2 and Appendix Table 10 show the estimated components of census coverage for the San Juan-Bayamón CSA.

⁵ A map defining CSAs as of March 2020, including the San Juan-Bayamón CSA, can be found at https://www2.census.gov/geo/maps/metroarea/us_wall/Mar2020/CSA_WallMap_Mar2020.pdf.

Figure 2.
Percent Net Coverage Error and Components of Coverage for the Household Population in Puerto Rico for Selected Characteristics



¹ The percent net coverage error figure in the middle displays the 90 percent confidence interval for the estimated percent net coverage error. If the 90 percent confidence interval includes zero, then the domain does not have a statistically significant undercount or overcount.

Note: Standard errors and other related estimates are available in the appendix tables.

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

5. RESULTS OF CENSUS COVERAGE FOR HOUSING UNITS

This section summarizes the results of net coverage and components of coverage for housing units in the 2020 Census for Puerto Rico.

5.1 Estimates of Net Coverage Error

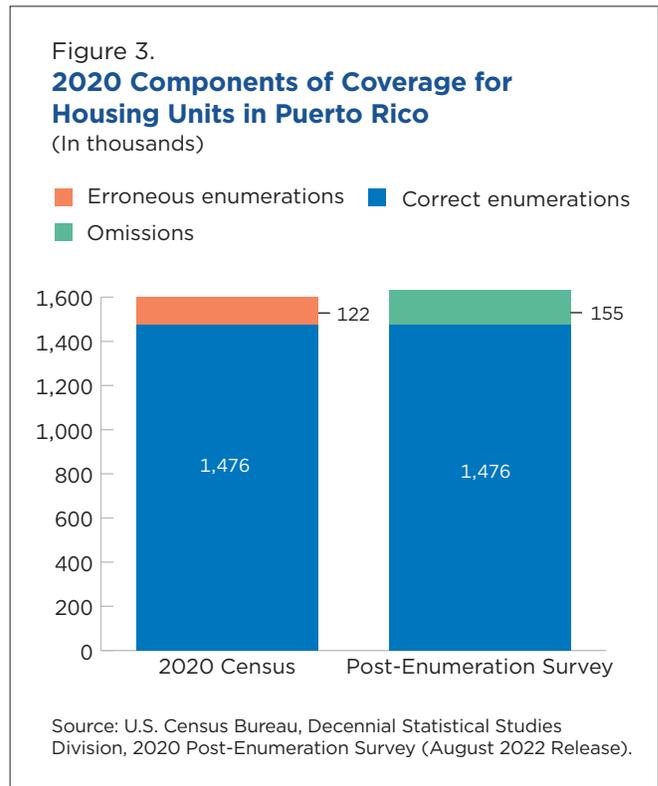
Table 4 displays the estimated net coverage error of housing units in Puerto Rico for post-enumeration surveys from 2010 and 2020. Overall, the PES estimate of the number of housing units in Puerto Rico was not statistically significantly different than the 2020 Census count.

5.2 Estimates of Components of Coverage

This section shows how the housing unit census count for Puerto Rico was distributed between correct enumerations and erroneous enumerations and how the PES housing unit DSE was distributed between correct enumerations and omissions.

Figure 3 shows the net coverage error as the difference in the height of the 2020 Census and PES bars. Estimates of the two components of the census housing unit count are presented as a percentage of the census housing unit total for various domains. Similarly, the two components of the PES estimate are presented as a percentage of the housing unit DSE for various domains.

Table 5 summarizes the components of coverage estimates for housing units in Puerto Rico. The first part of Table 5 shows how the census housing unit count of 1.6 million was distributed between correct enumerations and erroneous enumerations. We estimated that 92.4 percent (± 1.2 percent) of census housing units were correctly enumerated, and 7.6 percent (± 1.2 percent) were erroneously enumerated. As stated previously, a housing unit could be an erroneous enumeration if it was a duplicate of a housing



unit that was already counted correctly in the census. A housing unit also may have been erroneously enumerated if it was determined to be a nonresidential address such as a business.

The PES estimated that 90.4 percent (± 1.5 percent) of housing units counted in the census were correctly counted in the right Basic Collection Unit (BCU). We estimated that 1.3 percent (± 0.5 percent) were counted in a surrounding (i.e., neighboring) BCU. The PES determined that 0.7 percent (± 0.4 percent) of housing units were enumerated outside of the BCU search area. These were geocoding errors.

Table 4.

Net Coverage Error Rates for Housing Units in Puerto Rico by Occupancy

(In percent)

| Year | Occupied units | | Vacant units | | Total | |
|------------|----------------|----------------|--------------|----------------|----------|----------------|
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error |
| 2020 | -1.26 | 1.84 | *-5.82 | 2.38 | -2.02 | 1.79 |
| 2010 | 0.7 | 1.1 | -1.2 | 4.1 | 0.4 | 1.4 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Table 5 also provides details about the 122,000 ($\pm 20,000$) housing unit erroneous enumerations in the 2020 Census for Puerto Rico. Of the total census housing unit count, 4.8 percent (± 1.2 percent) was erroneous enumerations due to duplication and 2.8 percent (± 0.6 percent) was erroneous enumerations for other reasons.

The bottom of Table 5 summarizes the PES housing unit estimate. The PES estimated that Puerto Rico contained 1.6 million ($\pm 49,000$) housing units. Of those, 1.5 million ($\pm 20,000$) were correctly enumerated in the 2020 Census, as previously shown in the table. The remaining 155,000 ($\pm 46,000$) housing units were not enumerated in the census.

5.3 Occupancy and Tenure

Figure 4 and Appendix Table 11 provide net coverage estimates of housing units by occupancy and tenure for the last two censuses for Puerto Rico. There was no statistically significant overcount or undercount for owner-occupied or renter-occupied housing units. However, there was an undercount of 5.8 percent (± 3.9 percent) for vacant units.

Figure 4 and Appendix Table 12 present the components of coverage by occupancy and tenure.

Table 5.

Components of Coverage for Housing Units in Puerto Rico

| Component of coverage | 2020 | | | | 2010 | | | |
|---|-----------|----------------|---------|--------------------------|-----------|----------------|---------|--------------------------|
| | Estimate | Standard error | Percent | Standard error (percent) | Estimate | Standard error | Percent | Standard error (percent) |
| Census count | 1,598,000 | X | 100.0 | X | 1,637,000 | X | 100.0 | X |
| Correct enumerations ¹ | 1,476,000 | 12,000 | 92.4 | 0.75 | 1,509,000 | 16,200 | 92.2 | 1.0 |
| Enumerated in the same basic collection unit | 1,444,000 | 14,000 | 90.4 | 0.90 | 1,495,000 | 16,400 | 91.4 | 1.0 |
| Enumerated in the surrounding basic collection units ² | 21,000 | 5,000 | 1.3 | 0.31 | 10,000 | 2,600 | 0.6 | 0.2 |
| Geocoded outside the search area | 11,000 | 3,000 | 0.7 | 0.22 | 4,000 | 3,600 | 0.3 | 0.2 |
| Erroneous enumerations | 122,000 | 12,000 | 7.6 | 0.75 | 128,000 | 16,200 | 7.8 | 1.0 |
| Due to duplication | 77,000 | 11,000 | 4.8 | 0.70 | 41,000 | 5,000 | 2.5 | 0.3 |
| For other reasons ³ | 45,000 | 5,000 | 2.8 | 0.34 | 87,000 | 15,500 | 5.3 | 0.9 |
| Estimate of housing from the Post-Enumeration Survey ⁴ | 1,631,000 | 30,000 | 100.0 | X | 1,630,000 | 22,800 | 100.0 | X |
| Correct enumerations ¹ | 1,476,000 | 12,000 | 90.5 | 1.52 | 1,509,000 | 16,200 | 92.6 | 0.8 |
| Omissions ⁵ | 155,000 | 28,000 | 9.5 | 1.52 | 121,000 | 14,200 | 7.4 | 0.8 |
| Net coverage error ⁶ | -33,000 | 30,000 | -2.02 | 1.79 | 7,000 | 22,800 | 0.4 | 1.4 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

¹ For this table, a housing unit is considered a correct enumeration if it was enumerated anywhere in Puerto Rico.

² For definitions of the surrounding basic collection unit and search area, see accompanying text.

³ Other reasons include group quarters, nonresidential (e.g., commercial, uninhabitable, etc.), or nonexistent (e.g., vacant lots, demolished, burned down, etc.).

⁴ This number is the PES estimate of housing units that should have been included in the PES housing unit universe. It does not include group quarters.

⁵ Omissions are housing units that should have been correctly enumerated in the Puerto Rico but were not.

⁶ A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Note: Estimates are rounded for disclosure avoidance. As a result, counts may not sum to totals shown.

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

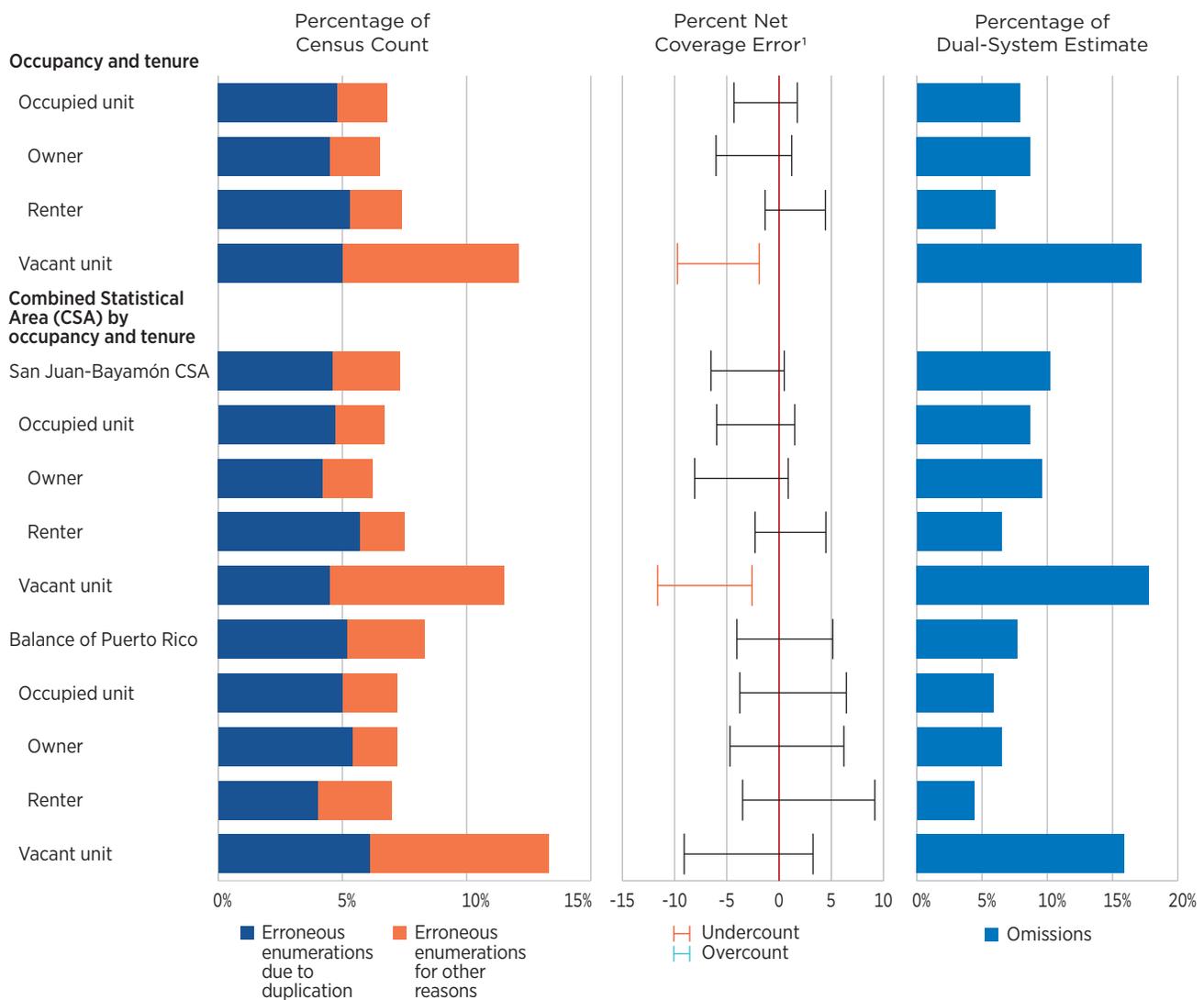
5.4 San Juan-Bayamón Combined Statistical Area

The PES measured housing unit coverage for the San Juan-Bayamón CSA in Puerto Rico by occupancy and tenure. Figure 4 and Appendix Table 13 provide estimates of net coverage error both within the San Juan-Bayamón CSA and outside of the San Juan-Bayamón CSA for the 2020 Census. Neither category had a statistically significant undercount

or overcount. However, there was an undercount of 7.1 percent (± 4.5 percent) for vacant units in the San Juan-Bayamón CSA. The PES estimate for vacant units in the balance of Puerto Rico was not statistically significantly different from the 2020 Census count.

Figure 4 and Appendix Table 14 show the estimated components of housing unit coverage for the San Juan-Bayamón CSA.

Figure 4.
Percent Net Coverage Error and Components of Coverage for Housing Units in Puerto Rico for Selected Characteristics



¹ The percent net coverage error figure in the middle displays the 90 percent confidence interval for the estimated percent net coverage error. If the 90 percent confidence interval includes zero, then the domain does not have a statistically significant undercount or overcount. Note: Standard errors and other related estimates are available in the appendix tables. Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

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APPENDIX

Appendix Table 1.

Net Coverage Error Rates for the Household Population in Puerto Rico by Tenure

(In percent)

| Tenure | 2020 | | 2010 | |
|--------------------|--------------|----------------|-------------|----------------|
| | Estimate | Standard error | Estimate | Standard error |
| Total | *5.66 | 1.53 | *4.5 | 0.8 |
| Owner | *8.59 | 1.70 | *5.4 | 0.9 |
| Renter | -0.95 | 2.22 | *2.5 | 1.4 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Appendix Table 2.

Components of Coverage for the Household Population in Puerto Rico by Tenure

| Tenure | Correct enumerations | | Erroneous enumerations | | | | Whole-person census imputations | | DSE ¹ correct enumerations | | Omissions | | Net coverage error | |
|------------------|----------------------|------------------------|------------------------|------------------------|---------------|------------------------|---------------------------------|------------------------|---------------------------------------|------------------------|--------------|------------------------|--------------------|------------------------|
| | | | Duplication | | Other reasons | | Per- cent | Stan- dard error | Per- cent | Stan- dard error | Per- cent | Stan- dard error | Per- cent | Stan- dard error |
| | Per- cent | Stan- dard error | Per- cent | Stan- dard error | Per- cent | Stan- dard error | | | | | | | | |
| Total ... | 88.0 | 0.5 | 9.1 | 0.5 | 0.8 | 0.1 | 2.2 | X | 92.9 | 1.3 | 7.1 | 1.3 | *5.66 | 1.53 |
| Owner .. | 88.0 | 0.6 | 9.2 | 0.6 | 0.8 | 0.1 | 2.1 | X | 95.5 | 1.4 | 4.5 | 1.4 | *8.59 | 1.70 |
| Renter .. | 88.0 | 0.9 | 8.8 | 0.9 | 0.8 | 0.2 | 2.3 | X | 87.1 | 2.0 | 12.9 | 2.0 | -0.95 | 2.22 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

¹ Dual-system estimate.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 3.

Net Coverage Error Rates for the Household Population in Puerto Rico by Age Group

(In percent)

| Age | Estimate | Standard error |
|--------------------|--------------|----------------|
| Total | *5.66 | 1.53 |
| 0 to 17 | 1.59 | 2.54 |
| 0 to 9 | 0.20 | 3.21 |
| 0 to 4 | -1.03 | 4.97 |
| 5 to 9 | 1.17 | 3.16 |
| 10 to 17 | 2.87 | 2.83 |
| 18 to 29 | 2.61 | 2.50 |
| 30 to 49 | *3.57 | 1.92 |
| 50 and over | *9.73 | 1.71 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 4.

Components of Coverage for the Household Population in Puerto Rico by Age Group

| Age | Correct enumerations | | Erroneous enumerations | | | | Whole-person census imputations | | DSE ¹ correct enumerations | | Omissions | | Net coverage error | |
|------------------------|----------------------|------------------------|------------------------|------------------------|---------------|------------------------|---------------------------------|------------------------|---------------------------------------|------------------------|--------------|------------------------|--------------------|------------------------|
| | Per- cent | Stan- dard error | Duplication | | Other reasons | | Per- cent | Stan- dard error | Per- cent | Stan- dard error | Per- cent | Stan- dard error | Per- cent | Stan- dard error |
| | | | Per- cent | Stan- dard error | Per- cent | Stan- dard error | | | | | | | | |
| Total | 88.0 | 0.5 | 9.1 | 0.5 | 0.8 | 0.1 | 2.2 | X | 92.9 | 1.3 | 7.1 | 1.3 | *5.66 | 1.53 |
| 0 to 17 | 88.2 | 1.0 | 8.1 | 1.0 | 0.6 | 0.2 | 3.1 | X | 89.5 | 2.0 | 10.5 | 2.0 | 1.59 | 2.54 |
| 0 to 9 | 86.8 | 1.2 | 9.1 | 1.3 | 0.8 | 0.3 | 3.2 | X | 87.0 | 2.6 | 13.0 | 2.6 | 0.20 | 3.21 |
| 0 to 4 | 85.3 | 1.6 | 10.2 | 1.6 | 1.2 | 0.5 | 3.3 | X | 84.4 | 3.8 | 15.6 | 3.8 | -1.03 | 4.97 |
| 5 to 9 | 87.9 | 1.2 | 8.2 | 1.3 | 0.6 | 0.3 | 3.1 | X | 89.1 | 2.8 | 10.9 | 2.8 | 1.17 | 3.16 |
| 10 to 17 | 89.4 | 1.0 | 7.3 | 0.9 | 0.4 | 0.1 | 3.1 | X | 91.9 | 2.3 | 8.1 | 2.3 | 2.87 | 2.83 |
| 18 to 29 | 87.8 | 0.8 | 8.3 | 0.7 | 1.4 | 0.3 | 2.6 | X | 90.0 | 2.1 | 10.0 | 2.1 | 2.61 | 2.50 |
| 30 to 49 | 88.2 | 0.7 | 9.2 | 0.7 | 0.5 | 0.1 | 2.1 | X | 91.4 | 1.7 | 8.7 | 1.7 | *3.57 | 1.92 |
| 50 and over | 87.9 | 0.6 | 9.6 | 0.6 | 0.8 | 0.1 | 1.8 | X | 96.4 | 1.4 | 3.6 | 1.4 | *9.73 | 1.71 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

¹ Dual-system estimate.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 5.

Net Coverage Error Rates for the Household Population in Puerto Rico by Sex

(In percent)

| Sex | Estimate | Standard error |
|------------------------|--------------|----------------|
| Total | *5.66 | 1.53 |
| Children | 1.59 | 2.54 |
| Adult male | *5.66 | 1.87 |
| Adult female | *7.30 | 1.48 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 6.

Components of Coverage for the Household Population in Puerto Rico by Sex

| Sex | Correct enumerations | | Erroneous enumerations | | | | Whole-person census imputations | | DSE ¹ correct enumerations | | Omissions | | Net coverage error | |
|------------------------|----------------------|------------------------|------------------------|------------------------|---------------|------------------------|---------------------------------|------------------------|---------------------------------------|------------------------|--------------|------------------------|--------------------|------------------------|
| | Per- cent | Stan- dard error | Duplication | | Other reasons | | Per- cent | Stan- dard error | Per- cent | Stan- dard error | Per- cent | Stan- dard error | Per- cent | Stan- dard error |
| | | | Per- cent | Stan- dard error | Per- cent | Stan- dard error | | | | | | | | |
| Total | 88.0 | 0.5 | 9.1 | 0.5 | 0.8 | 0.1 | 2.2 | X | 92.9 | 1.3 | 7.1 | 1.3 | *5.66 | 1.53 |
| Children | 88.2 | 1.0 | 8.1 | 1.0 | 0.6 | 0.2 | 3.1 | X | 89.5 | 2.0 | 10.5 | 2.0 | 1.59 | 2.54 |
| Adult male | 87.7 | 0.7 | 9.4 | 0.7 | 0.8 | 0.2 | 2.1 | X | 92.7 | 1.6 | 7.3 | 1.6 | *5.66 | 1.87 |
| Adult female | 88.2 | 0.5 | 9.1 | 0.5 | 0.8 | 0.1 | 2.0 | X | 94.6 | 1.3 | 5.4 | 1.3 | *7.30 | 1.48 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

¹ Dual-system estimate.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 7.

Net Coverage Error Rates for the Household Population in Puerto Rico by Age and Sex

(In percent)

| Age and sex | 2020 | | 2010 | |
|---------------------------|--------------|----------------|-------------|----------------|
| | Estimate | Standard error | Estimate | Standard error |
| Total | *5.66 | 1.53 | *4.5 | 0.8 |
| 0 to 17 | 1.59 | 2.54 | X | X |
| 0 to 9 | 0.20 | 3.21 | X | X |
| 0 to 4 | -1.03 | 4.97 | 1.4 | 2.1 |
| 5 to 9 | 1.17 | 3.16 | 1.2 | 1.8 |
| 10 to 17 | 2.87 | 2.83 | *4.1 | 1.4 |
| 18-to-29 males | 4.63 | 3.10 | *4.5 | 1.9 |
| 18-to-29 females | 0.74 | 3.17 | *5.1 | 1.5 |
| 30-to-49 males | 2.13 | 2.55 | *3.4 | 1.4 |
| 30-to-49 females | *4.88 | 1.98 | *2.8 | 1.2 |
| 50-and-over males | *8.26 | 2.15 | *6.7 | 1.2 |
| 50-and-over females | *10.96 | 1.69 | *7.3 | 1.0 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Appendix Table 8.

Components of Coverage for the Household Population in Puerto Rico by Age and Sex

| Age and sex | Correct enumerations | | Erroneous enumerations | | | | Whole-person census imputations | | DSE ¹ correct enumerations | | Omissions | | Net coverage error | |
|---------------------------|----------------------|----------------|------------------------|----------------|---------------|----------------|---------------------------------|----------------|---------------------------------------|----------------|------------|----------------|--------------------|----------------|
| | | | Duplication | | Other reasons | | | | | | | | | |
| | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| Total | 88.0 | 0.5 | 9.1 | 0.5 | 0.8 | 0.1 | 2.2 | X | 92.9 | 1.3 | 7.1 | 1.3 | *5.66 | 1.53 |
| 0 to 17 | 88.2 | 1.0 | 8.1 | 1.0 | 0.6 | 0.2 | 3.1 | X | 89.5 | 2.0 | 10.5 | 2.0 | 1.59 | 2.54 |
| 0 to 9 | 86.8 | 1.2 | 9.1 | 1.3 | 0.8 | 0.3 | 3.2 | X | 87.0 | 2.6 | 13.0 | 2.6 | 0.20 | 3.21 |
| 0 to 4 | 85.3 | 1.6 | 10.2 | 1.6 | 1.2 | 0.5 | 3.3 | X | 84.4 | 3.8 | 15.6 | 3.8 | -1.03 | 4.97 |
| 5 to 9 | 87.9 | 1.2 | 8.2 | 1.3 | 0.6 | 0.3 | 3.1 | X | 89.1 | 2.8 | 10.9 | 2.8 | 1.17 | 3.16 |
| 10 to 17 | 89.4 | 1.0 | 7.3 | 0.9 | 0.4 | 0.1 | 3.1 | X | 91.9 | 2.3 | 8.1 | 2.3 | 2.87 | 2.83 |
| 18-to-29 males | 87.3 | 1.1 | 8.6 | 1.0 | 1.2 | 0.4 | 2.7 | X | 91.5 | 2.5 | 8.4 | 2.5 | 4.63 | 3.10 |
| 18-to-29 females | 87.8 | 0.9 | 8.0 | 0.9 | 1.6 | 0.4 | 2.4 | X | 88.5 | 2.6 | 11.5 | 2.6 | 0.74 | 3.17 |
| 30-to-49 males | 87.7 | 0.9 | 9.7 | 0.9 | 0.6 | 0.2 | 2.2 | X | 89.5 | 2.0 | 10.5 | 2.0 | 2.13 | 2.55 |
| 30-to-49 females | 88.7 | 0.8 | 8.9 | 0.7 | 0.4 | 0.1 | 2.0 | X | 93.0 | 1.7 | 7.0 | 1.7 | *4.88 | 1.98 |
| 50-and-over males | 87.9 | 0.7 | 9.6 | 0.7 | 0.9 | 0.2 | 1.7 | X | 95.1 | 1.8 | 4.9 | 1.8 | *8.26 | 2.15 |
| 50-and-over females | 87.9 | 0.6 | 9.5 | 0.6 | 0.8 | 0.2 | 1.8 | X | 97.5 | 1.4 | 2.5 | 1.4 | *10.96 | 1.69 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

¹ Dual-system estimate.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 9.

Net Coverage Error Rates for the Household Population in Puerto Rico by Combined Statistical Area (CSA)

(In percent)

| Combined statistical area | 2020 | | | 2010 | | |
|------------------------------|------------------|--------------|----------------|------------------|-------------|----------------|
| | Census count | Estimate | Standard error | Census count | Estimate | Standard error |
| Total | 3,248,000 | *5.66 | 1.53 | 3,687,800 | *4.5 | 0.8 |
| San Juan-Bayamón CSA | 2,333,000 | *6.08 | 1.77 | 2,558,500 | *4.2 | 0.9 |
| Balance of Puerto Rico | 916,000 | *4.55 | 2.23 | X | X | X |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

Note: Census counts are rounded. As a result, counts may not sum to totals shown. A negative (positive) estimate of net coverage error indicates an undercount (overcount). Estimates from 2010 refer to the San Juan-Caguas-Fajardo Combined Statistical Area.

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Appendix Table 10.

Components of Coverage for the Household Population in Puerto Rico by Combined Statistical Area (CSA)

| Combined statistical area | Census count | Correct enumerations | | Erroneous enumerations | | | | Whole-person census imputations | | DSE ¹ correct enumerations | | Omissions | | Net coverage error | |
|-------------------------------------|------------------|----------------------|-----------------|------------------------|-----------------|---------------|-----------------|---------------------------------|-----------------|---------------------------------------|-----------------|------------|-----------------|--------------------|-----------------|
| | | Per-cent | Stan-dard error | Duplication | | Other reasons | | Per-cent | Stan-dard error | Per-cent | Stan-dard error | Per-cent | Stan-dard error | Per-cent | Stan-dard error |
| | | | | Per-cent | Stan-dard error | Per-cent | Stan-dard error | | | | | | | | |
| Total | 3,248,000 | 88.0 | 0.5 | 9.1 | 0.5 | 0.8 | 0.1 | 2.2 | X | 92.9 | 1.3 | 7.1 | 1.3 | *5.66 | 1.53 |
| San Juan-Bayamón CSA | 2,333,000 | 88.4 | 0.6 | 8.7 | 0.6 | 0.7 | 0.1 | 2.1 | X | 93.8 | 1.5 | 6.2 | 1.5 | *6.08 | 1.77 |
| Balance of Puerto Rico | 916,000 | 86.7 | 0.9 | 10.0 | 0.9 | 0.9 | 0.2 | 2.3 | X | 90.7 | 2.0 | 9.3 | 2.0 | *4.55 | 2.23 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

X Not applicable.

¹ Dual-system estimate.

Note: Census counts are rounded. As a result, counts may not sum to totals shown. A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 11.

Net Coverage Error Rates for Housing Units in Puerto Rico by Occupancy and Tenure

(In percent)

| Occupancy and tenure | 2020 | | 2010 | |
|-------------------------|--------------|----------------|------------|----------------|
| | Estimate | Standard error | Estimate | Standard error |
| Total | -2.02 | 1.79 | 0.4 | 1.4 |
| Occupied unit | -1.26 | 1.84 | 0.7 | 1.1 |
| Owner | -2.41 | 2.20 | 1.6 | 1.1 |
| Renter | 1.56 | 1.76 | -1.4 | 1.5 |
| Vacant unit | *-5.82 | 2.38 | -1.2 | 4.1 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Appendix Table 12.

Components of Coverage for Housing Units in Puerto Rico by Occupancy and Tenure

| Occupancy and tenure | Correct enumerations | | Erroneous enumerations | | | | DSE ¹ correct enumerations | | Omissions | | Net coverage error | |
|-------------------------|----------------------|-----------------|------------------------|-----------------|---------------|-----------------|---------------------------------------|-----------------|------------|-----------------|--------------------|-----------------|
| | Per-cent | Stan-dard error | Duplication | | Other reasons | | Per-cent | Stan-dard error | Per-cent | Stan-dard error | Per-cent | Stan-dard error |
| | | | Per-cent | Stan-dard error | Per-cent | Stan-dard error | | | | | | |
| Total | 92.4 | 0.7 | 4.8 | 0.7 | 2.8 | 0.3 | 90.5 | 1.5 | 9.5 | 1.5 | -2.02 | 1.79 |
| Occupied unit | 93.3 | 0.7 | 4.8 | 0.7 | 2.0 | 0.3 | 92.0 | 1.6 | 7.9 | 1.6 | -1.26 | 1.84 |
| Owner | 93.5 | 0.8 | 4.5 | 0.8 | 2.0 | 0.3 | 91.3 | 1.9 | 8.7 | 1.9 | -2.41 | 2.20 |
| Renter | 92.6 | 0.9 | 5.3 | 0.9 | 2.1 | 0.4 | 94.1 | 1.4 | 6.0 | 1.4 | 1.56 | 1.76 |
| Vacant unit | 87.8 | 1.4 | 5.0 | 1.0 | 7.1 | 1.0 | 82.8 | 1.8 | 17.2 | 1.8 | *-5.82 | 2.38 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

¹ Dual-system estimate.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).

Appendix Table 13.

Net Coverage Error Rates for Housing Units in Puerto Rico by Combined Statistical Area (CSA), Occupancy, and Tenure

(In percent)

| Combined statistical area by occupancy and tenure | 2020 | | 2010 | |
|---|--------------|----------------|------------|----------------|
| | Estimate | Standard error | Estimate | Standard error |
| Total | -2.02 | 1.79 | 0.4 | 1.4 |
| San Juan-Bayamón CSA | -3.02 | 2.13 | 0.2 | 1.8 |
| Occupied unit | -2.23 | 2.27 | X | X |
| Owner | -3.61 | 2.72 | 1.9 | 1.4 |
| Renter | 1.09 | 2.06 | -3.0 | 2.0 |
| Vacant unit | *-7.11 | 2.75 | -1.1 | 5.1 |
| Balance of Puerto Rico | 0.55 | 2.79 | X | X |
| Occupied unit | 1.34 | 3.10 | X | X |
| Owner | 0.74 | 3.31 | X | X |
| Renter | 2.85 | 3.84 | X | X |
| Vacant unit | -2.92 | 3.75 | X | X |

X Not applicable.

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount). Estimates from 2010 refer to the San Juan-Caguas-Fajardo Combined Statistical Area.

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release) and 2010 Census Coverage Measurement Survey.

Appendix Table 14.

Components of Coverage for Housing Units in Puerto Rico by Combined Statistical Area (CSA), Occupancy, and Tenure

| Combined statistical area by occupancy and tenure | Correct enumerations | | Erroneous enumerations | | | | DSE ¹ correct enumerations | | Omissions | | Net coverage error | |
|---|----------------------|----------------|------------------------|----------------|---------------|----------------|---------------------------------------|----------------|------------|----------------|--------------------|----------------|
| | Percent | Standard error | Duplication | | Other reasons | | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| | | | Percent | Standard error | Percent | Standard error | | | | | | |
| Total | 92.4 | 0.7 | 4.8 | 0.7 | 2.8 | 0.3 | 90.5 | 1.5 | 9.5 | 1.5 | -2.02 | 1.79 |
| San Juan-Bayamón CSA | 92.6 | 1.0 | 4.6 | 0.9 | 2.7 | 0.4 | 89.8 | 1.8 | 10.2 | 1.8 | -3.02 | 2.13 |
| Occupied unit | 93.4 | 0.9 | 4.7 | 0.9 | 2.0 | 0.4 | 91.3 | 1.9 | 8.7 | 1.9 | -2.23 | 2.27 |
| Owner | 93.9 | 1.1 | 4.2 | 1.0 | 2.0 | 0.4 | 90.4 | 2.3 | 9.6 | 2.3 | -3.61 | 2.72 |
| Renter | 92.4 | 1.1 | 5.7 | 1.1 | 1.8 | 0.5 | 93.5 | 1.6 | 6.5 | 1.6 | 1.09 | 2.06 |
| Vacant unit | 88.4 | 1.8 | 4.5 | 1.3 | 7.0 | 1.3 | 82.2 | 2.1 | 17.8 | 2.1 | *-7.11 | 2.75 |
| Balance of Puerto Rico | 91.7 | 0.8 | 5.2 | 0.8 | 3.1 | 0.6 | 92.3 | 2.4 | 7.7 | 2.4 | 0.55 | 2.79 |
| Occupied unit | 92.9 | 0.8 | 5.0 | 0.8 | 2.2 | 0.4 | 94.1 | 2.7 | 5.9 | 2.7 | 1.34 | 3.10 |
| Owner | 92.9 | 1.0 | 5.4 | 1.0 | 1.8 | 0.4 | 93.5 | 2.8 | 6.5 | 2.8 | 0.74 | 3.31 |
| Renter | 93.0 | 1.3 | 4.0 | 1.1 | 3.0 | 0.9 | 95.6 | 3.6 | 4.4 | 3.6 | 2.85 | 3.84 |
| Vacant unit | 86.5 | 2.0 | 6.1 | 1.3 | 7.2 | 1.7 | 84.1 | 2.6 | 15.9 | 2.6 | -2.92 | 3.75 |

* Denotes a (percent) net coverage error that is statistically significantly different from zero.

¹ Dual-system estimate.

Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount).

Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (August 2022 Release).