

April 2009

# **Final Report**

## **2008 Estimates of Compact of Free Association (COFA) Migrants**

---

U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU

# CONTENTS

---

| <i>SECTION</i>                                    | <i>PAGE</i> |
|---|-------------|
| <b>Background</b> .....                           | 1           |
| Introduction.....                                 | 1           |
| Definitions.....                                  | 1           |
| Overview of Methodology.....                      | 2           |
| Timeline.....                                     | 2           |
| <br>  |             |
| <b>Results</b> .....                              | 3           |
| Understanding Margin of Error.....                | 4           |
| <br>  |             |
| <b>Methodology</b> .....                          | 4           |
| Hawaii.....                                       | 5           |
| Guam.....   | 5           |
| Commonwealth of the Northern Mariana Islands..... | 6           |
| American Samoa.....                               | 7           |
| <br>  |             |
| <b>References</b> .....                           | 7           |

## **BACKGROUND**

---

### **Introduction**

The Compacts of Free Association are joint congressional-executive agreements between the United States and the Federated States of Micronesia (FSM), the Republic of the Marshall Islands (RMI), and the Republic of Palau. These agreements establish, in part, that citizens of the aforementioned areas may enter, engage in occupations, and establish residence as nonimmigrants in the United States and their territories and possessions.

The Compact of Free Association Amendments Act of 2003 introduced the requirement for an enumeration of qualified nonimmigrants (for the purposes of this report they will be referred to as Compact of Free Association, or COFA, migrants) to be conducted no less frequently than every five years in the following jurisdictions: Hawaii, Guam, the Commonwealth of the Northern Mariana Islands (CNMI), and American Samoa. This enumeration would serve as the basis for apportioning \$30 million in funding to these jurisdictions for a range of development programs and other benefits as a result of the in-migration of COFA migrants.

In accordance with the Compact of Free Association Amendments Act of 2003, the U.S. Department of the Interior signed a Memorandum of Agreement (MOA) with the U.S. Census Bureau to produce estimates of COFA migrants for 2008. This report outlines the methodology used by the Census Bureau to produce the 2008 estimates of COFA migrants and details the resulting estimates for each jurisdiction.

### **Definitions**

A COFA migrant is defined as “a person, or their children under the age of 18, admitted or resident pursuant to section 141 of the U.S.-RMI or U.S.-FSM Compact, or section 141 of the Palau Compact who, as of a date referenced in the most recently published enumeration, is a resident of an affected jurisdiction.” The date of residency for COFA migrants is determined by the effective date of the agreement, which is 1986 for the U.S.-RMI and the U.S.-FSM Compacts, and 1994 for the U.S.-Palau Compact.

The children of COFA migrants were defined as an individual under age 18 who was the “son/daughter” of the householder (defined as the person who owned, was buying, or was renting the living quarters where the survey was completed) if the householder was a COFA migrant, regardless of the child’s place of birth and year of entry.

To produce estimates of COFA migrants and their children using these definitions, the following data items were required: place of birth, year of entry, age, and relationship to the householder.

## Overview of Methodology

The Census Bureau and the Department of the Interior agreed to the following methodology for producing the 2008 Estimates of COFA Migrants:

1. Tabulate existing data to estimate the number of COFA migrants residing in Hawaii, American Samoa, and the area of CNMI outside of Saipan in 2008.
  - a. Hawaii— To produce estimates of COFA migrants residing in Hawaii in 2008, the Census Bureau used a three-year estimate (2005-2007) from the American Community Survey (ACS). The ACS is collected every month from a representative sample of addresses selected from updated address registers.
  - b. American Samoa— To produce estimates of COFA migrants residing in American Samoa in 2008, the Census Bureau used data from Census 2000 that included a complete enumeration of all living quarters.
  - c. The area of CNMI outside of Saipan— To produce estimates of COFA migrants residing in the area of CNMI outside of Saipan in 2008, the Census Bureau used data from Census 2000 that included a complete enumeration of all living quarters.
2. Conduct the 2008 Survey of Compact of Free Association (COFA) Migrants to estimate the number of COFA migrants residing in Guam and Saipan, CNMI in 2008.
  - a. Guam— To produce estimates of COFA migrants residing in Guam in 2008, the Census Bureau collected information in 2008 from a representative sample of blocks selected based on results from Census 2000. The Census Bureau then canvassed the selected blocks to obtain a current listing of all living quarters in the selected blocks. In some instances, the Census Bureau then sub-sampled the living quarters in the selected blocks – depending on the number of living quarters listed during canvassing.
  - b. Saipan, CNMI— To produce estimates of COFA migrants residing in Saipan, CNMI in 2008, the Census Bureau collected information in 2008 from a representative sample of blocks selected based on results from Census 2000. The Census Bureau then canvassed the selected blocks to obtain a current listing of all living quarters in the selected blocks. In some instances, the Census Bureau then sub-sampled the living quarters in the selected blocks – depending on the number of living quarters listed during canvassing.

## Timeline

On May 23, 2008, the Department of the Interior signed an MOA with the Census Bureau to produce the estimates of COFA migrants for 2008, and on June 2, 2008, Census Bureau staff traveled to Guam and CNMI to discuss the proposed methods for producing the estimates— and more specifically to gain local cooperation for the 2008 Survey of COFA Migrants. The Census Bureau then began preparations for field activities, which included creating all survey questionnaires and instructional materials.

On August 25, 2008 and September 8, 2008, the Census Bureau signed memoranda of understanding with the Governors of CNMI and Guam respectively that gave the local

governments the authority to hire and manage local staff that would serve as interviewers responsible for collecting the information for the survey.

Field enumeration began in Guam on November 17, 2008 and in Saipan, CNMI on December 6, 2008. Field enumeration activities were completed in Guam and Saipan, CNMI by December 31, 2008. The final response rates were 89 percent for Guam and 100 percent for Saipan, CNMI.

The Census Bureau then keyed the information on the completed questionnaires into electronic datasets, imputed any missing values in the datasets, and edited the information according to standard editing principles. We then calculated weights to account for the sampling design, the subsampling of housing units in some blocks, and nonresponse; applied these weights to the data; and tabulated the final data for release.

The special tabulations of ACS data for Hawaii and Census 2000 data for American Samoa and the areas of CNMI outside of Saipan were included, and the final estimates for all jurisdictions were provided to the Department of Interior on February 25, 2009.

## RESULTS

---

The Census Bureau estimates that there were 32,635 COFA migrants residing in the four jurisdictions combined (Hawaii, Guam, CNMI, and American Samoa) in 2008. Guam had the highest number of COFA migrants in 2008 with Hawaii having the next highest at (18,305 and 12,215, respectively). About 94 percent of all COFA migrants in 2008 resided in Guam or Hawaii.

**Table 1: 2008 Estimate of COFA Migrants: All Jurisdictions**

| Jurisdiction   | Estimate | Margin of Error |
|----------------|----------|-----------------|
| Hawaii         | 12,215   | +/- 2,736       |
| Guam           | 18,305   | +/- 3,439       |
| CNMI           | 2,100    | +/- 511         |
| American Samoa | 15       | (x)             |

x – not applicable.

Source: U.S. Census Bureau, 2005-2007 American Community Survey (Hawaii), 2008 Survey of Compact of Free Association (COFA) Migrants (Guam and Saipan, CNMI), and Census 2000 (areas of CNMI outside of Saipan, American Samoa).

## Understanding Margin of Error

The estimates in Table 1 are based on a sample and are subject to sampling variability, and the degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error<sup>1</sup>. The value shown above is the 90-percent margin of error. The margin of error is best understood through the use of a confidence interval. The 90-percent confidence interval provides a range of possible values for which we are 90 percent confident that it contains the true value of the estimate. The 90-percent confidence interval is constructed from the lowest possible value (estimate minus the 90-percent margin of error), ending with the highest possible value (estimate plus the 90-percent margin of error).

Although there is a range which we are 90 percent confident contains the true number of COFA migrants, for the purposes of this project, the Census Bureau is recommending the use of the estimates reported in Table 1 as the best estimate of COFA migrants in 2008.

## METHODOLOGY

---

The Census Bureau's guiding principles for producing the 2008 estimates of COFA migrants were to (1) produce quality information while (2) following standard Census Bureau practices and (3) conducting cost-effective activities. The following strategies were implemented to achieve these goals:

1. Follow standard procedures developed by the Census Bureau to produce high quality results. This included implementing probability-based sampling design, standardized training and field enumeration procedures, reinterview and quality assurance procedures, and data tabulation and disclosure avoidance procedures.
2. Obtain approval from the Office of Management and Budget for all data collection efforts. This included obtaining approval for the methodology employed for selecting possible respondents (sample selection) and for minimizing respondent burden.
3. Whenever possible, use data and information currently available to maintain cost control. This included using information from Census 2000 for American Samoa and the area of CNMI outside of Saipan, and information from the ACS for Hawaii.

Employing the strategies discussed above, the Census Bureau proposed and implemented the following methodology for producing the 2008 Estimates of COFA Migrants in each jurisdiction.

---

<sup>1</sup> Part of the estimate for CNMI (for the area of CNMI outside of Saipan) and the estimate for American Samoa were based on Census 2000 results – which is derived from a complete enumeration of the population, not a sample of the population.

## **Hawaii**

To produce estimates of COFA migrants residing in Hawaii in 2008, the Census Bureau used a three-year estimate (2005-2007) from the American Community Survey (ACS), which was released in December 2008.

The ACS is a nationwide survey designed to generate continuous measurement of the population in the United States and Puerto Rico. The ACS replaces the traditional long form of the decennial census by collecting and producing population and housing information every year instead of every ten years. The three-year estimates from ACS are available (and will be updated every year) for geographic areas with a population of 20,000 or more.

For more information on the methods and procedures of the ACS, see [ACS Design and Methodology](http://www.census.gov/acs/www/Downloads/tp67.pdf), available at <<http://www.census.gov/acs/www/Downloads/tp67.pdf>>.

The 2005-2007 three-year ACS estimates for Hawaii include data for 58,515 residents in housing units and 1,055 residents of group quarters, with a response rate of over 97 percent.

## **Guam**

To produce estimates of COFA migrants residing in Guam in 2008, the Census Bureau designed and implemented the 2008 Survey of Compact of Free Association (COFA) Migrants. The information for this survey was collected between November 17 and December 31, 2008.

Because the Census Bureau has not collected information on Guam's population since Census 2000, we designed a survey for Guam to produce results that were comparable in accuracy to the three-year estimates from the ACS that were available for Hawaii. This survey, the 2008 Survey of COFA Migrants, employed a stratified random sample of all living quarters (housing units and group quarters) in Guam designed to produce estimates with a similar coefficient of variation as the three-year estimates from ACS for Hawaii.<sup>2</sup>

For more information on the methods and procedures for the 2008 Survey of COFA Migrants in Guam, see the [2008 Survey of Compact of Free Association \(COFA\) Migrants Source and Accuracy Statement](#) (U.S. Census Bureau, 2009).

The 2008 Survey of COFA Migrants in Guam includes data for 12,790 residents in housing units and 648 residents of group quarters, with a response rate of 89 percent.

---

<sup>2</sup> The coefficient of variation is the ratio of the standard error (square root of the variance) to the value being estimated, usually expressed in terms of a percentage (also known as the relative standard deviation). The lower the coefficient of variation, the higher the relative reliability of the estimate.

## **Commonwealth of Northern Mariana Islands**

To produce estimates of COFA migrants residing in CNMI in 2008, the Census Bureau employed the following two methodologies: (1) design and implement the 2008 Survey of Compact of Free Association (COFA) Migrants in Saipan, CNMI, and (2) use information from Census 2000 for the area of CNMI outside of Saipan. The information for the 2008 Survey of COFA Migrants was collected between December 6 and December 31, 2008, and the information from Census 2000 has a reference date of April 1, 2000.

### *Saipan, CNMI*

To produce estimates of COFA migrants residing in Saipan, CNMI in 2008, the Census Bureau designed and implemented the 2008 Survey of Compact of Free Association (COFA) Migrants. The information for this survey was collected between December 6 and December 31, 2008.

Because the Census Bureau had not collected information on CNMI's population since Census 2000, we designed a survey for Saipan, CNMI to produce results that were comparable in accuracy to the three-year estimates from the ACS that were available for Hawaii. This survey, the 2008 Survey of COFA Migrants, employed a stratified random sample of all living quarters (housing units and group quarters) in Saipan, CNMI designed to produce estimates with a similar coefficient of variation as the three-year estimates from the ACS for Hawaii.

For more information on the methods and procedures of the 2008 Survey of COFA Migrants in Saipan, CNMI, see the [2008 Survey of Compact of Free Association \(COFA\) Migrants Source and Accuracy Statement](#) (U.S. Census Bureau, 2009).

The 2008 Survey of COFA Migrants in Saipan, CNMI includes data for 4,238 residents in housing units and 750 residents of group quarters, with a response rate of 100 percent.

### *Area of CNMI outside of Saipan*

To produce estimates of COFA migrants residing in the area of CNMI outside of Saipan, the Census Bureau used the results of Census 2000, which have a reference date of April 1, 2000.

Because the Census Bureau has not collected information on CNMI's population since Census 2000 and only a very small proportion of COFA migrants reside in the area of CNMI outside of Saipan, we determined that the most cost-effective method for producing estimates of COFA migrants for the area of CNMI outside of Saipan was to use data from Census 2000 for these areas. Census 2000 was a complete enumeration of all housing units and group quarters residents with a reference date of April 1, 2000. This comparability of results allowed us to combine Census 2000 data with the results of the 2008 Survey of COFA migrants in Saipan, CNMI, and to be able to compare the combined estimates with the ACS results for Hawaii.

For more information on the methods and procedures of Census 2000, see the [Census 2000 Operational Plan](http://www.census.gov/dmd/www/pdf/Operational2000.pdf) at <<http://www.census.gov/dmd/www/pdf/Operational2000.pdf>>.

Census 2000 data for the area of CNMI outside Saipan included 6,829 residents in housing units and 961 residents of group quarters.

## **American Samoa**

To produce estimates of COFA migrants residing in American Samoa, the Census Bureau used the results of Census 2000, which have a reference date of April 1, 2000.

Because the Census Bureau has not collected information on American Samoa's population since Census 2000 and only a very small proportion of COFA migrants reside in American Samoa, we determined that the most cost-effective method for producing estimates of COFA migrants for American Samoa was to use data from Census 2000. Census 2000 was a complete enumeration of all housing units and group quarters residents with a reference date of April 1, 2000. This comparability of results allowed us to compare the final estimates for American Samoa with the ACS results for Hawaii.

For more information on the methods and procedures of Census 2000, see the Census 2000 Operational Plan at <<http://www.census.gov/dmd/www/pdf/Operational2000.pdf>>.

Census 2000 data for American Samoa included 57,291 residents in housing units and 735 residents of group quarters.

## **REFERENCES**

---

U.S. Census Bureau. 2009. "2008 Survey of Compact of Free Association (COFA) Migrants Source and Accuracy Statement," Washington DC.

\_\_\_\_\_. 2006. "ACS Design and Methodology," Washington DC.  
<http://www.census.gov/acs/www/Downloads/tp67.pdf>. (accessed 4/23/09).

\_\_\_\_\_. 2000. "Census 2000 Operational Plan," Washington DC.  
<http://www.census.gov/dmd/www/pdf/Operational2000.pdf>. (accessed 4/23/09).