

## 2016-2020 ACS Migration Flow Files Documentation

### Introduction:

Each year the U.S. Census Bureau releases migration flow tables for selected geographic summary levels based on the American Community Survey (ACS) 5-year dataset.<sup>1</sup> County-to-county and county/minor civil division (MCD)-to-county/MCD migration flow estimates have been produced for every 5-year ACS dataset beginning with the ACS 5-year 2005-2009 estimates.<sup>2</sup> Flows between metropolitan statistical areas (MSAs) were introduced with the 2009-2013 dataset and have been produced for each subsequent dataset. The 2008-2012 table package was the first in the series to include migration flows from municipios in Puerto Rico to counties (and equivalents) in the fifty states plus District of Columbia.<sup>3</sup> In addition, the county-to-county flows going back to 2006-2010 dataset are available through the Census Flows Mapper.<sup>4</sup> As of 2016, all ACS migration flows data for counties, MCDs, and MSAs were made available in the Census application programming interface (API) through the Census Developers site.<sup>5</sup>

| Collection Years | Geographic Summary Levels | Characteristics  |
|------------------|---------------------------|--|
| 2005-2009        | County, MCD*              | None   |
| 2006-2010        | County, MCD*              | Age, sex, race, or Hispanic origin   |
| 2007-2011        | County, MCD*              | Educational attainment, household income, or individual income                           |
| 2008-2012        | County, MCD*              | Employment status, work status, or occupation  |
| 2009-2013        | MSA, county, MCD*         | Ability to speak English, place of birth, or years in the United States (or Puerto Rico) |
| 2010-2014        | MSA, county, MCD*         | Relationship to householder, household type, or housing tenure                           |
| 2011-2015        | MSA, county, MCD*         | Age, sex, race, or Hispanic origin   |
| 2012-2016        | MSA, county, MCD*         | None   |
| 2013-2017        | MSA, county, MCD*         | None   |
| 2014-2018        | MSA, county, MCD*         | None   |
| 2015-2019        | MSA, county, MCD*         | None   |
| <b>2016-2020</b> | <b>MSA, county, MCD*</b>  | <b>None</b>  |

\*Data at the MCD level are only available for Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

<sup>1</sup> For additional background information about historical migration flows, see <<http://www.census.gov/library/working-papers/2012/demo/benetsky-02.html>>. For information about the various characteristics, see <[http://www2.census.gov/programs-surveys/acs/tech\\_docs/subject\\_definitions/2019\\_ACSSubjectDefinitions.pdf](http://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2019_ACSSubjectDefinitions.pdf)>.

<sup>2</sup> The ACS program combines consecutive yearly datasets to increase the sample size and provide reliable estimates for smaller geographic areas. Estimates produced for the 1-year ACS, are limited to geographic areas of at least 65,000 population. The 5-year ACS provides estimates for all counties and county equivalents in the United States. Group quarters were included in the sample beginning in 2006.

<sup>3</sup> The MSA delineations are based on the U.S. Office of Management and Budget delineation from September 2018. See <<http://www.census.gov/programs-surveys/metro-micro.html>> for more information. For more information about the accuracy of the 5-year 2011-2015 ACS data, see <[https://www2.census.gov/programs-surveys/acs/tech\\_docs/accuracy/MultiyearACSAccuracyofData2015.pdf](https://www2.census.gov/programs-surveys/acs/tech_docs/accuracy/MultiyearACSAccuracyofData2015.pdf)>.

<sup>4</sup> The Census Flows Mapper <<http://flowsmapper.geo.census.gov/>> is an interactive, online mapping application.

<sup>5</sup> The Census Developers site is located at <<http://www.census.gov/developers/>>.

## **Disclosure Avoidance:**

Any data products that the Census Bureau releases must be reviewed and approved by the Disclosure Review Board based on disclosure avoidance rules to assure confidentiality of the respondents is protected.<sup>6</sup> For migration flow releases that include characteristics, flows with fewer than three cases were suppressed as an additional disclosure avoidance measure.<sup>7</sup> Flow counts and mover counts without characteristics, however, are not suppressed. The exact disclosure measures are determined by the Disclosure Review Board before each product is released.<sup>8</sup>

For years that included characteristics (up to 2011-2015), complementary suppression was applied to the MSA flows by characteristics so that suppressed county flows cannot be derived. If one and only one county-to-county flow of all the flows that aggregate up to a MSA-to-MSA flow is suppressed, then the overall MSA flow is suppressed. This may include flows of all sizes. If an MSA-to-MSA flow is suppressed for a particular characteristic, some information about the flow can be obtained from the MSA-to-MSA flow table without characteristics along with the county-to-county flows by that characteristic within each MSA that are not suppressed. In addition to the MSA flows, complementary suppression is applied to county/MCD-to-county/MCD flows with characteristics.

Since some flows are suppressed, summary statistics for each county, MCD, or MSA (e.g., number of nonmovers, movers to a different state) are included in the flow files. Tables crossed by selected characteristics are published annually as part of the ACS standard data products available through [data.census.gov](http://data.census.gov) for both current residence and residence one year ago geography. The selected characteristics do not cover the same characteristics used in this release.<sup>9</sup> The Census Bureau applies separate disclosure avoidance rules to these tables containing residence one year ago estimates. The universe for each table must have at least 50 unweighted cases for the Census Bureau to publish the table. The same rules are applied to the county-to-county, county/MCD-to-county/MCD, and MSA-to-MSA files. If there is not a sufficient number of cases, the summary statistics for county, MCD, or MSA of residence 1 year ago by characteristics are not shown.

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<sup>6</sup> For more information on how Census data are protected see <<https://www.census.gov/about/policies/privacy.html>>.

<sup>7</sup> County and MCD characteristic flows containing only one or two people from different households, only one or two people in group quarters, or one person in group quarters and the rest from a single household are suppressed. People are only counted if they are in universe (e.g., population 1 year and over in households for relationship to householder).

<sup>8</sup> Prior to the 2010-2014 release, some suppressed county and MCD flows were summed up to the state of residence 1 year ago. Those estimates are no longer included in the tables.

<sup>9</sup> The tables in [data.census.gov](http://data.census.gov) are crossed by age (B07001 and B07401), median age (B07002 and B07402), sex (B07003 and B07403), race and Hispanic origin (B07004A-I and B07404A-I), citizenship status (B07007 and B07407), marital status (B07008 and B07408), educational attainment (B07009 and B07409), individual income (B07010 and B07410), median individual income (B07011 and B07411), poverty status (B07012 and B07412), and housing tenure (B07013 and B07413). The stubs for the characteristic tables in [data.census.gov](http://data.census.gov) refer to movement between states and counties and not MCDs or MSAs.

**Blank Values:**

There are blank cells within the tables. An estimate may be blank for the following reasons.

1. The estimate is out of scope for the ACS sample – such as supplemental statistics for world regions.
2. The estimate does not exist – such as movers to a different county in the same state for the District of Columbia.
3. The supplemental statistics for county of residence one year ago or MCD of residence one year ago were suppressed due to disclosure avoidance (characteristic files only).

Flows with no records in the database and suppressed flows crossed by characteristics are not included in the files. The flows with no records are considered zero count estimates. The margins of error (MOE) for these zero count estimates cannot be calculated using the standard replicate variance formula.<sup>10</sup> For more information about the calculation of margins of error, see chapter 12 of Design and Methodology: American Community Survey. [http://www2.census.gov/programs-surveys/acs/methodology/design and methodology/acs design methodology report 2014.pdf](http://www2.census.gov/programs-surveys/acs/methodology/design%20and%20methodology/acs%20design%20methodology%20report%202014.pdf).

| Population Thresholds           | k-value | Margin of Error                  |                                   |
|---------------------------------|---------|----------------------------------|-----------------------------------|
|                                 |         | Using Minimum Average Weight (7) | Using Maximum Average Weight (16) |
| Less than 5,000                 | 4       | 9                                | 13                                |
| 5,000 to less than 10,000       | 8       | 12                               | 19                                |
| 10,000 to less than 20,000      | 10      | 14                               | 21                                |
| 20,000 to less than 30,000      | 14      | 16                               | 25                                |
| 30,000 to less than 50,000      | 18      | 18                               | 28                                |
| Greater than or equal to 50,000 | 22      | 20                               | 31                                |

<sup>10</sup> More on the model to compute ACS margins of error for zero-estimate counts can be found at [http://www2.census.gov/programs-surveys/acs/tech\\_docs/user\\_notes/KValueUserNote.pdf](http://www2.census.gov/programs-surveys/acs/tech_docs/user_notes/KValueUserNote.pdf).

### **Coverage and Group Quarters Population:**

The American Community Survey covers the entire population residing in the United States and Puerto Rico, both in housing units and group quarters facilities. Each year, independent housing unit address samples are selected for each county equivalent in the United States and Puerto Rico. Samples of group quarters facilities and persons in group quarters are done at the state level, including Puerto Rico and the District of Columbia. In order to provide a better representation of group quarters estimates over smaller areas, whole person imputation into not-in-sample group quarters facility was started with the 2011 ACS, including the 2007-2011 ACS 5-year estimates.<sup>11</sup> To better preserve the relationship between current and previous residence for these imputed cases, a recipient's county of residence 1 year ago is changed to the current county of residence if the donor moved within the same county; otherwise, the donor's county of residence 1 year ago is used for the imputation.

The group quarters population includes people living in correctional institutions, juvenile detention facilities, nursing homes, other long-term care facilities, college dormitories, military facilities, and other noninstitutionalized facilities. The estimated group quarters population for a county can be found in detailed table B26001 on [data.census.gov](http://data.census.gov).

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<sup>11</sup> For more information on ACS group quarters small area estimation, see <[http://www2.census.gov/programs-surveys/acs/tech\\_docs/user\\_notes/GQSAE\\_User\\_Note.pdf](http://www2.census.gov/programs-surveys/acs/tech_docs/user_notes/GQSAE_User_Note.pdf)>.

### **Application Programming Interface (API):**

Beginning in 2016, all ACS migration flows data for counties, MCDs, and MSAs were made available in the Census API through the Census Developers site.<sup>12</sup> The API files contain the same estimates that were previously released in table form and Census Flows Mapper, but the data are provided in a different layout to allow developers to design web and mobile apps that include Census Bureau statistics. See the API website for more information.

### **Format of the Files:**

There are separate text and Excel files for flows between counties, flows between metropolitan statistical areas (MSAs), and flows between minor civil divisions (MCDs) in some selected states. In several states, minor civil divisions are county subdivisions that are the primary governmental or administrative divisions of a county. In 12 states, the MCD governments serve as general-purpose local governments similar to incorporated municipalities.<sup>13</sup> In some of these states, county governments are limited or non-existent; therefore, MCDs are used as the main substate aggregate unit rather than counties. These 12 states are assigned MCD codes for residence 1 year ago during the geocoding process for ACS.

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<sup>12</sup> The Census Developers site is located at <<http://www.census.gov/developers/>>.

<sup>13</sup> For more information on geographic terms and concepts, see <<https://www.census.gov/programs-surveys/popest/about/glossary/geo-terms.html>>.

## County-to-County Flow Files

The county-to-county flow files are provided in two formats. There is one fixed field length national text file sorted by current residence geography. There is also an Excel file (.xlsx) containing a worksheet for each state of current residence, including Puerto Rico and the District of Columbia, and another Excel file containing a worksheet for each state of residence 1 year ago.

Besides the county of current residence, county of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each county, along with the margin of error (MOE) at the 90 percent confidence level. (For further information about the geographies used for the files see Appendix A.)

The layout of the text file is as follows:

| <b>Field Description</b>  | <b>Field Position</b> |
|---|-----------------------|
| Current Residence FIPS State Code   | 1-3                   |
| Current Residence FIPS County Code  | 4-6                   |
| Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code                           | 7-9                   |
| Residence 1 Year Ago FIPS County Code   | 10-12                 |
| Current Residence State Name  | 14-43                 |
| Current Residence County Name   | 44-78                 |
| Population 1 Year and Over Current County – Estimate  | 80-87                 |
| Population 1 Year and Over Current County – MOE   | 89-96                 |
| Nonmovers Current County – Estimate   | 98-104                |
| Nonmovers Current County – MOE  | 106-112               |
| Movers within the United States for Current County or within Puerto Rico for Current Municipio – Estimate | 114-120               |
| Movers within the United States for Current County or within Puerto Rico for Current Municipio – MOE      | 122-128               |
| Movers within the Same County for Current County – Estimates  | 130-136               |
| Movers within the Same County for Current County – MOE  | 138-144               |
| Movers from a Different County in the Same State for Current County – Estimate                            | 146-152               |
| Movers from a Different County in the Same State for Current County – MOE                                 | 154-160               |
| Movers from a Different State for Current County – Estimate   | 162-168               |
| Movers from a Different State for Current County – MOE  | 170-176               |
| Movers from Abroad – Estimate   | 178-184               |
| Movers from Abroad – MOE  | 186-192               |
| Residence 1 Year Ago State Name/U.S. Island Areas/Foreign Region  | 194-223               |

|   |         |
|---|---------|
| Residence 1 Year Ago County Name  | 224-258 |
| Population That Lived in County 1 Year Ago – Estimate   | 260-267 |
| Population That Lived in County 1 Year Ago – MOE  | 269-276 |
| Nonmovers County of Residence 1 Year Ago – Estimate   | 278-284 |
| Nonmovers County of Residence 1 Year Ago– MOE   | 286-292 |
| Movers within the United States for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate | 294-300 |
| Movers within the United States for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE      | 302-308 |
| Movers within the Same County for County of Residence 1 Year Ago – Estimates  | 310-316 |
| Movers within the Same County for County of Residence 1 Year Ago – MOE  | 318-324 |
| Movers to a Different County in the Same State for County of Residence 1 Year Ago – Estimate  | 326-332 |
| Movers to a Different County in the Same State for County of Residence 1 Year Ago – MOE   | 334-340 |
| Movers to a Different State for County of Residence 1 Year Ago – Estimate   | 342-348 |
| Movers to a Different State for County of Residence 1 Year Ago – MOE  | 350-356 |
| Movers to Puerto Rico – Estimate  | 358-364 |
| Movers to Puerto Rico – MOE   | 366-372 |
| Movers within Flow – Estimate   | 374-380 |
| Movers within Flow – MOE  | 382-388 |

## County-to-County Net and Gross Migration Files

There are two files, text and Excel, that contains flow, counterflow, net migration, and gross migration for all county pairs (Geography A and Geography B). The Excel file has a worksheet for each state. Both files are sorted by Geography A. The flow shows the immigration from Geography B to Geography A. The counterflow shows the outmigration from Geography A to Geography B. The net migration is the flow minus the counterflow, and the gross migration is the flow plus the counterflow.

The layout for the text file is as follows:

| <b>Field Description</b>  | <b>Field Position</b> |
|---|-----------------------|
| State/U.S. Island Area/Foreign Region Code of Geography A (state code based on FIPS code) | 1-3                   |
| FIPS County Code of Geography A   | 4-6                   |
| State/U.S. Island Area/Foreign Region of Geography B (state code based on FIPS code)      | 7-9                   |
| FIPS County Code of Geography B   | 10-12                 |
| State/U.S. Island Area/Foreign Region Name of Geography A                                 | 14-43                 |
| County Name of Geography A  | 44-78                 |
| State/U.S. Island Area/Foreign Region Name of Geography B                                 | 80-109                |
| County Name of Geography B  | 110-144               |
| Flow from Geography B to Geography A – Estimate   | 146-153               |
| Flow from Geography B to Geography A – MOE  | 155-162               |
| Counterflow from Geography A to Geography B – Estimate                                    | 164-171               |
| Counterflow from Geography A to Geography B – MOE   | 173-180               |
| Net Migration from Geography B to Geography A – Estimate                                  | 182-189               |
| Net Migration from Geography B to Geography A – MOE                                       | 191-198               |
| Gross Migration between Geography A and Geography B – Estimate                            | 200-207               |
| Gross Migration between Geography A and Geography B – MOE                                 | 209-216               |



## County/MCD-to-County/MCD Flow Files

The County/MCD-to-County/MCD files are similar to the county-to-county files except that MCDs are used instead of counties for Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

There is one fixed field length national text file sorted by current residence geography. There is also an Excel file (.xlsx) containing a worksheet for each state of current residence, including Puerto Rico and the District of Columbia, and another Excel file containing a worksheet for each state of residence 1 year ago.

In addition to the county or MCD of current residence, county or MCD of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each county or MCD, along with the margin of error (MOE) at the 90 percent confidence level. (For further information about the geographies used for the files see Appendix A.)

The layout of the text file is as follows:

| <b>Field Description</b>  | <b>Field Position</b> |
|---|-----------------------|
| Current Residence FIPS State Code   | 1-3                   |
| Current Residence FIPS County Code  | 4-6                   |
| Current Residence FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)                         | 7-11                  |
| Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code                               | 12-14                 |
| Residence 1 Year Ago FIPS County Code   | 15-17                 |
| Residence 1 Year Ago FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)                      | 18-22                 |
| Current Residence State Name  | 24-53                 |
| Current Residence County Name   | 54-88                 |
| Current Residence MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)                              | 89-133                |
| Population 1 Year and Over Current County/MCD – Estimate  | 135-142               |
| Population 1 Year and Over Current County/MCD – MOE   | 144-151               |
| Nonmovers Current County/MCD – Estimate   | 153-159               |
| Nonmovers Current County/MCD – MOE  | 161-167               |
| Movers within the United States for Current County/MCD or within Puerto Rico for Current Municipio – Estimate | 169-175               |
| Movers within the United States for Current County/MCD or within Puerto Rico for Current Municipio – MOE      | 177-183               |

|   |         |
|---|---------|
| Movers within the Same County/MCD for Current County/MCD – Estimates  | 185-191 |
| Movers within the Same County/MCD for Current County/MCD – MOE  | 193-199 |
| Movers from a Different County/MCD in the Same State for Current County/MCD – Estimate  | 201-207 |
| Movers from a Different County/MCD in the Same State for Current County/MCD – MOE   | 209-215 |
| Movers from a Different State for Current County/MCD – Estimate   | 217-223 |
| Movers from a Different State for Current County/MCD – MOE  | 225-231 |
| Movers from Abroad – Estimate   | 233-239 |
| Movers from Abroad – MOE  | 241-247 |
| Residence 1 Year Ago State Name/U.S. Island Area/Foreign Region   | 249-278 |
| Residence 1 Year Ago County Name  | 279-313 |
| Residence 1 Year Ago MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)   | 314-358 |
| Population That Lived in County/MCD 1 Year Ago – Estimate   | 360-367 |
| Population That Lived in County/MCD 1 Year Ago – MOE  | 369-376 |
| Nonmovers County/MCD of Residence 1 Year Ago – Estimate   | 378-384 |
| Nonmovers County/MCD of Residence 1 Year Ago– MOE   | 386-392 |
| Movers within the United States for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate | 394-400 |
| Movers within the United States for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE      | 402-408 |
| Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – Estimates  | 410-416 |
| Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – MOE  | 418-424 |
| Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – Estimate  | 426-432 |
| Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – MOE   | 434-440 |
| Movers to a Different State for County/MCD of Residence 1 Year Ago – Estimate   | 442-448 |
| Movers to a Different State for County/MCD of Residence 1 Year Ago – MOE  | 450-456 |
| Movers to Puerto Rico – Estimate  | 458-464 |
| Movers to Puerto Rico – MOE   | 466-472 |
| Movers within Flow – Estimate   | 474-480 |
| Movers within Flow – MOE  | 482-488 |

## County/MCD-to-County/MCD Net and Gross Migration Files

There are two files, text and Excel, that contains flow, counterflow, net migration, and gross migration for all county/MCD pairs (Geography A and Geography B). The Excel file has a worksheet for each state. Both files are sorted by Geography A. The flow shows the immigration from Geography B to Geography A. The counterflow shows the outmigration from Geography A to Geography B. The net migration is the flow minus the counterflow, and the gross migration is the flow plus the counterflow.

The layout for the text file is as follows:

| <b>Field Description</b>  | <b>Field Position</b> |
|---|-----------------------|
| State/U.S. Island Area/Foreign Region Code of Geography A (state code based on FIPS code) | 1-3                   |
| FIPS County Code of Geography A   | 4-6                   |
| FIPS MCD Code of Geography A (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)        | 7-11                  |
| State/U.S. Island Area/Foreign Region Code of Geography B (state code based on FIPS code) | 12-14                 |
| FIPS County Code of Geography B   | 15-17                 |
| FIPS MCD Code of Geography B (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)        | 18-22                 |
| State/U.S. Island Area/Foreign Region Name of Geography A                                 | 24-53                 |
| County Name of Geography A  | 54-88                 |
| MCD Name of Geography A (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)             | 89-133                |
| State/U.S. Island Area/Foreign Region Name of Geography B                                 | 134-163               |
| County Name of Geography B  | 164-198               |
| MCD Name of Geography B (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)             | 199-243               |
| Flow from Geography B to Geography A – Estimate   | 245-252               |
| Flow from Geography B to Geography A – MOE  | 254-261               |
| Counterflow from Geography A to Geography B – Estimate                                    | 263-270               |
| Counterflow from Geography A to Geography B – MOE   | 272-279               |
| Net Migration from Geography B to Geography A – Estimate                                  | 281-288               |
| Net Migration from Geography B to Geography A – MOE                                       | 290-297               |
| Gross Migration between Geography A and Geography B – Estimate                            | 299-306               |
| Gross Migration between Geography A and Geography B – MOE                                 | 308-315               |

## MSA-to-MSA Flow Files

The MSA-to-MSA flow files are provided in two formats. There is one fixed field length national text file sorted by current residence geography. There is also an Excel file (.xlsx) containing flows between all the MSAs in the United States and Puerto Rico and the District of Columbia.

Besides the MSA of current residence, MSA of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each MSA along with the margin of error (MOE) at the 90 percent confidence level. (For further information about the geographies used for the files see Appendix A.)

The layout of the text file is as follows:

| <b>Field Description</b>   | <b>Field Position</b> |
|--|-----------------------|
| Current Residence MSA Code (February 2013 delineations)                              | 1-5                   |
| Residence 1 Year Ago MSA Code (February 2013 delineations)                           | 6-10                  |
| Current Residence MSA Name   | 12-71                 |
| Population 1 Year and Over Current MSA – Estimate                                    | 73-80                 |
| Population 1 Year and Over Current MSA – MOE   | 82-89                 |
| Nonmovers Current MSA – Estimate   | 91-99                 |
| Nonmovers Current MSA – MOE  | 101-107               |
| Movers within the Same MSA – Estimate  | 109-117               |
| Movers within the Same MSA – MOE   | 119-125               |
| Movers from a Different MSA for Current MSA – Estimate                               | 127-133               |
| Movers from a Different MSA for Current MSA – MOE                                    | 135-141               |
| Movers from Elsewhere in the United States or Puerto Rico for Current MSA – Estimate | 143-149               |
| Movers from Elsewhere in the United States or Puerto Rico for Current MSA – MOE      | 151-157               |
| Movers from Abroad (not including Puerto Rico) – Estimate                            | 159-165               |
| Movers from Abroad (not including Puerto Rico) – MOE                                 | 167-173               |
| Residence 1 Year Ago MSA Name  | 175-234               |
| Population That Lived in MSA 1 Year Ago – Estimate                                   | 236-243               |
| Population That Lived in MSA 1 Year Ago – MOE  | 245-252               |
| Nonmovers MSA of Residence 1 Year Ago – Estimate                                     | 254-262               |
| Nonmovers MSA of Residence 1 Year Ago– MOE   | 264-270               |
| Movers within the Same MSA – Estimate  | 272-278               |
| Movers within the Same MSA – MOE   | 280-286               |
| Movers to a Different MSA for MSA of Residence 1 Year Ago – Estimate                 | 288-294               |

|  |         |
|--|---------|
| Movers to a Different MSA for MSA of Residence 1 Year Ago – MOE                                    | 296-302 |
| Movers to Elsewhere in the United States or Puerto Rico for MSA of Residence 1 Year Ago – Estimate | 304-310 |
| Movers to Elsewhere in the United States or Puerto Rico for MSA of Residence 1 Year Ago – MOE      | 312-318 |
| Movers within Flow – Estimate  | 320-326 |
| Movers within Flow – MOE   | 328-334 |

## MSA-to-MSA Net and Gross Migration Files

There are two files, text and Excel, that contains flow, counterflow, net migration, and gross migration for all msa pairs (Geography A and Geography B). The Excel file has a single worksheet for all flows. Both files are sorted by Geography A. The flow shows the immigration from Geography B to Geography A. The counterflow shows the outmigration from Geography A to Geography B. The net migration is the flow minus the counterflow, and the gross migration is the flow plus the counterflow.

The layout for the text file is as follows:

| <b>Field Description</b>                                       | <b>Field Position</b> |
|--|-----------------------|
| MSA Code (February 2013 delineations) of Geography A           | 1-5                   |
| MSA Code (February 2013 delineations) of Geography A           | 6-10                  |
| MSA Name of Geography A  | 12-71                 |
| MSA Name of Geography A  | 72-131                |
| Flow from Geography B to Geography A – Estimate                | 133-140               |
| Flow from Geography B to Geography A – MOE                     | 142-149               |
| Counterflow from Geography A to Geography B – Estimate         | 151-158               |
| Counterflow from Geography A to Geography B – MOE              | 160-167               |
| Net Migration from Geography B to Geography A – Estimate       | 169-176               |
| Net Migration from Geography B to Geography A – MOE            | 178-185               |
| Gross Migration between Geography A and Geography B – Estimate | 187-194               |
| Gross Migration between Geography A and Geography B – MOE      | 196-203               |

## **Appendix A: Geography**

### **County Equivalents**

Counties are the primary legal division in most states, but a few states have equivalent divisions known by different names. In order to get a complete partition of the United States and Puerto Rico, the following divisions are treated as county equivalents in the files.

Borough (Alaska)

Census Area (Alaska)

City and Borough (Alaska)

County (All except Alaska, the District of Columbia, Louisiana, and Puerto Rico)

The District of Columbia

Independent City (Maryland, Missouri, Nevada, Virginia)<sup>14</sup>

Municipality (Alaska)

Municipio (Puerto Rico)

Parish (Louisiana)

### **Minor Civil Divisions**

The county/MCD-to-county/MCD files include minor civil division estimates for the 12 states in which they also serve as general-purpose local governments. The 12 states have various names for their minor civil divisions.

Connecticut (City, Town)

Maine (City, Gore, Indian Reservation, Plantation, Town, Unorganized Territory)

Massachusetts (City, Town)

Michigan (Charter Township, City, Township)

Minnesota (City, Township, Unorganized Territory)

New Hampshire (City, Grant, Location, Town, Township)

New Jersey (Borough, City, Purchase, Town, Township, Village)

New York (Borough, City, Indian Reservation, Town)

Pennsylvania (Borough, City, Town, Township)

Rhode Island (City, Town)

Vermont (City, Gore, Grant, Town)

Wisconsin (City, Town, Village)

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<sup>14</sup> In previous county-to-county flows products, some counties and independent cities were collapsed into single entities due to cognitive and geographic coding problems with migration data for places.

## Puerto Rico

Prior to the 2008 ACS, the stateside questionnaire only requested respondents to answer “Puerto Rico” if they lived in Puerto Rico 1 year ago. The Puerto Rico questionnaire asked for a municipio or a U.S. county for movers, along with other geographic information; therefore, municipio level migration flow data from Puerto Rico to the United States are not available prior to 2008 but are available for flow from the United States to each Puerto Rico municipio.

The question was revised in 2008 to ask for the same geographic information on the Puerto Rico and stateside questionnaire allowing estimates to be calculated for both flow directions. Because of this limitation, prior ACS county-to-county migration flow files aggregated flows from Puerto Rico to the United States to “Puerto Rico” rather than individual municipios. The 2008-2012 files are the first to include flows from Puerto Rico municipios to U.S. counties. Puerto Rico municipios are treated as equivalent to U.S. counties.<sup>15</sup>

## U.S. Island Areas and Foreign Countries

Outmigration from the United States and Puerto Rico to U.S. Island Areas or foreign countries is not available from the American Community Survey since only housing units and group quarters (e.g., college dormitories, military barracks, prisons) within the United States and Puerto Rico are sent questionnaires. The American Community Survey does collect data for U.S. Island Area or Foreign Country of residence 1 year ago. The files include immigration from outside the United States and Puerto Rico aggregated to U.S. Island Areas and foreign region. A three-letter code is used to identify these areas.

### U.S. Island Areas (ISL):

American Samoa, Baker Island, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Northern Marianas Islands, Midway Islands, Navassa Island, Palmyra Atoll, U.S. Virgin Islands, Wake Island, U.S. Island Areas not specified.

### Europe (EUR):

Albania, Andorra, Austria, Azores Islands, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechoslovakia, Czech Republic, Denmark, England, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Ireland, Isle of Man, Italy, Jan Mayen, Jersey, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Madeira Islands, Moldova, Monaco, Montenegro, Netherlands, Northern Ireland, Norway, Poland, Portugal, Romania, Russia, San Marino, Scotland, Serbia, Slovakia, Slovenia, Spain, Svalbard, Sweden, Switzerland, Ukraine, United Kingdom, USSR, Vatican City, Wales, Yugoslavia, Europe not specified.

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<sup>15</sup> Hurricanes caused a disruption of data collection activities from September through December of 2017 in Puerto Rico. All 2017 1-year estimates for Puerto Rico are based on data collected prior to this disruption. For more information, see <https://www.census.gov/programs-surveys/acs/technical-documentation/user-notes/2018-02.html>.



Asia (ASI):

Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, Cambodia, China, Cyprus, East Timor, Georgia, Hong Kong, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Korea, Kazakhstan, Kyrgyzstan, Kuwait, Laos, Lebanon, Macau, Malaysia, Maldives, Mongolia, Myanmar (Burma), Nepal, North Korea, Oman, Pakistan, Paracel Islands, Philippines, Qatar, Saudi Arabia, Singapore, South Korea, Spratley Islands, Sri Lanka, Syria, Taiwan, Tajikistan, Thailand, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Vietnam, Yemen, Asia not specified.

Northern America (NAM):

Bermuda, Canada, Greenland, St. Pierre & Miquelon, North American not specified

Central America (CAM):

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Central America not specified

Caribbean (CAR):

Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bonaire, British Virgin Islands, Cayman Islands, Cuba, Curaçao, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Netherland Antilles, Saba, St. Barthelemy, St. Kitts-Nevis, St. Lucia, St. Vincent and the Grenadines, Sint Eustatius, Sint Maarten, Trinidad and Tobago, Turks and Caicos Islands, West Indies not specified

South America (SAM):

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela, South American not specified

Africa (AFR):

Algeria, Angola, Benin, Botswana, British Indian Ocean Territory, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of Congo, Djibouti, Egypt, Equatorial Guinea, Ethiopia, Eritrea, Europa Island, Gabon, Gambia, Ghana, Glorioso Islands, Guinea, Guinea-Bissau, Ivory Coast, Juan de Nova Island, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Morocco, Mozambique, Namibia, Niger, Nigeria, Reunion, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, St Helena, Sudan, Swaziland, Tanzania, Togo, Tromelin Island, Tunisia, Uganda, Western Sahara, Zambia, Zimbabwe, Africa not specified

Oceania and At Sea (OCE):

Australia, Christmas Island, Cook Islands, Coral Sea Islands, Heard and McDonald Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Micronesia, Nauru, New Caledonia, New Zealand, Niue, Norfolk Island, Palau, Papua New Guinea, Pitcairn Islands, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna Islands, Samoa, Oceania not specified, At sea