

## 2008-2012 ACS County-to-County Migration Files Documentation

### Introduction:

The U.S. Census Bureau released the first county-to-county migration flow estimates based on the American Community Survey (ACS) in April 2012. It used data collected from 2005 through 2009 that composed the first ACS 5-year dataset. The ACS program combines consecutive yearly datasets to increase the sample size and provide reliable estimates for smaller areas. Even though estimates are produced for 1-year and 3-year datasets, estimates are only published for geographic areas of at least 65,000 and 20,000 population, respectively. Only the 5-year datasets provide estimates for all counties and county equivalents in the U.S.

The 2006-2010 ACS County-to-County Migration Files included additional files crossed by certain characteristics: age, sex, race and Hispanic or Latino origin. For the 2007-2011 release, the characteristics Educational Attainment, and Household and Individual Income were used instead. The 2008-2012 release consists of Employment Status, Occupation, and Work Status. The values for Employment Status and Work Status are for the current residence (i.e., at the time the respondent was surveyed or the previous week for Employment Status.) The occupation is the one that the person worked the most hours for the previous week or at their last job within the prior 5 years if the person did not have a job the previous week.<sup>1</sup>

Employment status is separated into those in the labor force and those not in the labor force. The labor force participants are further divided into employed civilian, unemployed, and in Armed Forces. Occupation is separated into six categories: Management, business, science, and arts occupations; service occupations; sales and office occupations; natural resources, construction, and maintenance occupations; production, transportation, and material moving occupations; and military specific occupations for those that could not be classified in an existing civilian occupation. Work status is separated into six categories: worked 50 to 52 weeks in the past 12 months and usually worked 35 or more hours per week; worked 50 to 52 weeks in the past 12 months and usually worked less than 35 hours per week; worked 1 to 49 weeks in the past 12 months and usually worked 35 or more hours per week; worked 1 to 49 weeks in the past 12 months and usually worked less than 35 hours per week; last worked 1 to 5 years ago; and last worked over 5 years ago or never worked.

---

<sup>1</sup> For additional background information about historical migration flows see [http://www.census.gov/hhes/migration/files/acs/county-to-county/County\\_to\\_County\\_Mig\\_Working\\_Paper.pdf](http://www.census.gov/hhes/migration/files/acs/county-to-county/County_to_County_Mig_Working_Paper.pdf). For information about the various characteristics see [http://www.census.gov/acs/www/Downloads/data\\_documentation/SubjectDefinitions/2012\\_ACSSubjectDefinitions.pdf](http://www.census.gov/acs/www/Downloads/data_documentation/SubjectDefinitions/2012_ACSSubjectDefinitions.pdf).

Besides county-to-county migration flows, the product package also contains flow data for minor civil divisions (MCD) for a few select states<sup>2</sup> in which they are commonly used as the primary substate aggregate unit in addition to or instead of counties.

In addition, there are files that contain the migration flow, migration counterflow, net migration, and gross migration between each county pair or county/mcd pair. These files are only available without characteristics.

### **Disclosure Avoidance:**

Due to the amount of data released through standard 5-year ACS data products as well as the public use microdata samples (PUMS), and that sequential annual 5-year estimates contain overlapping samples; the Census Bureau must be vigilant in order to protect confidentiality of the respondents. 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 according to Section 9 of Title 13 of the United States Code. It states “Neither the Secretary, nor any other officer or employee of the Department of Commerce or bureau or agency thereof, or local government census liaison may...make any publication whereby the data furnished by any particular establishment or individual under this title can be identified...”<sup>3</sup>

Record swapping<sup>4</sup>, done to protect confidentiality, is applied to the dataset used to create the straight flow files. The additional disclosure avoidance measure of suppressing flows with small number of cases is applied for any flows with characteristics.<sup>5</sup> Flow counts and mover counts without characteristics, however, are not suppressed. The exact measures are determined by the Disclosure Review Board before each future product is released.

For the characteristic files, flows that have been suppressed are summed to the state of residence 1 year level. In these cases, the value of ‘XXX’ is assigned for county of residence 1 year ago and ‘XXXXX’

---

<sup>2</sup> The states are Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

<sup>3</sup> For more information on how Census data are protected see [http://www.census.gov/privacy/data\\_protection/](http://www.census.gov/privacy/data_protection/).

<sup>4</sup> Data swapping was the main procedure used for protecting Census 2000 tabulations and is also used for ACS tabulations. In each case, a small percentage of household records are swapped. Pairs of households in different geographic regions are swapped. The selection process for deciding which households should be swapped is highly targeted to affect the records with the most disclosure risk. Pairs of households that are swapped match on a minimal set of demographic variables. All data products are created from the swapped data files. (Design and Methodology, 2009)

<sup>5</sup> 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., age 16 years or over for employment status).

for MCD of residence 1 year, when applicable. If there still are not enough cases, then the state level flow is suppressed.

Unlike with previous releases, the supplemental statistics for each county or minor civil division (e.g., number of nonmovers, movers to a different state) have not been previously published through the ACS standard data products available through American FactFinder. Tables are published for both current residence and residence 1 year ago by selected characteristics. The Census Bureau applies separate disclosure avoidance rule to the tables consisting residence 1 year ago estimates. The universe<sup>6</sup> 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 and county/MCD-to-county/MCD files. If there are not a sufficient number of cases, the supplemental statistics for county of residence 1 year ago or MCD of residence 1 year ago by characteristics is not shown.

### **Blank Values:**

There are any of four reasons an estimate may be blank.

1. The estimate is out of scope for the ACS sample – such as the population 1 year and over for Europe.
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 1 year ago or MCD of residence 1 year ago were suppressed due to disclosure avoidance. (Characteristic files only)
4. No records for the estimate were surveyed. The margin of errors (MOE) for these zero count estimates cannot be calculated using the standard replicate variance formula.<sup>7</sup> For published ACS data products, the MOE for a zero count estimate is calculated using the average weights at the state and national levels. Zero count estimates within the state of current residence use the MOE based upon that state's average weight while estimates within the state of previous residence use the MOE based upon the U.S. average weight.

Flows with no records in the dataset are not included in the files. They are also zero count estimates. The standard errors for the zero count estimates are calculated by taking the square

---

<sup>6</sup> The universe for employment status and worker status tables is population 16 years and over. The universe for the occupation tables is population 16 years and over who worked in the last five years. The universe may differ from those used in other ACS products covering these subjects.

<sup>7</sup> For more information concerning the calculation of margin of errors, see chapter 12 of *Design and Methodology: American Community Survey*.

root of the product of the 90<sup>th</sup> percentile k value and the average weight. The standard error is then multiplied by 1.645 in order to get the 90 percent margin of error.<sup>8</sup> Before the 2012 ACS, only a single k value was used. The methodology was changed to account for more nuanced k values. This resulted in 6 different k values for 5-year ACS. They are assigned based upon the total population of an area. For certain geographies, the total population is the official population estimate. If there is no official population estimate available, then the total population may be found in table B01003 through American FactFinder.

Population Thresholds	k Values	Margin of Error	
		Using Min Ave. Weight (7)	Using Max Ave. Weight (17)
Less than 5,000	4	9	14
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	29
Greater than or equal to 50,000	22	20	32

---

<sup>8</sup> The model to compute ACS margins of error for zero-estimate counts was updated for 2012 ACS. More information can be found at <[http://www.census.gov/acs/www/Downloads/user\\_notes/KValueUserNote.pdf](http://www.census.gov/acs/www/Downloads/user_notes/KValueUserNote.pdf)>.

The average weights are calculated for each state of current residence and k value for the county of current residence is used. Estimates for residence 1 year ago should use the average weight for the U.S.

<b>State of Current Residence</b>	<b>Average Weight</b>	<b>State of Current Residence</b>	<b>Average Weight</b>	<b>State of Current Residence</b>	<b>Average Weight</b>
Alabama	13	Maryland	14	South Carolina	15
Alaska	9	Massachusetts	14	South Dakota	8
Arizona	16	Michigan	10	Tennessee	14
Arkansas	13	Minnesota	7	Texas	15
California	15	Mississippi	14	Utah	12
Colorado	14	Missouri	12	Vermont	8
Connecticut	14	Montana	10	Virginia	14
Delaware	12	Nebraska	9	Washington	13
Dist of Columbia	15	Nevada	16	West Virginia	12
Florida	17	New Hampshire	12	Wisconsin	8
Georgia	16	New Jersey	14	Wyoming	13
Hawaii	13	New Mexico	13	Puerto Rico	15
Idaho	13	New York	13		
Illinois	12	North Carolina	15	United States	13
Indiana	12	North Dakota	7		
Iowa	9	Ohio	12		
Kansas	10	Oklahoma	10		
Kentucky	13	Oregon	14		
Louisiana	14	Pennsylvania	10		
Maine	9	Rhode Island	15		

**Coverage and Group Quarter Population:**

The American Community Survey covers the entire population residing in the U.S. and Puerto Rico, both in housing units and group quarter facilities. Each year, independent housing unit address samples are selected for each county equivalent in the U.S. and Puerto Rico. Samples of group quarters facilities and persons in group quarters are done at the state level, including Puerto Rico and District of Columbia. In order to provide a better representation of group quarter 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>9</sup> To preserve better 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 include people living in correctional institutions, juvenile dentition facilities, nursing homes, other long-term care facilities, college dormitories, military facilities, and other noninstitutional facilities. Between whole person group quarters imputation and higher rates of inter-county migration for people in group quarters compared to the general public, an occasional anomaly in the number of movers between a county pair can occur. The 2008-2012 ACS inter-county mover rates for group quarters are shown in the table below. The estimated group quarters population for a county can be found in detailed table B26001 on American Community Survey.

	Total Population 1 Year and Over		Percent Movers Between Counties within U.S.		Percent Movers from Abroad	
	Estimate	MOE	Percent	MOE	Percent	MOE
Total:	305,340,618	+/-15,176	5.4	+/-0.1	0.6	+/-0.1
Group Quarters:	8,011,676	+/- 548	30.8	+/-0.1	1.7	+/-0.1
Adult correctional facilities	2,258,617	+/- 667	33.7	+/-0.2	0.9	+/-0.1
Nursing facilities/skilled facilities	1,511,513	+/- 28	8.2	+/-0.1	0.1	+/-0.1
College/university housing	2,532,471	+/- 28	43.3	+/-0.3	2.9	+/-0.1

Source: U.S. Census Bureau, 2008-2012 American Community Survey, Subject Table S2601B

<sup>9</sup> For more information on ACS group quarters small area estimation, see <[http://www.census.gov/acs/www/Downloads/user\\_notes/GQSAE\\_User\\_Note.pdf](http://www.census.gov/acs/www/Downloads/user_notes/GQSAE_User_Note.pdf)>.

## **Format of the Files:**

There are separate text and Excel files for flows between counties 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. The MCD governments, in 12 states, serve as general-purpose local governments similar to incorporated municipalities.<sup>10</sup> In some of these states, county government is 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.

### County-to-County Flow Files with No Characteristics

The County-to-County Flows files are provided in two formats. There is one fixed field length national text file sorted by current residence geography. There is also a 1997-2003 Excel file containing a worksheet for each state of current residence, including Puerto Rico and 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

<sup>10</sup> For more information on geographic terms and concepts, see <[www.census.gov/geo/www/reference.html](http://www.census.gov/geo/www/reference.html)>.

Nonmovers Current County – MOE	106-112
Movers within the U.S. for Current County or within Puerto Rico for Current Municipio – Estimate	114-120
Movers within the U.S. 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 U.S. for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate	294-300
Movers within the U.S. 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 (No Characteristics)

There are a text file and an Excel file 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 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-to-County Flow Files by Characteristics

The county-to-county characteristic flow files have the same fields as the county-to-county flow files with the addition field for characteristic code in positions 13-14. The field either contains an employment status code, occupation code, or work status code depending upon the file.

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
<p>Employment Status Code:                      (Universe: Population 16 years and over)</p> <ul style="list-style-type: none"> <li>01 = In labor force, employed civilian</li> <li>02 = In labor force, unemployed</li> <li>03 = In labor force, in Armed Forces</li> <li>04 = Not in labor force</li> </ul> <p>Occupation Code:                      (Universe: Population 16 years and over who last worked within the past 5 years)</p> <ul style="list-style-type: none"> <li>01 = Management, business, science, and arts occupations</li> <li>02 = Service occupations</li> <li>03 = Sales and office occupations</li> <li>04 = Natural resources, construction, and maintenance occupations</li> <li>05 = Production, transportation, and material moving occupations</li> <li>06 = Military specific occupations<sup>11</sup></li> </ul> <p>Work Status Code:                      (Universe: Population 16 years and over)</p> <ul style="list-style-type: none"> <li>01 = Worked 50 to 52 weeks in the past 12 months and usually worked 35 or more hours per week</li> </ul>	13-14

<sup>11</sup> Military specific occupations are only for the Armed Forces that could not be classify in an existing civilian occupation.

02 = Worked 50 to 52 weeks in the past 12 months and usually worked less than 35 hours per week 03 = Worked 1 to 49 weeks in the past 12 months and usually worked 35 or more hours per week 04 = Worked 1 to 49 weeks in the past 12 months and usually worked less than 35 hours per week 05 = Last worked 1 to 5 years ago 06 = Last worked over 5 years ago or never worked	
Current Residence State Name	16-45
Current Residence County Name	46-80
Population Current County – Estimate	82-89
Population Current County – MOE	91-98
Nonmovers Current County – Estimate	100-106
Nonmovers Current County – MOE	108-114
Movers within the U.S. for Current County or within Puerto Rico for Current Municipio – Estimate	116-122
Movers within the U.S. for Current County or within Puerto Rico for Current Municipio – MOE	124-130
Movers within the Same County for Current County – Estimates	132-138
Movers within the Same County for Current County – MOE	140-146
Movers from a Different County in the Same State for Current County – Estimate	148-154
Movers from a Different County in the Same State for Current County – MOE	156-162
Movers from a Different State for Current County – Estimate	164-170
Movers from a Different State for Current County – MOE	172-178
Movers from Abroad – Estimate	180-186
Movers from Abroad – MOE	188-194
Residence 1 Year Ago State Name/U.S. Island Areas/Foreign Region	196-225
Residence 1 Year Ago County Name	226-260
Population That Lived in County 1 Year Ago – Estimate	262-269
Population That Lived in County 1 Year Ago – MOE	271-278
Nonmovers County of Residence 1 Year Ago – Estimate	280-286
Nonmovers County of Residence 1 Year Ago– MOE	288-294
Movers within the U.S. for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate	296-302

Movers within the U.S. for County of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE	304-310
Movers within the Same County for County of Residence 1 Year Ago – Estimates	312-318
Movers within the Same County for County of Residence 1 Year Ago – MOE	320-326
Movers to a Different County in the Same State for County of Residence 1 Year Ago – Estimate	328-334
Movers to a Different County in the Same State for County of Residence 1 Year Ago – MOE	336-342
Movers to a Different State for County of Residence 1 Year Ago – Estimate	344-350
Movers to a Different State for County of Residence 1 Year Ago – MOE	352-358
Movers to Puerto Rico – Estimate	360-366
Movers to Puerto Rico – MOE	368-374
Movers within Flow – Estimate	376-382
Movers within Flow – MOE	384-390

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

The County/MCD-to-County/MCD files are similar to the County-to-County files except that minor civil divisions 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 a 1997-2003 Excel file containing a worksheet for each state of current residence, including Puerto Rico and 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 U.S. for Current County/MCD or within Puerto Rico for Current Municipio – Estimate	169-175
Movers within the U.S. 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 U.S. 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 U.S. 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 (No Characteristics)

New this year are a text file and an Excel file 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, except there are two for Pennsylvania (Adams County to Juanita County and Lackawanna County to York County) because of the large number of records. 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 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

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

The county/MCD-to-county/MCD characteristic flow files have the same fields as the county/MCD-to-county/MCD flow files with the addition field for characteristic code in positions 23-24. The field either contains an employment status code, occupation code, or work status code depending upon the file.

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
Employment Status Code: (Universe: Population 16 years and over) 01 = In labor force, employed civilian 02 = In labor force, unemployed 03 = In labor force, in Armed Forces 04 = Not in labor force  Occupation Code: (Universe: Population 16 years and over who last worked within the past 5 years) 01 = Management, business, science, and arts occupations 02 = Service occupations 03 = Sales and office occupations 04 = Natural resources, construction, and maintenance occupations 05 = Production, transportation, and material moving occupations 06 = Military specific occupations <sup>12</sup>	23-24

<sup>12</sup> Military specific occupations are only for Armed Forces that could not be classified in an existing civilian occupation.

<p>Work Status Code:  (Universe: Population 16 years and over)</p> <p>01 = Worked 50 to 52 weeks in the past 12 months and usually worked 35 or more hours per week</p> <p>02 = Worked 50 to 52 weeks in the past 12 months and usually worked less than 35 hours per week</p> <p>03 = Worked 1 to 49 weeks in the past 12 months and usually worked 35 or more hours per week</p> <p>04 = Worked 1 to 49 weeks in the past 12 months and usually worked less than 35 hours per week</p> <p>05 = Last worked 1 to 5 years ago</p> <p>06 = Last worked over 5 years ago or never worked</p>	
Current Residence State Name	26-55
Current Residence County Name	56-90
Current Residence MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	91-135
Population Current County/MCD – Estimate	137-144
Population Current County/MCD – MOE	146-153
Nonmovers Current County/MCD – Estimate	155-161
Nonmovers Current County/MCD – MOE	163-169
Movers within the U.S. for Current County/MCD or within Puerto Rico for Current Municipio – Estimate	171-177
Movers within the U.S. for Current County/MCD or within Puerto Rico for Current Municipio – MOE	179-185
Movers within the Same County/MCD for Current County/MCD – Estimates	187-193
Movers within the Same County/MCD for Current County/MCD – MOE	195-201
Movers from a Different County/MCD in the Same State for Current County/MCD – Estimate	203-209
Movers from a Different County/MCD in the Same State for Current County/MCD – MOE	211-217
Movers from a Different State for Current County/MCD – Estimate	219-225
Movers from a Different State for Current County/MCD – MOE	227-233
Movers from Abroad – Estimate	235-241
Movers from Abroad – MOE	243-249
Residence 1 Year Ago State Name/U.S. Island Area/Foreign Region	251-280

Residence 1 Year Ago County Name	281-315
Residence 1 Year Ago MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	316-360
Population That Lived in County/MCD 1 Year Ago – Estimate	362-369
Population That Lived in County/MCD 1 Year Ago – MOE	371-378
Nonmovers County/MCD of Residence 1 Year Ago – Estimate	380-386
Nonmovers County/MCD of Residence 1 Year Ago– MOE	388-394
Movers within the U.S. for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – Estimate	396-402
Movers within the U.S. for County/MCD of Residence 1 Year Ago or within Puerto Rico for Municipio of Residence 1 Year Ago – MOE	404-410
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – Estimates	412-418
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – MOE	420-426
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – Estimate	428-434
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – MOE	436-442
Movers to a Different State for County/MCD of Residence 1 Year Ago – Estimate	444-450
Movers to a Different State for County/MCD of Residence 1 Year Ago – MOE	452-458
Movers to Puerto Rico – Estimate	460-466
Movers to Puerto Rico – MOE	468-474
Movers within Flow – Estimate	476-482
Movers within Flow – MOE	484-490

## **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, District of Columbia, Louisiana, and Puerto Rico)  
District of Columbia  
Independent City (Maryland, Missouri, Nevada, Virginia<sup>13</sup>)  
Municipality (Alaska)  
Municipio (Puerto Rico)  
Parish (Louisiana)

### **Minor Civil Divisions**

The MCD/county-to-MCD/county files include minor civil division estimates for the 12 states (Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin) 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)

---

<sup>13</sup> In previous county-to-county flow products, some counties and independent cities were collapsed into single entities due to cognitive and geographic coding problems with migration data for places. (For the Census 2000 list of combined Virginia counties and independent cities see appendix B in Migration DVD documentation at [http://www.census.gov/population/www/cen2000/migration/mig\\_dvd.html](http://www.census.gov/population/www/cen2000/migration/mig_dvd.html)).

Wisconsin (City, Town, Village)

### Puerto Rico

Prior to 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 U.S. are not available prior to 2008 but are available for flow from the U.S. to Puerto Rico.

The question was revised in 2008 to ask for the same geographic information on the Puerto Rico and stateside information 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 U.S. 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.

### 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 Meyan, 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

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, Cape 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



## **References:**

Benetsky, Megan and Kin Koerber. *2005-2009 American Community Survey County-to-County Migration Files*.  
([http://www.census.gov/hhes/migration/data/acs/county\\_to\\_county\\_mig\\_2005\\_to\\_2009.html](http://www.census.gov/hhes/migration/data/acs/county_to_county_mig_2005_to_2009.html))

Bortlein, Celia G. and Alan K. Peterson. *Evaluation Report Covering Residence 1 Year Ago, 2007*.  
([http://www.census.gov/acs/www/Downloads/library/2007/2007\\_Boertlein\\_01.pdf](http://www.census.gov/acs/www/Downloads/library/2007/2007_Boertlein_01.pdf))

U.S. Census Bureau. *American Community Survey Multiyear Accuracy of the Data (3-year 2007-2011 and 5-year 2008-2012)*.  
([http://www.census.gov/acs/www/Downloads/data\\_documentation/Accuracy/MultiyearACSAccuracyofData2012.pdf](http://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2012.pdf))

U.S. Census Bureau. *Design and Methodology: American Community Survey*. Washington, D.C.: U.S. Government Printing Office, 2009.  
([http://www.census.gov/acs/www/Downloads/survey\\_methodology/acs\\_design\\_methodology.pdf](http://www.census.gov/acs/www/Downloads/survey_methodology/acs_design_methodology.pdf))

U.S. Census Bureau. *Puerto Rico Community Survey Multiyear Accuracy of the Data (3-year 2007-2011 and 5-year 2008-2012)*.  
([http://www.census.gov/acs/www/Downloads/data\\_documentation/Accuracy/MultiyearPRCSAccuracyofData2012.pdf](http://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearPRCSAccuracyofData2012.pdf))

Zayatz, Laura. "Disclosure Avoidance Practices and Research at the U.S. Census Bureau: An Update." *Research Report Series 2005-06*. Statistical Research Division, U.S. Census Bureau, Washington, D.C., August 31, 2005.  
(<http://www.census.gov/srd/papers/pdf/rrs2005-06.pdf>)