2008-2012 County-to-County Migration Flows: Using the Census Flows Mapper and County-to-County Table Package for Analysis

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This report is released to inform interested parties of ongoing research and to encourage discussion. The views expressed on statistical, methodological, technical, or operational issues are those of the authors and not necessarily those of the U.S. Census Bureau.

Introduction

In April 2012, the U.S. Census Bureau released the first county-to-county migration flow estimates using the 2005-2009 5-Year American Community Survey (ACS). Previously, county-to-county migration flows were released every 10 years using the Decennial Census. The Decennial Census-based product included flows crossed by various population characteristics. While the first ACS county-to-county migration flows package did not include population characteristics, the subsequent release, using the 2006-2010 5-Year ACS Estimates, crossed flows by age, sex, race, and Hispanic origin.

Using the 2006-2010 5-Year Estimates, the Journey to Work and Migration Statistics Branch[1] along with the Cartographic Products Branch constructed the Census Flows Mapper,[2] an interactive online mapping application, to provide data users with an embeddable county migration flows map and corresponding table.[3] The Census Flows Mapper allows the user to visualize the data by the characteristics in the table package, as well as save maps and download selected data. In early 2014, 2007-2011 5-Year ACS Estimates crossed by educational attainment, individual income, and household income were added to the Census Flows Mapper application. This release coincided with updates to the Census Flows Mapper user interface. A PowerPoint information guide[4] is also available to help users navigate the table package and the Census Flows Mapper.

This release, using the 2008-2012 5-Year ACS Estimates, is crossed by three employment characteristics. [5] The characteristics include

> **Migration terms, defined**
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> Origin county – The county the mover lived in one year ago; the sending county.
>
> Destination county – The county the mover currently lives in; the receiving county.
>
> Flow – A flow exists between an origin and destination county when there is at least one mover between them.
>
> Inmigration – The number of people moving into counties as a destination.
>
> Outmigration – The number of people moving out of origin counties.

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[2] Census Flows Mapper: http://flowsmapper.geo.census.gov/flowsmapper/flowsmapper.html

[3] The table package includes movers from abroad while the Census Flows Mapper omits movers from abroad and Puerto Rico for the two previous releases, 2006-2010 5-Year Estimates and 2007-2011 5-Year Estimates.

[4] PowerPoint: http://www.census.gov/hhes/migration/files/acs/county-to-county/2007-2011/tutorial.ppt

[5] Source: 2008-2012 ACS 5-Year Estimates

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability

occupation, employment status, and work status. Along with the table package, the Journey to Work and Migration Statistics Branch updated the Census Flows Mapper with the new employment characteristics and new capabilities. This includes the addition of Puerto Rico to the mapping application.[6] In conjunction with these resources, this paper provides an analysis for two different metropolitan statistical areas: Detroit-Warren-Dearborn, MI and Washington-Arlington-Alexandria, DC-VA-MD-WV.[7] The Detroit section looks at outflows to counties outside Detroit by employment characteristics. However, the Washington, D.C. section examines inflows from counties and world regions based on employment characteristics.[8] Additionally, this paper explains the process of aggregating estimates and MOEs using the County-to-County table package and Census Flows Mapper data.

New characteristics for 2008-2012: Employment

For 2008-2012 there are 3 new characteristics of movers: employment status, occupational status, and work status. It is important to note that employment status and occupation refer to the respondent's current employment one week prior to the time they completed the survey, and not the employment they had before they moved. If a person had no job the previous week, then occupation refers to their most recent job in the past 5 years. Work status is determined by using the respondent's employment situation over the 12 months prior to completing the survey.

- Employment status[9] is divided into four categories: 1) Employed, civilian, 2) Unemployed, 3) In Armed Forces, and 4) Not in labor force.

- Occupation[10] is divided into six groups: 1) Management, business, science, and arts occupations, 2) Service occupations, 3) Sale and office occupations, 4) Natural resources, construction, maintenance occupations, 5) Production, transportation, and material mover occupations, and 6) Military specific occupations.

- Work Status[11] is divided into six groups: 1) Worked 50 to 52 weeks in the last 12 months and usually worked 35 hours or more per week, 2) worked 50 to 52 weeks in the past 12

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that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error. The effect of nonsampling error is not represented in these tables.

[6] This is the first year that Puerto Rico is included due to a change in question in 2008, asking respondents in the U.S. to identify their municipio 1 year ago if they lived in Puerto Rico.

[7] This paper uses Metropolitan and Micropolitan Statistical Areas February 2013 definitions. <http://www.census.gov/population/metro/>

[8] Note that outflow to other countries or world regions are not possible using the ACS.

[9] Employment status includes all people 16 and over and refers to the employment status the week prior to when the person was surveyed.

[10] The occupation universe is people 16 years and over who have worked in the past 5 years and refers to the person's chief job activity in the prior week or, if they were not working at that time, the chief activity at their last job.

[11] Work status includes all people 16 years and over and refers to the employment status the week prior to when the person was surveyed.

months and usually worked less than 35 hours, 3) Worked 1 to 49 weeks in the past 12 months and usually worked 35 hours or more per week, 4) Worked 1 to 49 weeks in the past 12 months and usually worked less than 35 hours per week, 5) Last worked 1 to 5 years ago, and 6) Last worked over 5 years ago or never worked.

Flows for metropolitan geographies: Detroit and Washington, D.C.

Metropolitan statistical areas (MSAs) use boundaries of counties, or county equivalents, in order to create a single geographic entity. When census data are created at the metro level, the variances for the estimates are run on internal files using all replicate weights. Currently, the Census Bureau does not release metro-to-county or metro-to-metro migration flows. However, data users can utilize the public county-to-county migration table products to aggregate flows to the metro level without needing the restricted file or the replicate weights. The aggregated flow estimates data users calculate will be the same if compared to an aggregated restricted file, but the margins of error differ.

Data users can sum estimates to calculate flows for unique geographies. However, caution needs to be exercised when aggregating. Users should consider the number of geographies aggregated and their corresponding variance, as MOEs will differ from a restricted file as the number of summed geographies increases.[12] The approximation technique descried below was used to create estimates and MOEs for the unique flows.

The approximation technique[13]

Detroit-Warren-Dearborn, MI metro, or Detroit, is composed of six counties, while the Washington-Arlington-Alexandria, DC, VA, MD, WV metro, or Washington, D.C., is composed of 1 district, 17 counties, and 6 independent cities (all county equivalents). In order to create outflows for the Detroit metro and inflows for the Washington, D.C. metro, some data transformation occurred, though this may be done without the use of a statistical software product.[14]

First, depending on whether one is interested in looking at the outmigration or inmigration from/to a metro area, the appropriate counties must be selected as either residences one year ago or current residences. This paper analyzed Detroit's outmigration, and selected the six counties that comprise the Detroit MSA as a residence one year ago. For the D.C. MSA, the 24 counties and county equivalents that comprise the MSA as current residences were selected. Using the D.C. metro as an example, the data will essentially be organized like this:

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[12] For more information on calculating standard errors and MOEs, see < http://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2012.pdf>

[13] In instances where multiple flows were identified, the estimates were summed. In calculating MOEs for the flow, the square root of the squared sums was calculated as the revised MOE. For more information about summing variances like MOEs and SEs, see page 11: <http://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2010.pdf>

[14] In order to accomplish this, SAS programs were written to aggregate counties into metro areas.

Current residence	State of residence one year ago	County of residence one year ago	Movers	Mover MOE
DC metro area	Alabama	Baldwin County	3	8
DC metro area	Alabama	Baldwin County	7	13
DC metro area	Alabama	Baldwin County	57	93
DC metro area	Alabama	Calhoun County	5	11
DC metro area	Alabama	Calhoun County	16	26

The counties that sent movers to any of the 24 D.C. metro counties or equivalents may now be aggregated. To calculate the flow from Baldwin County, Alabama to the D.C. metro area, the number of movers were summed to equal 67 (3 + 7 +57 = 67). In this way, the number of movers from Calhoun County, Alabama to the D.C. metro was 21. This is repeated for every cluster of counties.

Current residence	State of residence one year ago	County of residence one year ago	Movers	Mover MOE
DC metro area	Alabama	Baldwin County	3	8
DC metro area	Alabama	Baldwin County	7	13
DC metro area	Alabama	Baldwin County	57	93
DC metro area	Alabama	Calhoun County	5	11
DC metro area	Alabama	Calhoun County	16	26

Next, the margins of error must be calculated, and this requires some more arithmetic. First, each margin of error in the same county cluster must be squared and then added, and then the square root is taken of this sum. Using this method, the margin of error for flow from Baldwin County, Alabama to the D.C. metro area equals about 94.2.

Current residence	State of residence one year ago	County of residence one year ago	Movers	Mover MOE
DC metro area	Alabama	Baldwin County	3	8
DC metro area	Alabama	Baldwin County	7	13
DC metro area	Alabama	Baldwin County	57	93
DC metro area	Alabama	Calhoun County	5	11
DC metro area	Alabama	Calhoun County	16	26

Baldwin County, Alabama	Calhoun County, Alabama
$8^2 = 64$	$11^2 = 121$
$13^2 = 169$	$26^2 = 676$
$93^2 = 8,649$	
$64 + 169 + 8,649 = 8,882$	$121 + 676 = 797$
SQRT (8,882) = **94**	SQRT (797) = **28**

This step is also repeated for each county cluster, and after doing so the data then look more like this:

Current residence	State of residence one year ago	County of residence one year ago	Movers	Mover MOE
DC metro area	Alabama	Baldwin County	67	94
DC metro area	Alabama	Calhoun County	21	28

Outmigration from the Detroit metro area

In March 2013, the U.S. Census Bureau released population change estimates for metro areas.[15] Detroit is among metros with a population greater than one million people and a population decline from 2000 to 2010.[16] Detroit, with a shifting economic landscape and population decline, is used as an example for metro-to-county and county-to-county outmigration by three selected employment characteristics: Employed, Civilians; Service Occupations; and the Part Year, Part Time work status. The county-to-county employment characteristics are available through Census Flows Mapper and the 2008-2012 5-Year Flows Table Package.[17]

Total Outmovers

According to the 2008-2012 ACS 5-Year Estimates, about 130,000 people moved out of the Detroit metro annually. **Table 1** shows 20 destination counties where the outflow was among the largest. Among these counties were other counties in Michigan: Washtenaw County, Ingham County, and Genesee County. However, not all out movers were to counties in Michigan. Among the highest outflows were out of state to Maricopa County, AZ; Cook County, IL; and Clark County, NV. By aggregating outflows for the Detroit metro area, users can restrict migration occurring within the metropolitan area. By aggregating county geographies to larger entities, for example metros, a different migration narrative can be analyzed by users.

However, the Census Flows Mapper allows users to examine outflows for each of the counties in the Detroit metro area in addition to those outside the metro area. **Figure 1** illustrates the total outflow from Wayne County, MI, the principal county in the metro, to other counties in the United States. Much of the total outflow for Wayne County is to adjacent counties that are in the Detroit metro. Combining the two tools, county-to-county migration and aggregation to a larger geographic region, yields two complimentary scales of analysis.[18]

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[15] Population Change for Metropolitan and Micropolitan Statistical Areas in the United States and Puerto Rico (February 2013 Delineations): 2000 to 2010 <http://www.census.gov/population/www/cen2010/cph-t/cph-t-5.html>

[16] The largest decline was New Orleans metro (-11.1%), due in part to the effects of Hurricane Katrina.

[17] County-to-County Migration Flows <http://www.census.gov/hhes/migration/data/acs/county-to-county.html>

[18] The grey county flows are ones that have been suppressed due to disclosure avoidance measures. One such measure is only to show the characteristics (e.g. employment status, occupation, work status) of a migration flow between two counties if at least 3 people either in different households or individuals in group quarters are in sample for the category's universe (e.g. population 16 years and over for work status). If data is suppressed, then the county is grey for all categories of that characteristic, even if there are 0 movers for a particular category.

Figure 1. Annual Outflow from Wayne County, MI: Total
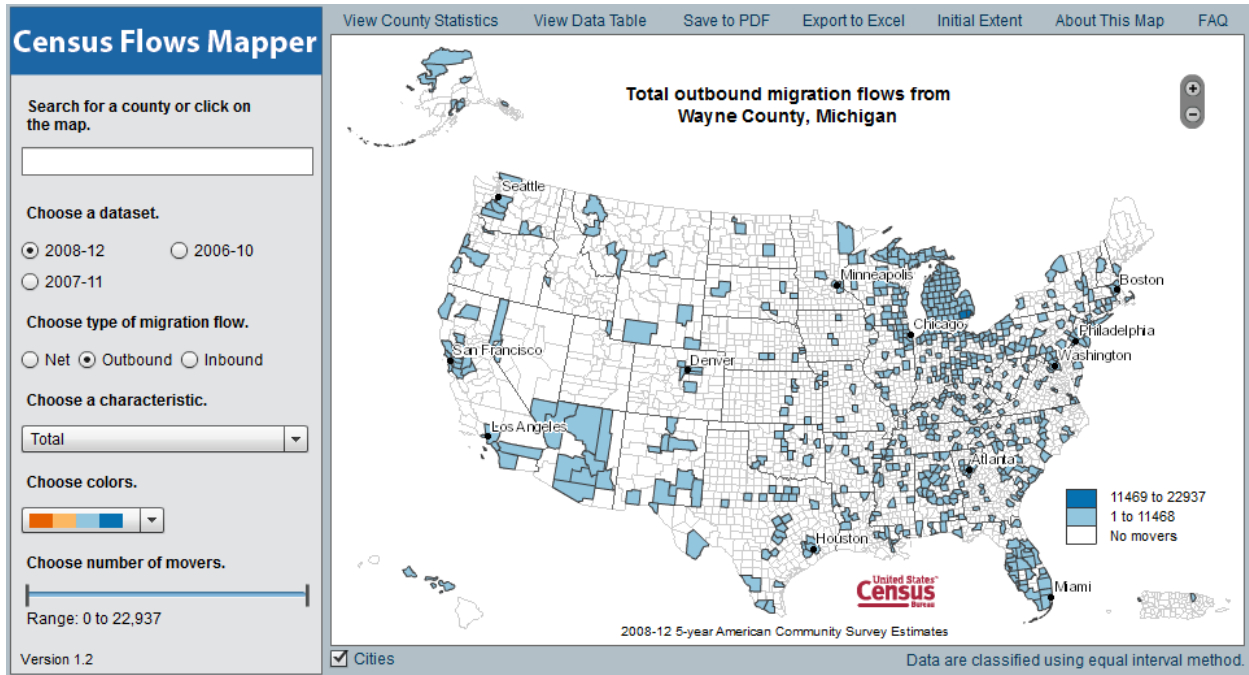
Employment Status

As seen in **Table 2**, among the largest outflows for employed, civilian persons leaving the Detroit metro area were those going to nearby counties in Michigan, such as, Washtenaw County, Genesee County, and Ingham County. Among the highest outflows outside Michigan were to Cook County, IL; Maricopa County, AZ; Clark County, NV; and Los Angeles County, CA. It is necessary to recognize that employment status and mover status have two distinct reference periods. The reference period for employment status is the previous week. However, the respondent's residence 1 year ago determines the mover status. It is possible for a mover to have the same job before and after a move. Yet for distant moves a mover could have a different job.

Using the Census Flows Mapper for Wayne County, MI, **Figure 2** shows that Oakland County, MI was among the counties with the largest outflow from Wayne County, MI for people who were employed civilians. Many of the largest outflows from Wayne County, MI were to other counties in Michigan.

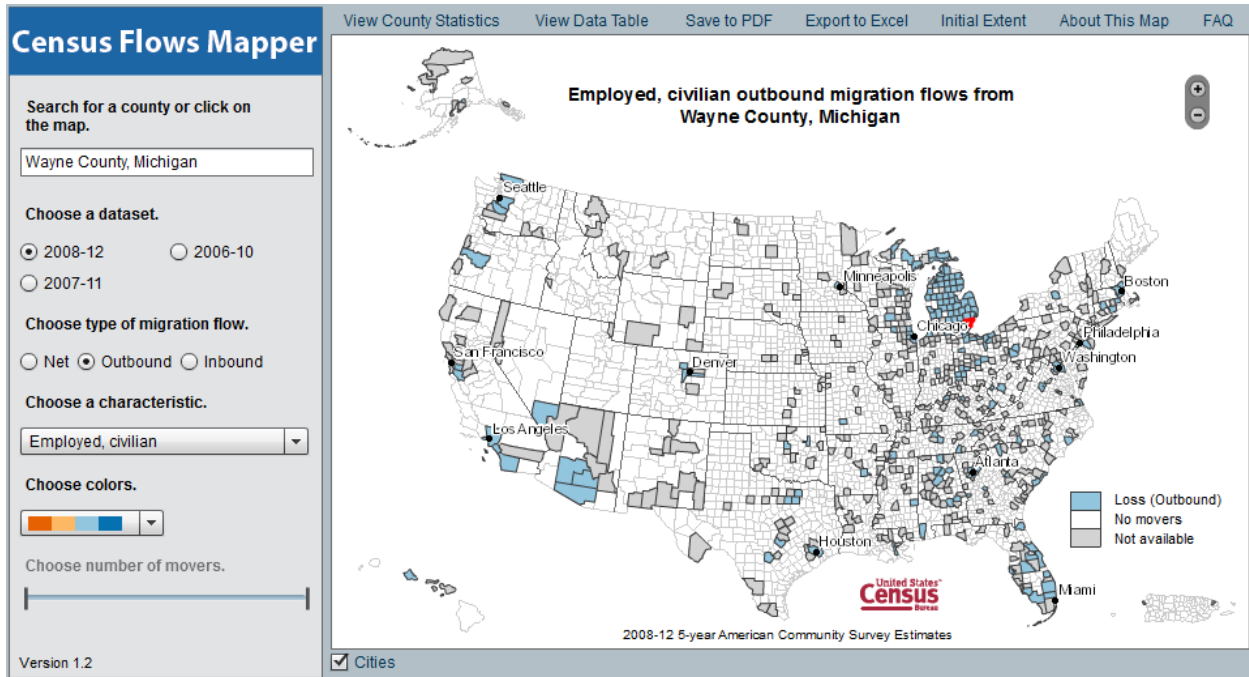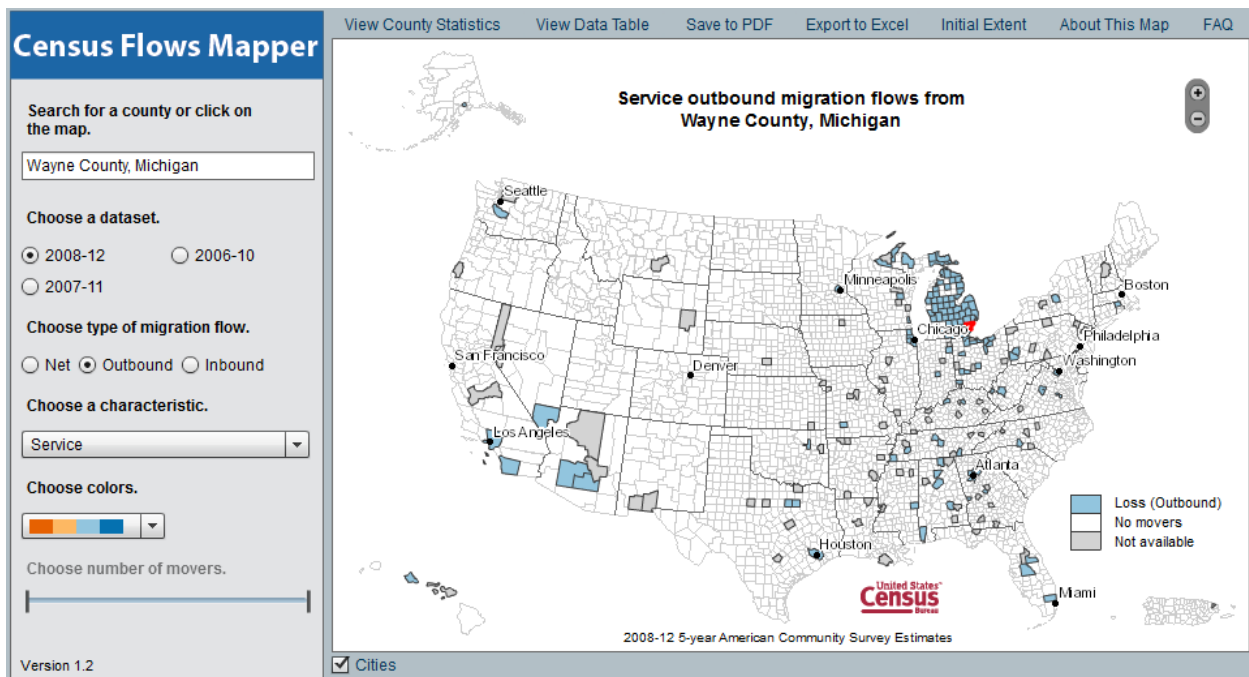**Figure 2. Annual Outflow from Wayne County, MI: Currently Employed Civilians**

Figure 3. Annual Outflow from Wayne County, MI: Service Occupations

Occupational Status

As seen in **Table 3**, Washtenaw County and Ingham County are among the largest outflows for service occupations from the Detroit metro. Counties that were outside Michigan, but among the top included Maricopa County, AZ; Cook County, IL; and San Diego County, CA.

In evaluating the outflows for Wayne County, MI, using Census Flows Mapper, **Figure 3** shows that most Service occupations were short distance moves. While some outflows reached as far west as Los Angeles County, CA, most were concentrated in Michigan.

Work Status

Work status, like employment status, is based on the respondent's previous week. Using a work status designation of Part Year, Part Time, or a mover who worked 1 to 49 weeks in the past 12 months and usually worked less than 35 hours per week, we saw that these movers went to other Michigan counties after leaving Detroit (**Table 4**). However, Cook County, IL and Maricopa County, AZ were among the flows that were to states other than Michigan. **Figure 4**, using Wayne County, MI as an example in the flows mapper tool, shows that much of the outflow from Wayne County was to other counties with in the Detroit metro area.

Many sizeable outflows from the Detroit metro region were to other counties in Michigan. However, there were sizeable outflows to other states. In particular, these counties were large counties in other metro areas. For example, Cook County, IL is in the Chicago metro area.[19]

Figure 4. Annual Outflow from Wayne County, MI: Part Year, Part Time
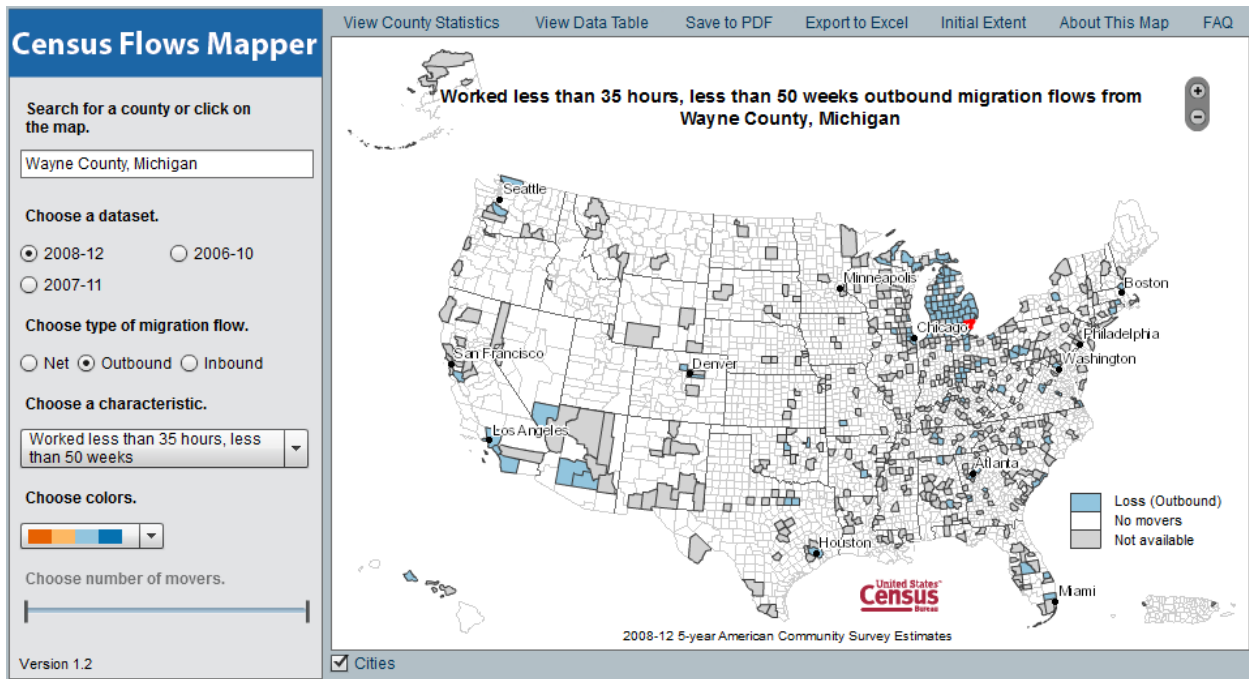
Next, inflows for the Washington, D.C. metro area are examined.

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[19] www.census.gov/population/metro/files/lists/2013/List1.xls

Inmigration to the Washington, D.C. metro area

Washington, D.C., like most cities, draws movers because of economic opportunities. Unlike other cities, Washington, D.C.'s local economy was able to withstand much of the unemployment experienced during the Great Recession due to the presence of the federal government. This made the D.C. area a favorable place to move for job opportunities during the 2008-2012 period, which was reflected in the data. As you can see in the flows for the Detroit Metropolitan Area, most of the destination counties were located in Michigan. However, while many of the origin counties for the D.C. Metropolitan Area were adjacent or nearby counties, there were still several counties of origin found across the entire country that sent large numbers of movers to the D.C. metro.

Total Inmovers

According to the 2008-2012 ACS 5-Year Estimates, 276,073 people moved into the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Area annually from over 1,100 counties or international regions. As shown in **Table 5**, among the largest origin geographies outside the U.S. were Asia, Europe, Africa, Central America, and South America. Meanwhile, most domestic moves are known to be of relatively short distance. Counties that sent a large number of movers to the Washington, D.C. metro area were adjacent or nearby counties such as Anne Arundel County, Howard County, Baltimore city, and Baltimore County, Maryland. Virginia Beach city and Richmond city, Virginia, also proximate counties, sent thousands of people to the D.C. metro area as well.

These patterns may also be seen using the Census Flows Mapper. The Census Flows Mapper allows us to select any county that comprises the Washington Metropolitan Area for a visual representation of county migration into the area. In the examples below, the District of Columbia was selected to show inbound migration as it is the principal geography in the Washington Metropolitan Area. As seen in **Figure 5**, counties from all over the U.S. and Puerto Rico contribute to the inflows to Washington, D.C. Many of the counties that sent movers to the District of Columbia, however, are found in the northeastern corridor and the west. San Juan Municipio was the only geography in Puerto Rico to send movers to D.C.

Employment Status

Table 6 shows some of the largest origin counties and regions for the in Armed Forces Employment status category. Asia and Europe remain among the largest origin regions for D.C. inmigrants for those in the Armed Forces. Not surprisingly, many of the largest flows for this group included counties with military installations. These included, for example, San Diego County, California, Camp Pendleton's location, and Onslow County, North Carolina, home to Camp Lejeune.

Figure 6 shows origin counties for movers who are in the Armed Forces that moved to Washington, D.C. This figure reflects what was seen in Table 6, as clusters around military bases are highlighted in orange. These military installations are found on the coast of Virginia and North Carolina. Other bases in Florida, Texas, and California are also highlighted.
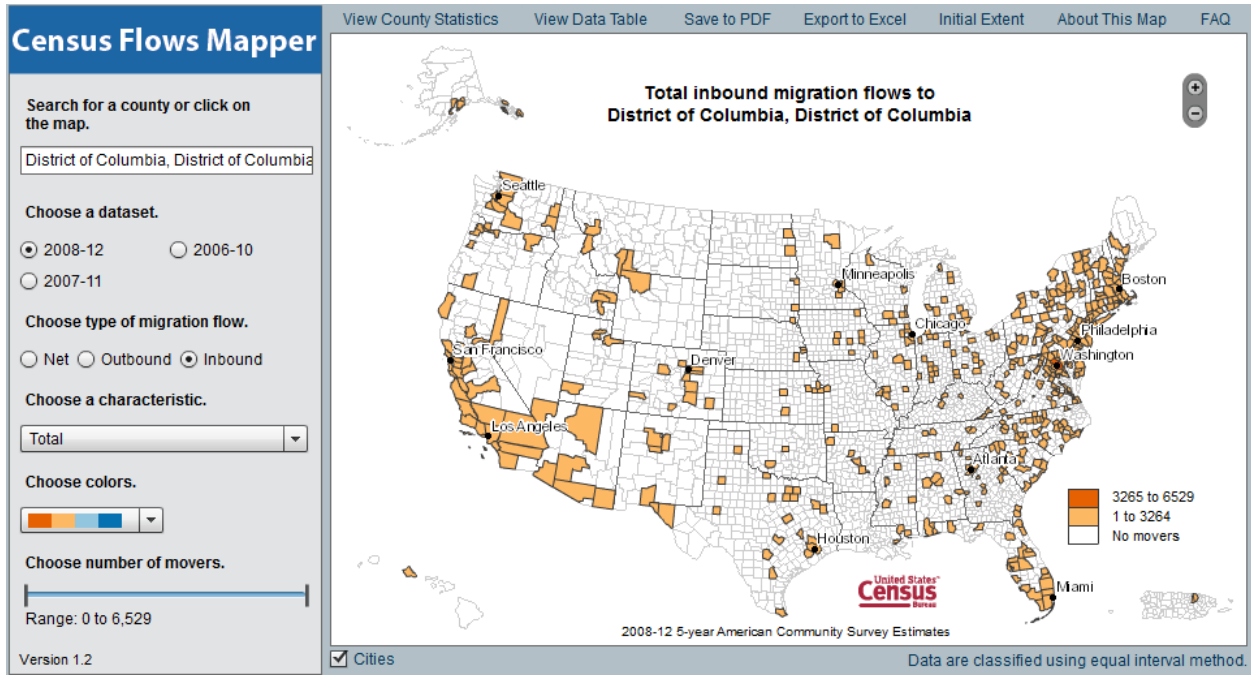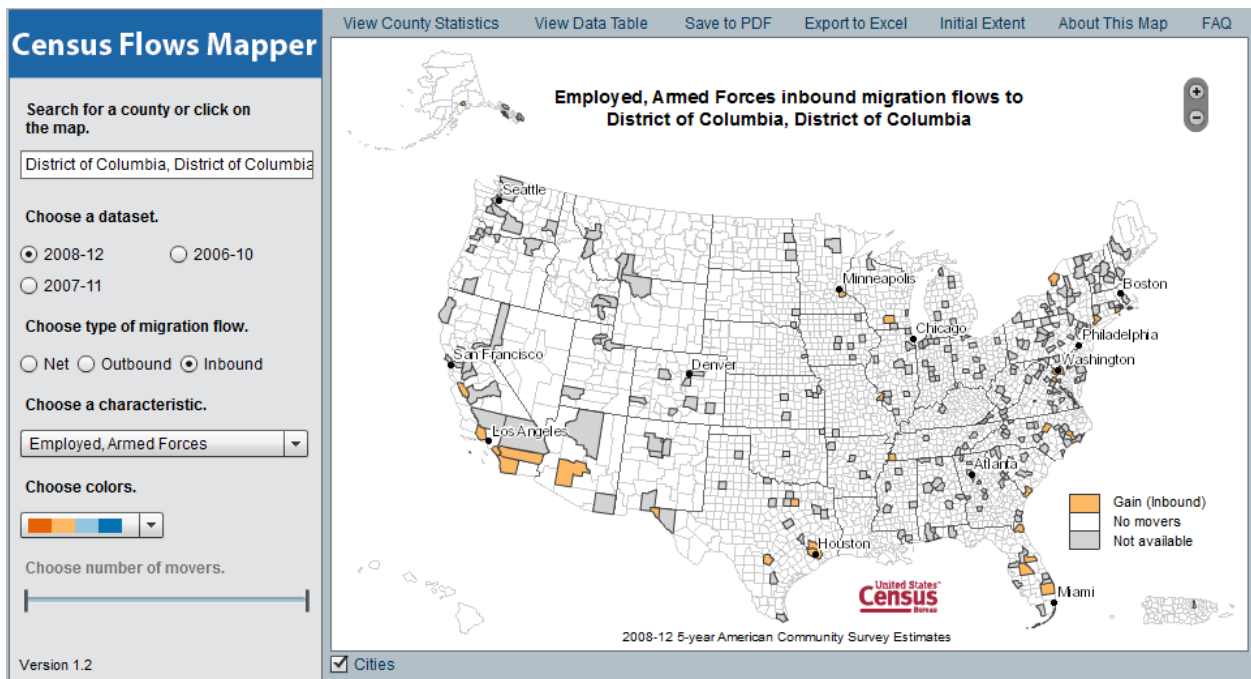
Figure 5. Annual Inflow to Washington, DC: Total

**Figure 6. Annual Inflow to Washington, DC: Currently in Armed Forces**

Occupational Status

Table 7 shows the number of inmovers to the D.C. metro area with an occupation in management, business, science, or arts. Again, Asia and Europe were among the largest origin regions. An education effect may explain these inmovers who hold what are considered white-collar jobs. Counties near the

Washington, D.C. metro continue to be among the largest flows (Howard County, Baltimore city, and Anne Arundel County, Maryland), however other counties like Middlesex County and Suffolk County, Massachusetts (which are home to Cambridge and Boston, respectively) and New York and Kings County, New York are also prominent in this table. This likely demonstrates the influx of college graduates or white-collar workers looking for jobs that the Washington, D.C. metro offered during this period. **Figure 7** makes these origin geographies clear, as the northeastern corridor and southern California are highlighted again, while very few counties in the Midwest or plain states sent movers with management, business, science, or arts occupations to D.C.

Figure 7. Annual Inflow to Washington, DC: Management, Business, Science, and Arts Occupations
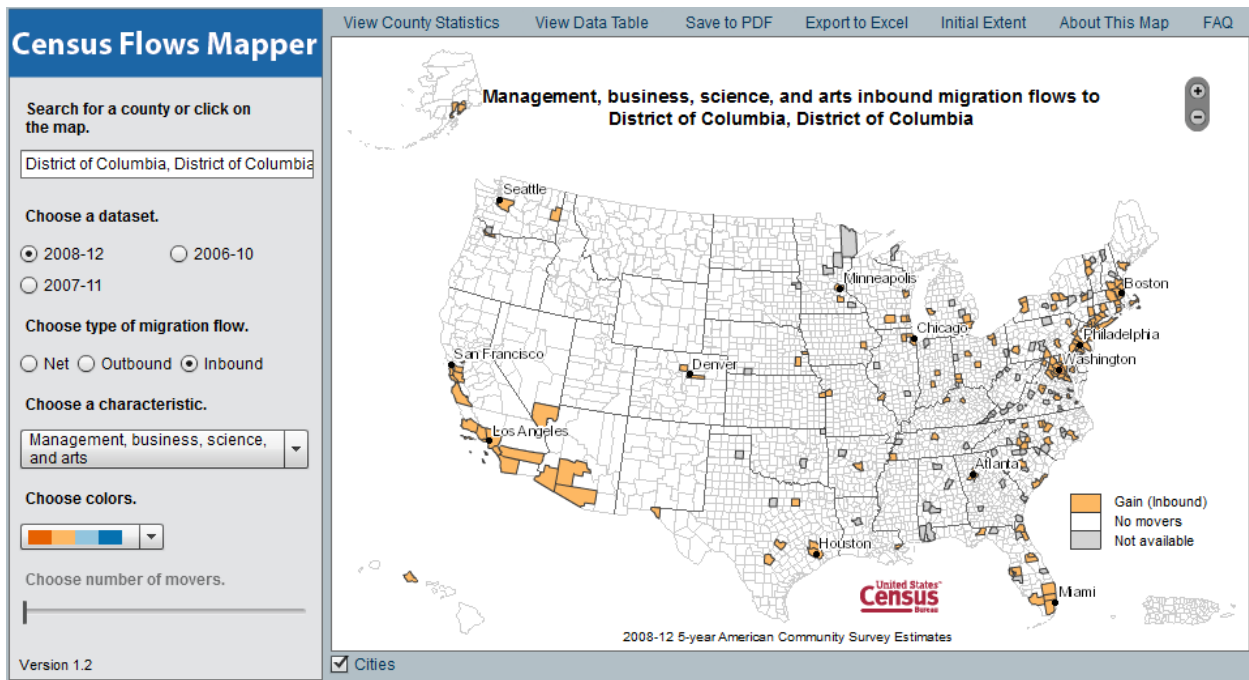
Work Status

Finally, **Table 8** shows the inmovers who worked between 50 and 52 weeks in the past 12 months and usually worked at least 35 hours per week. These movers were essentially those who were employed full-time. Asia and other world regions appeared as large senders of movers who had full-time employment in the last 12 months. Large counties in California and New York were among the largest senders of full-time workers, along with counties just outside the D.C. metro area. The counties highlighted in orange in **Figure 8** reflect Table 8. However, there are a large number of grey counties in this figure. These counties are greyed out because the number of movers in different households is too low. Because there are too few movers in this counties, we are unable to disclose how many movers came from these counties, though we can show that there was a flow between they grey counties and the District of Columbia.

Figure 8. Annual Inflow to Washington, DC: Full Year, Full Time
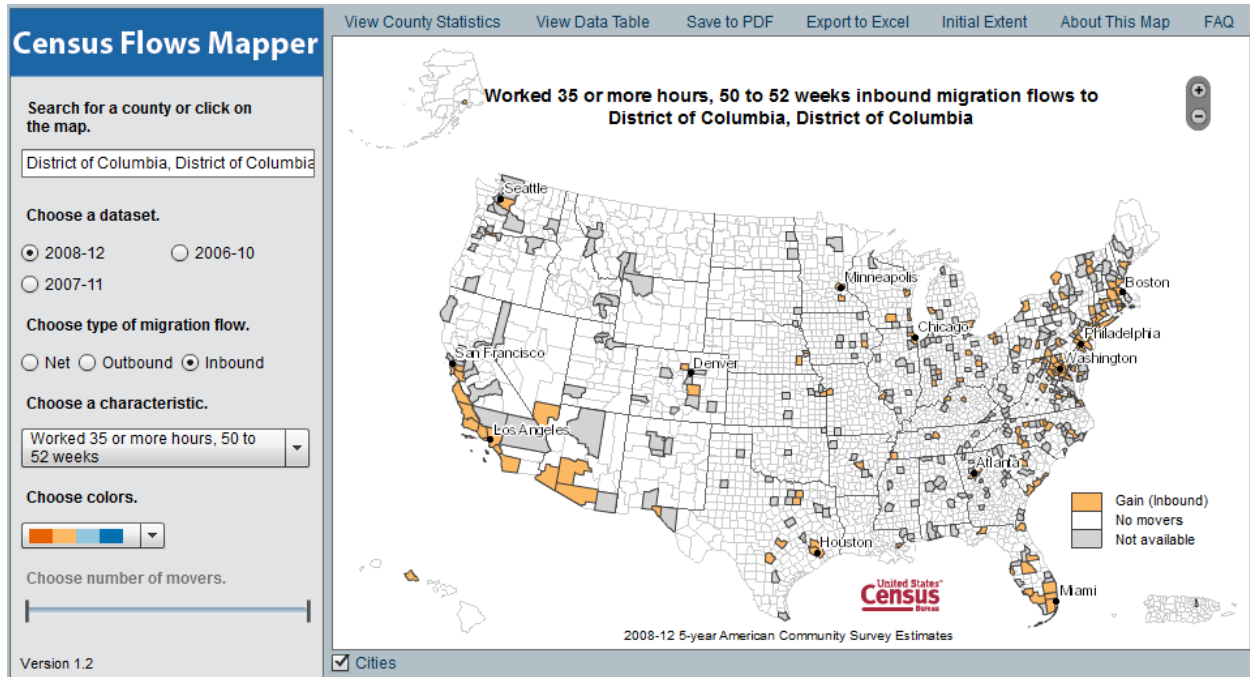
Conclusion

In this paper, we presented the approximation method for calculating estimates and MOEs when synthesizing larger geographies. We also recommend proceeding with caution if undertaking similar aggregation or data transformation. Users should be aware of high CVs and pay attention to the number of geographies being aggregated.

In addition to these caveats about the data, outflows from the Detroit metro area and inflows from the Washington, D.C. metro area were analyzed. The outflows from the Detroit metro area tended to focus around counties near the Detroit metro, while counties and regions from large distances were origins for inmovers to the Washington, D.C. metro area. County-to-County analysis, available through the Census Flows Mapper and the County-to-County table package, is an additional tool which offers more geographic specificity. Employing both methods, aggregation and county-to-county, may be advantageous for some users when exploring migration for their respective geographies of interest.

Tables

Table 1: Annual Outflow from Detroit-Warren-Dearborn, MI Metropolitan Area by Destination County: Total

County	Estimate	MOE
Washtenaw County, Michigan	12,052	1,075
Ingham County, Michigan	7,534	662
Genesee County, Michigan	5,404	883
Maricopa County, Arizona	2,909	585
Kalamazoo County, Michigan	2,788	439
Isabella County, Michigan	2,751	405
Cook County, Illinois	2,746	616
Ottawa County, Michigan	2,406	366
Monroe County, Michigan	2,239	420
Jackson County, Michigan	1,843	352
Kent County, Michigan	1,732	353
Clark County, Nevada	1,507	536
Saginaw County, Michigan	1,318	301
Lucas County, Ohio	1,270	505
Los Angeles County, California	1,219	406
Franklin County, Ohio	1,203	426
Cobb County, Georgia	1,193	718
Muskegon County, Michigan	1,048	259
Lenawee County, Michigan	1,008	185
San Diego County, California	834	349

Table 2: Annual Outflow from Detroit-Warren-Dearborn, MI Metropolitan Area to Destination County: Currently Employed Civilians

County	Estimate	MOE
Washtenaw County, Michigan	5,211	557
Genesee County, Michigan	2,635	459
Ingham County, Michigan	2,552	379
Cook County, Illinois	1,699	368
Maricopa County, Arizona	1,238	313
Monroe County, Michigan	1,045	245
Kent County, Michigan	887	263
Kalamazoo County, Michigan	864	226
Ottawa County, Michigan	731	182
Isabella County, Michigan	717	184
Clark County, Nevada	650	300
Los Angeles County, California	632	252
Saginaw County, Michigan	556	209
Franklin County, Ohio	533	215
Lucas County, Ohio	504	203
Cuyahoga County, Ohio	498	181
Cobb County, Georgia	422	240
Fairfax County, Virginia	407	173
Tarrant County, Texas	358	170
Orange County, Florida	346	278

Table 3: Annual Outflow from Detroit-Warren-Dearborn, MI Metropolitan Area to Destination County: Service Occupations

County	Estimate	MOE
Washtenaw County, Michigan	2,940	415
Ingham County, Michigan	2,712	344
Isabella County, Michigan	1,225	285
Ottawa County, Michigan	821	187
Genesee County, Michigan	725	216
Kalamazoo County, Michigan	672	201
Jackson County, Michigan	397	122
Monroe County, Michigan	360	117
Kent County, Michigan	348	167
Lenawee County, Michigan	294	85
Maricopa County, Arizona	277	152
Cook County, Illinois	228	97
Saginaw County, Michigan	198	85
Clinton County, Michigan	194	112
Lucas County, Ohio	182	117
San Diego County, California	174	97
Mecosta County, Michigan	174	89
Polk County, Florida	155	176
Cobb County, Georgia	153	133
Orange County, Florida	149	161

Table 4: Annual Outflow from Detroit-Warren-Dearborn, MI Metropolitan Area to Destination County: Part Year, Part Time

County	Estimate	MOE
Ingham County, Michigan	4,081	459
Washtenaw County, Michigan	3,069	388
Isabella County, Michigan	1,358	243
Kalamazoo County, Michigan	1,276	278
Ottawa County, Michigan	1,048	255
Genesee County, Michigan	488	135
Cook County, Illinois	367	146
Maricopa County, Arizona	327	134
Monroe County, Michigan	296	142
Kent County, Michigan	290	121
Clark County, Nevada	275	257
Jackson County, Michigan	270	99
Saginaw County, Michigan	270	93
Lenawee County, Michigan	238	83
Clinton County, Michigan	198	117
Mecosta County, Michigan	187	72
Muskegon County, Michigan	154	74
Cuyahoga County, Ohio	154	79
Wood County, Ohio	143	69
Lucas County, Ohio	135	94

Table 5: Annual Inflow in to Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Area by Origin County/Region: Total

County/Region	Estimate	MOE
Asia	25,670	1808
Europe	14,721	1374
Africa	8,853	939
Central America	5,665	809
Anne Arundel County, Maryland	5,395	728
South America	4,900	870
Howard County, Maryland	4,866	764
Baltimore city, Maryland	4,668	627
Baltimore County, Maryland	4,118	526
Los Angeles County, California	3,995	615
San Diego County, California	3,513	634
Virginia Beach city, Virginia	2,592	678
New York County, New York	2,532	468
Cook County, Illinois	2,432	415
Kings County, New York	2,290	557
Middlesex County, Massachusetts	2,287	466
Fulton County, Georgia	2,126	430
Berkeley County, West Virginia	1,917	509
Richmond city, Virginia	1,820	417
Philadelphia County, Pennsylvania	1,789	430

Table 6: Annual Inflow in to Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Area by Origin County/Region: Currently in Armed Forces

County/Region	Estimate	MOE
Asia	1,855	371
Europe	618	161
San Diego County, California	612	176
Onslow County, North Carolina	513	262
Honolulu County, Hawaii	272	118
San Bernardino County, California	193	119
Virginia Beach city, Virginia	149	80
El Paso County, Colorado	140	73
Bexar County, Texas	137	65
Anne Arundel County, Maryland	119	89
Richland County, South Carolina	117	92
Africa	116	89
Beaufort County, South Carolina	93	71
Bell County, Texas	91	53
New York County, New York	88	98
Cumberland County, North Carolina	88	70
Lake County, Illinois	79	72
Allegheny County, Pennsylvania	78	64
Montgomery County, Tennessee	78	59
Duval County, Florida	74	51

Table 7: Annual Inflow in to Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Area by Origin County/Region: Management, Business, Science, and Arts Occupations

County/Region	Estimate	MOE
Asia	7,614	633
Europe	5,449	603
Howard County, Maryland	1,964	363
Africa	1,857	324
Baltimore city, Maryland	1,812	323
Los Angeles County, California	1,805	364
Anne Arundel County, Maryland	1,611	289
Cook County, Illinois	1,589	305
Baltimore County, Maryland	1,521	352
South America	1,443	359
Middlesex County, Massachusetts	1,341	286
New York County, New York	1,314	305
San Diego County, California	1,158	306
Suffolk County, Massachusetts	856	287
Kings County, New York	853	273
Philadelphia County, Pennsylvania	773	224
Montgomery County, Virginia	740	225
Richmond city, Virginia	715	234
Central America	707	227
Fulton County, Georgia	630	213

Table 8: Annual Inflow in to Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Area by Origin County/Region: Full Year, Full Time

County/Region	Estimate	MOE
Asia	6,960	635
Europe	4,563	510
Anne Arundel County, Maryland	2,188	351
Howard County, Maryland	1,977	379
Baltimore city, Maryland	1,705	323
Africa	1,683	305
Los Angeles County, California	1,597	342
San Diego County, California	1,539	343
Baltimore County, Maryland	1,470	293
South America	1,064	286
New York County, New York	1,032	244
Central America	964	290
Kings County, New York	907	285
Cook County, Illinois	902	227
Virginia Beach city, Virginia	776	260
Onslow County, North Carolina	775	304
Middlesex County, Massachusetts	769	220
Washington County, Maryland	654	209
Broward County, Florida	615	335
Richmond city, Virginia	578	225