

2007-2011 County-to-County Migration Flows

Megan Benetsky
Journey to Work and Migration Statistics Branch
Social, Economic, and Housing Statistics Division
Working Paper No. 2014-036
U.S. Census Bureau

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) Estimates. Previously, county-to-county migration flows were released every 10 years using the Decennial Census. The product released using the Decennial Census data produced flows crossed by various characteristics. While the first ACS county-to-county migration flows package did not include 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 Branch¹ 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.

Migration terms, defined

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.

Net migration – The number of movers a county gains or loses when outmigration is subtracted from inmigration.

The February 2014 release using the 2007-2011 5-Year ACS Estimates has the county-to-county migration flows crossed by educational attainment, individual income, and household income. Along with the table package, the Journey to Work and Migration Statistics Branch updated the Census Flows Mapper with the new data and new capabilities. A PowerPoint⁴ information guide is also available to help users navigate the table package and the Census Flows Mapper. In conjunction with these resources, this paper provides a brief summary of some analyses that may be done using the table package.

The paper is broken into three sections. First, broad inmigration, outmigration and net migration patterns are discussed using the data at the county level rather than the level of the flow. Second, using the flows, some of

¹ Journey to Work and Migration Statistics Branch contact information:
Phone: 301-763-2454
Email: sehds.migration@census.gov

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. The next version of the Census Flows Mapper using the 2008-2012 5-Year ACS Estimates will include movers from Puerto Rico (as a state equivalent), county movers to Puerto Rico municipios, and movers within Puerto Rico.

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

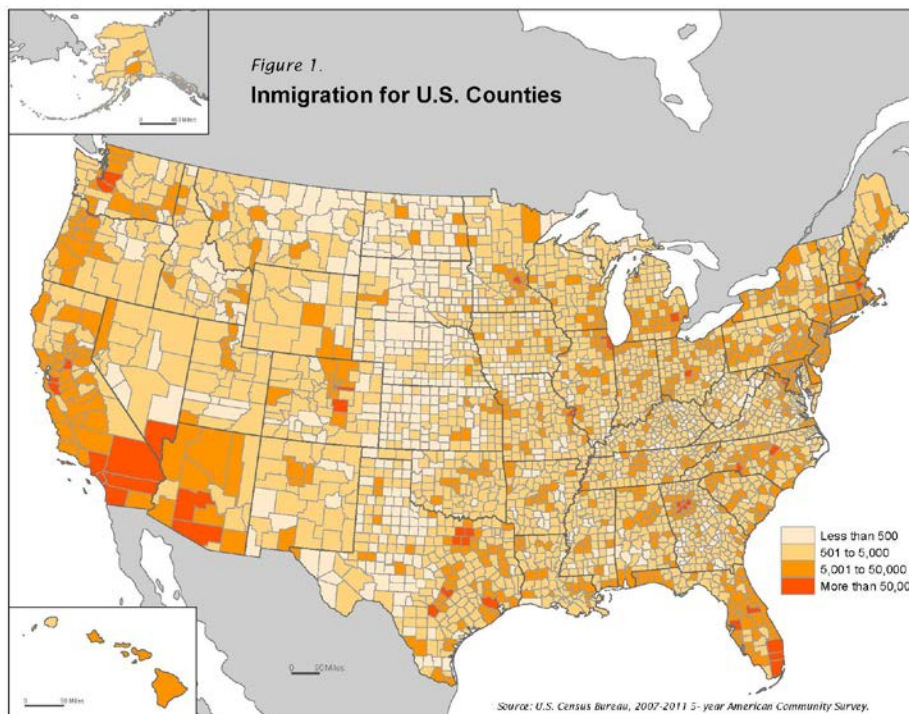
the largest in/outmigration flows and some of the largest net flows are discussed. Finally, flows are then presented by characteristics. Household incomes between \$35,000-49,999 are shown for some of the largest flows. For individual income between \$10,000-14,999 and \$75,000 or more, the largest domestic inflows for destination counties from among the five largest origin counties are presented for both individual income categories. Finally, for educational attainment, the largest domestic outflows are shown for those with a high school degree and for those with a college degree.

In, Out, and Net Migration by County

Inmigration

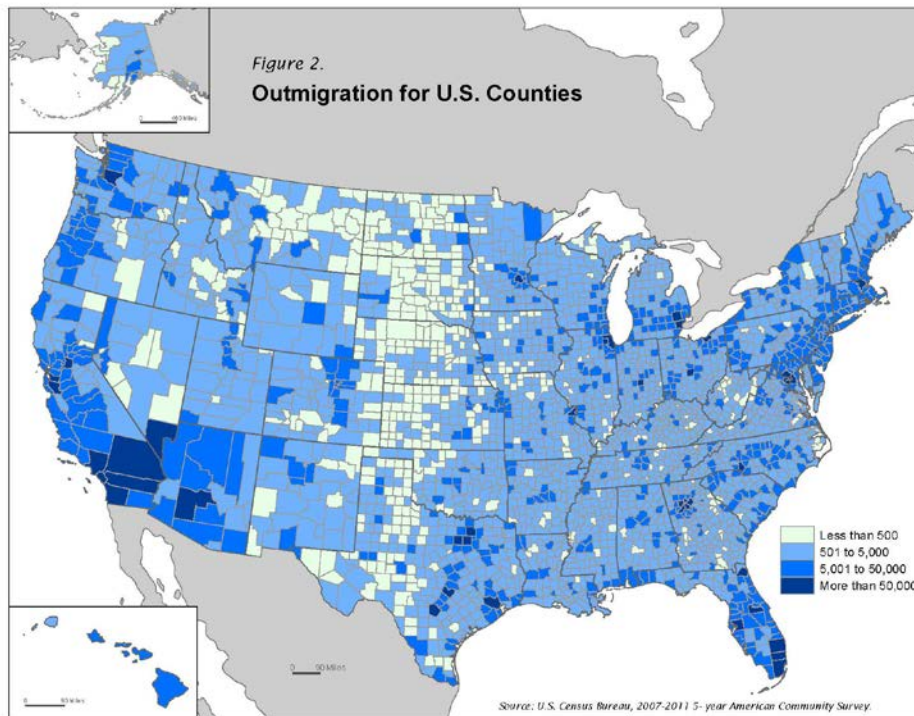
The county-to-county migration table package allows the user to treat all counties as an origin or destination county depending on the user's purposes. By creating an origin or destination file, the user can determine how many movers each county sent or received, independent of which counties the movers went to or came from.

Figure 1 shows a county map by the number of immigrants the county received. The darker the shade of orange, the more new migrants moved to that county. Counties in the southwest had a large numbers of migrants, as well as many counties in Florida, along with the northeastern corridor. Counties in the middle states along the plains saw relatively fewer in-movers.



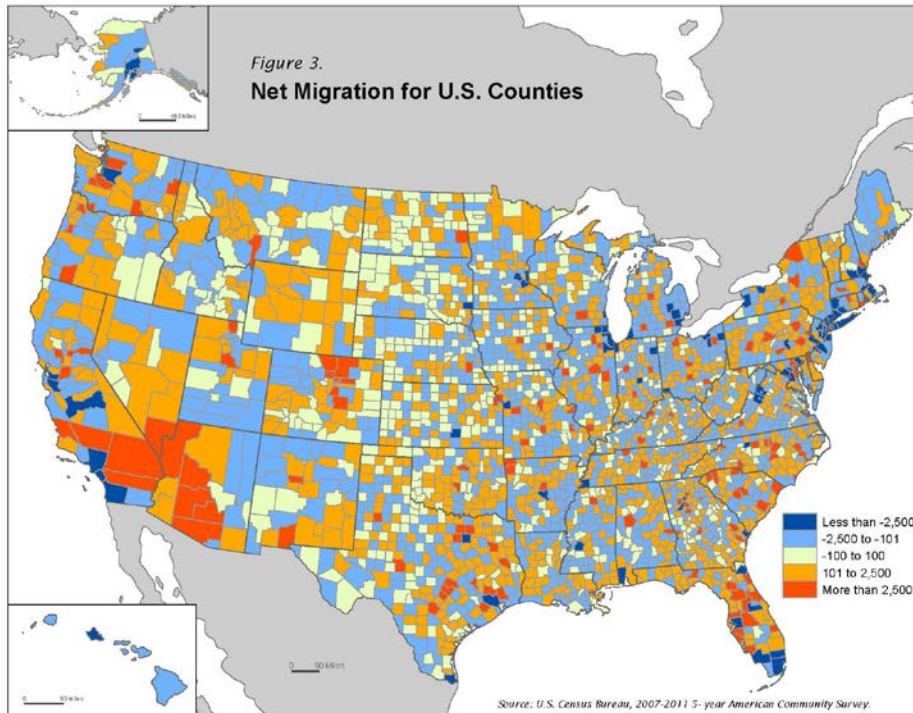
Outmigration

Figure 2 is a county map displaying outmigrants. Again, we see that the southwest is an area of relatively high amounts of outmigration, as is southern Florida, parts of Texas, and from counties with cities like Chicago, Detroit, and Washington, D.C. Like immigration, this map also shows that the plain states are not experiencing much outmigration either.



Net migration

Figure 3 is a county map showing net migration. Much like the previous figures, this map displays a large net influx of movers to the southwest, and other areas like Florida and Colorado, as shown in a deep orange color. Counties that experienced a net loss are shaded blue. The dark blue counties are concentrated on the south coast of California, southern Florida, and counties in the New York City metro area.



County Pairs

Largest migration flows

In Table 1 below, the states that have historically been highly populated and known to be migration drivers (areas where a lot of migration occurs) are present in this table, e.g. California, Florida, New York, Illinois, and Texas. Counties that contain major cities are also known to be migration hubs. The Los Angeles County, California to San Bernardino County, California, with about 41,764 movers, is among the largest flow. In fact, flows to a county in California are among the top five largest flows, including about 35,209 movers from Asia to Los Angeles County, California.

Other migration patterns are illustrated in this table. Many of the flows appear to be an outmigration from counties that hold major cities into their neighboring counties. Some outmigration is seen from Wayne County (Detroit), Maricopa County (Phoenix), Cook County (Chicago), and Baltimore City. Migrants are moving into neighboring Oakland County, Michigan; Pinal County, Arizona; DuPage County, Illinois; and Baltimore County. However, some major flows are from outside the U.S.

Table 1. Flows among the top 25 by the largest in/outmigration*

	Origin (out)	Destination (in)	Movers	MOE
1	Los Angeles County, California	San Bernardino County, California	41,764	2,655
2	Los Angeles County, California	Orange County, California	40,794	2,393
3	Asia	Los Angeles County, California	35,209	2,080
4	Orange County, California	Los Angeles County, California	30,986	1,888
5	Los Angeles County, California	Riverside County, California	27,496	2,111
6	Miami-Dade County, Florida	Broward County, Florida	24,222	2,356
7	Wayne County, Michigan	Oakland County, Michigan	23,151	1,790
8	San Bernardino County, California	Riverside County, California	22,485	2,304
9	Cook County, Illinois	DuPage County, Illinois	21,156	1,696
10	San Bernardino County, California	Los Angeles County, California	21,092	1,600
11	Orange County, California	Riverside County, California	19,980	1,903
12	Riverside County, California	San Bernardino County, California	19,972	2,319
13	Maricopa County, Arizona	Pinal County, Arizona	19,947	2,454
14	Dallas County, Texas	Tarrant County, Texas	19,762	1,754
15	Fulton County, Georgia	DeKalb County, Georgia	19,036	1,776
16	Asia	San Diego County, California	18,657	1,576
17	Harris County, Texas	Fort Bend County, Texas	18,431	2,137
18	Kings County, New York	Queens County, New York	18,390	1,670
19	Central America	Los Angeles County, California	17,791	1,529
20	New York County, New York	Bronx County, New York	17,175	1,647
21	Asia	Cook County, Illinois	16,900	1,596
22	Dallas County, Texas	Collin County, Texas	16,748	1,256
23	Dallas County, Texas	Denton County, Texas	16,589	1,681
24	Baltimore city, Maryland	Baltimore County, Maryland	16,536	1,402
25	St. Louis city, Missouri	St. Louis County, Missouri	16,434	1,675

* This list shows flows that may not be statistically different from one another.

Source: 2007-2011 American Community Survey 5-Year Estimates

Largest net migration flows

Like Table 1, Table 2 also shows the states and counties that are associated with high rates of net migration. Here we see that Los Angeles County, California had a net loss to four other counties: San Bernardino County, California; Riverside County, California; Orange County, California; and Kern County, California. Here we see a few cases of migration into counties with a major city from neighboring

counties. Because Table 2 shows the net migration flows, we see that there are more movers moving from Wayne County, Michigan into Oakland County, Michigan than the reverse. The same is true for Cook County, Illinois (to DuPage County, Illinois; Lake County, Indiana; and Kane County, Illinois), Washington, D.C. (to Prince George’s County, Maryland), San Francisco County, California (to San Mateo County, California), Dallas County, Texas (to Denton County and Tarrant County, Texas), and Philadelphia County, Pennsylvania (to Montgomery County, Pennsylvania). Table 1 shows that there is some immigration from counties with major cities to neighboring counties, Table 2 indicates that there is still greater movement out of counties with major cities than there is into them. Essentially, there seems to be more movement out of counties with cities and into neighboring counties, a common occurrence.

A complete table of all counties and minor civil divisions⁵ (MCDs) paired with each origin/destination county/MCD are found in the table package, sorted both by previous residence and current residence.

Table 2. Flows among the top 25 by the largest net migration*

	Origin (out)	Destination (in)	Net Movers	MOE
1	Los Angeles County, California	San Bernardino County, California	20,672	2,835
2	Los Angeles County, California	Riverside County, California	14,248	2,655
3	Miami-Dade County, Florida	Broward County, Florida	12,912	2,480
4	Wayne County, Michigan	Oakland County, Michigan	11,908	2,188
5	Los Angeles County, California	Orange County, California	9,808	3,216
6	New York County, New York	Bronx County, New York	9,277	1,990
7	Cook County, Illinois	DuPage County, Illinois	8,419	2,139
8	Kings County, New York	Queens County, New York	8,042	2,123
9	Dallas County, Texas	Denton County, Texas	8,033	2,061
10	Wayne County, Michigan	Macomb County, Michigan	7,772	1,890
11	Orange County, California	Riverside County, California	7,122	2,519
12	Los Angeles County, California	Kern County, California	6,638	1,620
13	Harris County, Texas	Montgomery County, Texas	6,594	2,378
14	Fulton County, Georgia	DeKalb County, Georgia	6,085	1,944
15	Harris County, Texas	Fort Bend County, Texas	5,737	2,239
16	Nassau County, New York	Suffolk County, New York	5,726	1,118
17	District of Columbia, District of Columbia	Prince George’s County, Maryland	5,691	1,401
18	Cook County, Illinois	Lake County, Indiana	5,662	1,634
19	Alameda County, California	Contra Costa County, California	5,589	1,852
20	Baltimore city, Maryland	Baltimore County, Maryland	5,472	2,010
21	San Francisco County, California	San Mateo County, California	5,440	1,362
22	Philadelphia County, Pennsylvania	Montgomery County, Pennsylvania	5,236	1,458
23	Queens County, New York	Nassau County, New York	4,935	1,590
24	Dallas County, Texas	Tarrant County, Texas	4,829	1,954
25	Cook County, Illinois	Kane County, Illinois	4,786	1,448

* This list shows flows that may not be statistically different from one another.

Source: 2007-2011 American Community Survey 5-Year Estimates

⁵ Estimates for MCDs are only available for Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

Characteristics

The 2007-2011 county-to-county migration flows are crossed by three socioeconomic characteristics: household income, individual income, and educational attainment. The categories for these characteristics are:

Table 3. Characteristics and categories

Household income	Individual income	Educational attainment
Less than \$10,000	No income	Less than high school graduate
\$10,000 to \$14,999	\$1 to \$9,999	High school graduate (includes equivalency)
\$15,000 to \$24,999	\$10,000 to \$14,999	Some college or associate's degree
\$25,000 to \$34,999	\$15,000 to \$24,999	Bachelor's degree
\$35,000 to \$49,999	\$25,000 to \$34,999	Graduate or professional degree
\$50,000 to \$74,999	\$35,000 to \$49,999	
\$75,000 to \$99,999	\$50,000 to \$64,999	
\$100,000 to \$149,999	\$65,000 to \$74,999	
\$150,000 or more	\$75,000 or more	

The tables presented below showcase these flows using selected categories of the characteristics. Table 4 presents *origin* counties that are among the five largest flows with a household income between \$35,000 and 49,999 per year, along with that flow the other large destination counties are shown. Large counties in California, Florida, and Texas that appear in previous tables are shown again as origins. The destinations for each county show that migrants seem to stay in the same state, as many of these flows are between neighboring counties. The flow from Los Angeles County, California to Clark County, Nevada is the only flow on this list that does not follow this pattern, though the counties are relatively close to one another.

Like Table 4, five *destination* counties that are among the largest flows for those with an individual income between \$10,000 and 14,999 per year are shown in Table 5. Data in these tables includes movers from abroad, which is why regions like Asia and Central America appear. For movers into Orange County, San Bernardino County, Los Angeles County, and Riverside County California, many come from neighboring counties, but these surrounding counties also received a large number of movers from Asia. Los Angeles County, California was the only county among the top destination counties that had movers from Central America. St. Louis County, Missouri received lower income movers from Missouri and Illinois. As this is the first time movers from abroad are found in this paper, it is important to note that the table package and this paper include movers from abroad (including Puerto Rico) while the Census Flows Mapper does not (see footnote 3).

Table 6 presents five destination counties for those with an individual income of \$75,000 or more. In this table, we see counties in California and New York among the largest destinations and origins. The destination counties in this table show in-migrants came from surrounding counties, but Asia appears in this table again as a region of origin for each county except for Contra Costa County, California. Furthermore, Europe also appears in this table as a region of origin for migrants who moved to Kings

County, New York; New York County, New York; and Los Angeles County, California. Europe is the largest origin for migrants moving into New York County, New York among those in the higher income category.

Table 7 presents the flows among the five largest origins for movers with a high school degree. Again, counties in California and Florida are among the five largest origins for movers with a high school degree, but Asia and the Caribbean are also large origins as well. Migrants with a high school degree from Asia are likely to move to Los Angeles County, San Diego County, and Santa Clara County in California; Queens County, New York; and Cook County, Illinois. Movers from the Caribbean tend to be more geographically concentrated compared to movers from Asia, as they moved to counties in Florida and New York like Miami-Dade, Broward, and Palm Beach counties in Florida, and Bronx and Kings Counties in New York.

Origins are presented in Table 8 for movers with a bachelor's degree. Asia, as a region, was among the largest origins for movers with a college degree with Los Angeles, Santa Clara, and Orange counties in California; Cook County, Illinois; and King County, Washington were among the largest destinations. Perhaps because these movers have higher levels of education, this may explain why some longer-distance moves appear in this table.⁶ Some movers left Orange County, California for Seminole County, Florida. Los Angeles County, California gained some movers from New York County, New York and Cook County, Illinois.

Conclusion

The release of the 2007-2011 county-to-county flows is the third release using the 5-Year ACS Estimates. The flows are crossed by new characteristics: household income, individual income, and educational attainment. This paper provided a brief look at broad in, out, and net migration patterns using the table package at the county level. At the flows level, some of the largest in/out and net flows were discussed. Finally, using the characteristics, counties among the top origins and destinations were presented.

Generally, the in, out, and net migration patterns found that large migration hubs like the southwest, particularly California, and the northeastern corridor had the most migration activity. However, most of the migration was between neighboring counties. The same was found across characteristics, as most flows were in close proximity. Splitting the data by characteristics and analyzing particular categories allowed flows to emerge that may have gone unnoticed otherwise. The movement of high school graduates from Asia or the Caribbean to traditional immigrant hubs is one example.

The Journey-to-Work and Migration Statistics Branch will continue to release county-to-county flows on an annual basis using newer 5-Year ACS Estimates. Each year will provide a new set of characteristics for the flows, until the 2011-2015 dataset, when the cycle of characteristics will begin again with age, sex, race, and Hispanic origin.

⁶ See Franklin, 2003: <http://www.census.gov/prod/2003pubs/censr-12.pdf> and Ihrke, Faber, and Koerber, 2011: <http://www.census.gov/prod/2011pubs/p20-565.pdf>

Household income, outmigration

Table 4. Flows among the five largest origins for movers with a household income of \$35,000-49,999*

	Movers	MOE
From: Los Angeles County, California		
To: San Bernardino County, California	5,133	1,023
Orange County, California	3,973	832
Riverside County, California	3,327	906
Clark County, Nevada	2,185	714
Maricopa County, Arizona	1,396	728
From: Miami-Dade County, Florida		
To: Broward County, Florida	4,658	1,119
Orange County, Florida	603	403
Palm Beach County, Florida	399	179
Monroe County, Florida	250	254
Lee County, Florida	233	212
From: Wayne County, Michigan		
To: Oakland County, Michigan	3,578	775
Macomb County, Michigan	1,696	676
Washtenaw County, Michigan	897	518
Alameda County, Michigan	169	208
St. Clair County, Michigan	128	78
From: Dallas County, Texas		
To: Tarrant County, Texas	3,438	912
Denton County, Texas	2,213	647
Collin County, Texas	1,561	356
Harris County, Texas	635	488
Kaufman County, Texas	609	319
From: Riverside County, California		
To: San Bernardino County, California	2,763	946
Los Angeles County, California	1,545	653
Orange County, California	1,393	463
San Diego County, California	968	347
Maricopa County, Arizona	911	591

*This list shows flows that may not be statistically different from one another.

Source: 2007-2011 American Community Survey 5-Year Estimates

Individual income, immigration

Table 5. Flows among the five largest destinations for movers with an individual income of \$10,000-14,999*

	Movers	MOE
To: Orange County, California		
From: Los Angeles County, California	2,549	391
Riverside County, California	1,132	348
Seminole County, California	980	270
Asia	719	219
Miami-Dade County, Florida	443	188
To: San Bernardino County, California		
From: Los Angeles County, California	2,437	396
Riverside County, California	1,138	283
Orange County, California	497	182
San Diego County, California	236	119
Asia	199	168
To: Los Angeles County, California		
From: Orange County, California	2,196	373
San Bernardino County, California	1,967	388
Central America	1,634	293
Asia	1,595	263
Riverside County, California	1,062	256
To: Riverside County, California		
From: Los Angeles County, California	2,003	364
San Bernardino County, California	1,732	330
Orange County, California	1,153	339
San Diego County, California	797	255
Asia	229	97
To: St. Louis County, Missouri		
From: St. Louis city, Missouri	1,652	349
St. Charles County, Missouri	496	196
Jefferson County, Missouri	235	96
St. Clair County, Illinois	148	112
Madison County, Illinois	133	90

*This list shows flows that may not be statistically different from one another.

Source: 2007-2011 American Community Survey 5-Year Estimates

Table 6. Flows among the five largest destinations for movers with an individual income of \$75,000 or more*

	Movers	MOE
To: Orange County, California		
From: Los Angeles County, California	4,483	568
Riverside County, California	1,156	279
Asia	989	270
San Diego County, California	606	197
San Bernardino County, California	575	206
To: Kings County, New York		
From: New York County, New York	3,448	530
Queens County, New York	641	230
Asia	290	128
Europe	239	110
Richmond County, New York	169	93
To: New York County, New York		
From: Europe	3,098	541
Kings County, New York	2,036	414
Queens County, New York	1,270	316
Hudson County, New York	1,265	277
Asia	949	228
To: Los Angeles County, California		
From: Orange County, California	2,903	400
Asia	1,705	296
New York County, New York	1,043	286
San Bernardino County, California	955	229
Europe	946	231
To: Contra Costa County, California		
From: Alameda County, California	2,644	484
San Francisco County, California	841	273
San Mateo County, California	413	157
Santa Clara County, California	386	116
Solano County, California	349	176

*This list shows flows that may not be statistically different from one another.

Source: 2007-2011 American Community Survey 5-Year Estimates

Educational attainment, outmigration

Table 7. Flows among the five largest origins for movers with a high school degree*

	Movers	MOE
From: Los Angeles County, California		
To: San Bernardino County, California	5,938	777
Riverside County, California	4,426	619
Orange County, California	3,913	484
Clark County, Nevada	1,951	395
Kern County, California	1,880	386
From: Asia		
To: Los Angeles County, California	3,908	564
San Diego County, California	1,785	348
Queens County, New York	1,535	430
Cook County, Illinois	1,333	320
Santa Clara County, California	1,302	310
From: Caribbean		
To: Miami-Dade County, Florida	3,875	747
Broward County, Florida	957	335
Palm Beach County, Florida	881	385
Bronx County, New York	853	203
Kings County, New York	499	147
From: Miami-Dade County, Florida		
To: Broward County, Florida	3,853	657
Lee County, Florida	997	522
Palm Beach County, Florida	563	209
Hillsborough County, Florida	479	253
St. Lucie County, Florida	435	237
From: San Bernardino County, California		
To: Riverside County, California	3,670	538
Los Angeles County, California	3,185	466
Orange County, California	729	224
Kern County, California	510	128
Clark County, Nevada	449	159

*This list shows flows that may not be statistically different from one another.

Source: 2007-2011 American Community Survey 5-Year Estimates

Table 8. Flows among the five largest origins for movers with a bachelor's degree*

	Movers	MOE
From: Asia		
To: Los Angeles County, California	8,228	782
Santa Clara County, California	4,535	584
Cook County, Illinois	4,439	626
Orange County, California	3,478	530
King County, Washington	3,452	546
From: Los Angeles County, California		
To: Orange County, California	7,310	734
Riverside County, California	3,044	527
San Bernardino County, California	2,560	506
Ventura County, California	2,018	301
San Diego County, California	1,838	360
From: Orange County, California		
To: Los Angeles County, California	5,726	561
Riverside County, California	2,258	428
Seminole County, Florida	1,458	306
San Diego County, California	891	219
San Bernardino County, California	728	226
From: New York County, New York		
To: Kings County, New York	4,848	562
Queens County, New York	2,025	352
Los Angeles County, California	1,491	337
Hudson County, New York	1,417	273
Westchester County, New York	1,145	289
From: Cook County, Illinois		
To: DuPage County, Illinois	3,827	471
Lake County, Illinois	2,273	375
Will County, Illinois	1,415	345
Los Angeles County, California	1,274	315
Kane County, Illinois	900	235

*This list shows flows that may not be statistically different from one another.

Source: 2007-2011 American Community Survey 5-Year Estimates