County-to-County Commuting Flows: 2006-10

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INTRODUCTION

Among other questions related to the work commute, the American Community Survey (ACS) asks respondents about their primary workplace location. Workplace information is crucial for understanding the degree of interconnectedness among our nation's communities. Commuting plays an important role in the larger interchange of people, goods, services, and information across places, and helps shape the contours of metropolitan and micropolitan statistical areas. The U.S. Census Bureau's publicly available ACS tables present information about where people work by both residence-based and workplace-based data products, but information about the residence/workplace relationship is not provided as an origin-destination combination. A more complex story about commuting patterns emerges when residence location and workplace location are coupled, generating a "commuting flow." For several applications, this origin-destination flow format increases the utility of workplace information.

Although not included among standard ACS data products, commuting flow estimates are provided as part of the Office of Management and Budget's (OMB's) effort to delineate the nation's metropolitan (metro), micropolitan (micro), and related statistical areas using ACS data. Metro and micro areas are geographic entities used by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. This paper summarizes county-level commuting flows--based on the 2006-2010 5-year ACS estimates--used in OMB's 2013 metropolitan and micropolitan statistical area delineations.

This paper is not an exhaustive analysis of the components that contribute to the qualification of metropolitan and micropolitan statistical areas or the delineation standards associated with this process. Rather, its aim is to provide additional information about county level commuting flows, which make up only one component of the metropolitan and micropolitan statistical areas delineation process.[1] This is the U.S. Census Bureau's first ACS-based release of county-level commuting flows. To assess patterns of change for commuting flows over the 2000s, several aspects of the 2006-2010 ACS-based county-level flows are compared to their 2000 Census-based counterparts.

[1] For more detailed information about OMB standards for delineating metropolitan and micropolitan statistical areas, visit <http://www.census.gov/population/metro/>.

OVERVIEW OF ACS WORKPLACE DATA

The ACS asks respondents in the workforce about their principal workplace location during the reference week. People who worked at more than one location are asked to report the location at which they worked the greatest number of hours.[2] The ACS geocoding operation first attempts to code workplace location to the place level, then to the block level. For some worker records, the Census Bureau is unable to code the workplace address to the block level. This may occur for a variety of reasons, including incomplete workplace address information provided from the respondent, or inability of the geographic coding system to find a match between the employer name and street address responses. When this is not possible due to insufficient address information, respondents' workplace location is imputed to the place level.[3]

When combined, information about workers' residence location and workplace location form the basis of residence-to-workplace "commuting flows." Information about commuting activity between two specific counties helps define commuting patterns for metro areas by providing a gauge of the degree to which counties or other geographic areas are economically connected. Counties provide the building blocks for metro and micro areas. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration with the urban core. The most recent tabulation of county and MCD-level commuting flow counts for this purpose is based on 5-year 2006-2010 ACS. The analysis presented in this paper focuses on counties.

In addition to supporting metro and micro area delineation, information about the relationship between the residence and workplace informs the decisions of policy makers and community planners representing a wide range of initiatives from economic development to transportation planning. Policymakers and planners use commuting flow data to guide transportation improvement strategies and gauge the amount of pressure placed on transportation infrastructure. Transportation planners are also interested in workplace location because work-related travel often affects other daily activities.

Commuting flow information may also inform questions related to equity in the labor market and other domains. For example, flows are used to monitor the effects of anti-discrimination labor laws such as the Equal Employment Opportunity laws.[4] In a typical application of this sort, the demographic characteristics of the commuter shed are considered relative to those of the workforces of local firms. ACS commute flow data are also routinely employed within multiple areas of private enterprise. Real estate developers use workplace information to gauge housing

[2] Place-of-work data shows some workers who made atypical daily work trips (e.g., workers who lived in New York and worked in California). This result is attributable to people who worked during the reference week at a location that was different from their usual place of work, such as people away from home on business.

[3] Place of work information is restricted to workers 16 years of age and older.

[4] See the Census Bureau's EEO web page at < www.census.gov/hhes/www/eeoindex/eeoupcoming.html>.

demand, and retailers benefit from an understanding of the amount of foot traffic in a neighborhood throughout a given workday. Local policymakers and business groups may also use information on commuting flows to gauge the success of economic growth projects.

STRUCTURE OF 2006-10 ACS COMMUTING FLOW TABLES

The Census Bureau developed a series of tables of county and minor civil division (MCD)-based worker flow counts for the United States and Puerto Rico (listed below). Commuting flow estimates are unrounded and each is accompanied by a margin of error. There are no population threshold restrictions on published flow counts; therefore, all counties and MCDs are represented as origins.

- Table 1. Residence County to Workplace County Flows for the United States and Puerto Rico Sorted by Residence Geography: 2006-2010.
- Table 2. Residence County to Workplace County Flows for the United States and Puerto Rico Sorted by Workplace Geography: 2006-2010.
- Table 3. Residence MCD/County to Workplace MCD/County Flows for the United States and Puerto Rico Sorted by Residence Geography: 2006-2010.
- Table 4. Residence MCD/County to Workplace MCD/County Flows for the United States and Puerto Rico Sorted by Workplace Geography: 2006-2010.
- Table 5. Number of Workers in Workplace Geography (State-County-Place) for the United States and Puerto Rico: 2006-2010.
- Table 6. Number of Workers in Workplace Geography (State-County-MCD-Place) for the Six New England States: 2006-2010.

Table 1 and Table 2 include county-to-county flows sorted by residence and workplace geography, respectively. In Tables 3 and 4, flows are presented for counties and their corresponding MCDs for the six New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), and at the county level for all other states. Each table indicates flows involving workplace locations outside of the U.S. by country name, with no additional geographic specificity. County pairs with no flow records are not included in the files. Table 5 and Table 6 do not contain commuting flows, but contains total counts of workers who work in a given area. All tables are available for download as Microsoft Excel files from the U.S. Census Bureau's commuting webpage and metropolitan and micropolitan statistical area webpage.[5] These complete tables, containing all counties and MCDs should not be confused with the tables presented in later sections of this paper, which contain partial ranked lists related to various commuting flow topics to facilitate discussion of commuting flow highlights.

To support metro and micro area delineation, the Census Bureau produces county and MCD-level commuting flow tables every five years, using non-overlapping 5-year ACS estimates

[5] See <www.census.gov/hhes/commuting/> or <www.census.gov/population/metro/>.

beginning with 2006-2010. Prior to the ACS, the decennial Census was used for this purpose, the most recent of which is derived from the 2000 Census. The Census 2000-based county and MCD commuter flows are similar to the 2006-2010 ACS-based flows in structure and are available for download from the Census Bureau's commuting webpage.[6]

PATTERNS AND HIGHLIGHTS FROM THE 2006-10 COMMUTING FLOWS

The analyses in this section focus on flows between county pairs and are largely derived from the 2006-10 county-to-county commuting flow tables mentioned in the previous section. For calculations that depend on additional worker and population information, the source of such information is specified.

Living and Working in Different Counties

During the 2006-2010 period, more than a quarter (27.4 percent) of U.S. workers traveled outside of their residence county for work during a typical week, compared to 26.7 percent in 2000. [7] Table 1 shows 25 counties that are among those of higher percentages. Several of these counties contain small communities located near large employment centers in nearby counties. A high percentage of out-of-county workers may reflect a significant labor market pull from places outside of the residence county. It may also reflect an increased likelihood of crossing a state boundary for geographically small states. Areas of contiguous development commonly overlap county boundaries, so out-of-county workplace commutes do not necessarily imply long commutes. Small counties and county equivalents dominate the list, several of which are in Virginia or Georgia within close proximity to metro areas such as Washington, DC and Atlanta. More than half (51.9 percent) of all workers living Virginia commuted to a different county for work (not shown)[8].

[6] See <www.census.gov/hhes/commuting/data/>.

[7] Source: U.S. Census Bureau, American Factfinder; ACS 2006-2010 Table B08007 and Census 2000 Table P026.

[8] Source: U.S. Census Bureau, American Factfinder; ACS 2006-2010 Table GCT0805.

Table 1

Percent of Workers who Worked Outside of their County of Residence for Counties and County Equivalents: 2006-2010

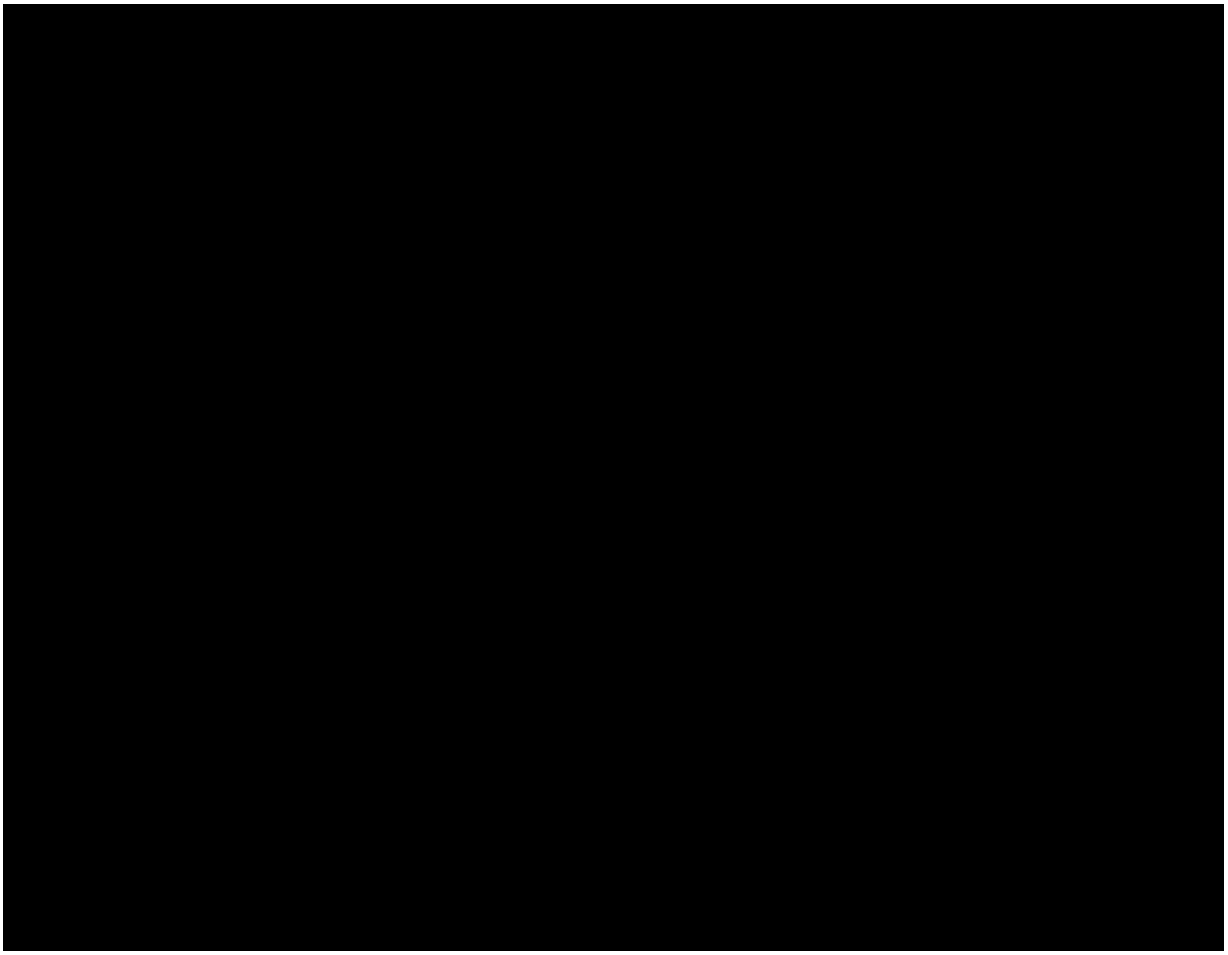
	County of Residence[1]	Percent of Workers who Worked Outside County of Residence	Margin of Error
1	Manassas Park city, VA	91.2	2.8
2	Echols County, GA	85.3	7.2
3	Storey County, NV	84.6	7.9
4	Camden County, NC	83.2	3.8
5	Long County, GA	82.1	4.3
6	Carroll County, MS	81.8	5.4
7	Falls Church city, VA	81.8	3.1
8	Harris County, GA	79.9	2.3
9	New Kent County, VA	79.3	2.7
10	Fairfax city, VA	79.3	2.7
11	Crawford County, GA	79.2	4.9
12	Lee County, GA	79.0	2.8
13	Talbot County, GA	78.7	5.1
14	Benton County, MS	78.3	6.1
15	Poquoson city, VA	78.1	3.2
16	Spencer County, KY	77.7	3.4
17	Twiggs County, GA	77.6	5.5
18	Cumberland County, VA	76.6	4.5
19	Oglethorpe County, GA	76.3	4.8
20	Covington city, VA	75.2	8.1
21	Coosa County, AL	75.1	4.9
22	Jones County, GA	75.1	3.1
23	Taliaferro County, GA	75.0	7.9
24	Wagoner County, OK	74.7	1.6
25	Paulding County, GA	74.0	1.5

Source: 2006-2010 5-year American Community Survey. See Table GCT0805.

[1] Includes cities that are considered county equivalents such as those listed in Virginia.

To accompany Table 1, Figure 1 shows a map of the percentage of workers in each U.S. county who worked outside of their county of residence. Clear regional patterns of commuting flows emerge. Rates of out-of-county commuting are generally higher in Eastern states. For example, Maryland and Virginia have several counties with high proportions of workers who work outside of their county of residence, which is, in part, a function of commuting activity within and around the Washington, DC metro area. Among the 175 counties or county equivalents in

Virginia, 144 have about 25 percent or more of workers who work outside of their county of residence. Georgia also has several counties with high rates of out-of-county commuting largely due to commuting activity within the Atlanta metro area. Among the 159 counties in Georgia, 134 have out-of-county commuting rates of 25 percent or higher.[9] Numerous large metro areas such as Denver, Houston, Minneapolis, and Kansas City include several counties with high rates of out-of-county commuting. In some cases, such counties border a single county that serves as a commercial center for surrounding counties.



The Largest Commuting Flows

The top county-to-county flows generally occurred within large metropolitan areas. As expected, several county pairs with sizable commuting flows are adjacent to one another or within close proximity. Among county pairs with at least one worker in the commuting flow, about 83

[9] Among the 134 counties, 11 have estimates not statistically different than 25 percent.

percent had fewer than 100 workers in the flow, suggesting some degree of employment dispersion and a relatively large commuter shed, or geographic range of potential employment locations among households.[10] Transportation infrastructure such as highways and transit routes shape the spatial dimensions of travel and commercial and residential development, concentrating commuting flows within a relatively small number of origin and destination communities.

Table 2 shows ACS 2006-10 county-to-county commuting flows alongside Census 2000 county-to-county commuting flows. Each of the three largest 2006-10 flows included counties within the New York City metropolitan area. They involved workers living in Kings Co. (Brooklyn), Queens Co. (Queens), and Bronx Co. (The Bronx) travelling to New York Co. (Manhattan) for work. The flow from Los Angeles Co., CA to Orange Co., CA, and its reciprocal flow from Orange Co. to Los Angeles Co. represented the 4th and 5th largest flows, followed by three county combinations within the Houston, TX or Dallas, TX metro areas.[11]

Overall, the list of large commuting flows in 2006-10 is similar to that of 2000, but some notable shifts in relative position occurred. In 2000, Kings Co., NY (Brooklyn) and Queens Co. (Queens) had the highest number of workers who travelled to New York Co., NY (Manhattan) with no statistical difference between them. In 2006-10, Kings Co. edged ahead of Queens Co. as the county with the largest number of workers who commuted to New York Co. In the Los Angeles region more workers commuted from Orange Co. into Los Angeles Co. than the flow in the opposite direction in 2000, whereas the flow from Los Angeles Co. into Orange Co. was the larger of the two in 2006-10, although the 2006-10 ACS flows between these two counties were not statistically different from one another. The flow from Wayne Co., MI to Oakland Co., MI declined in its relative position between 2000 and 2006-10, a reflection of considerable decline in population within the Detroit metro area throughout the decade. Some flows involving county combinations within the Chicago metro area also declined in relative position across the decade.

Several of the county combinations for which the flow count has increased in relative position are part of metro areas that experienced rapid growth between 2000 and 2010. For example, several flows from Riverside Co. and San Bernardino Co. increased in relative rank across the decade, as did several flows in Texas, including the Fort Bend Co.-to-Harris Co. flow and the Collin Co.-to-Dallas Co. flow.

Table 2

[10] Author's calculation based on 2006-10 ACS. Among the 83 percent with fewer than 100 workers, some flow counts may not be statistically different than 100.

[11] Flows from Los Angeles CO and Orange CO flow counts are not statistically different from one another.

County-to-County Commuting Flows by Number of Workers in Flow

	Census 2000			ACS 2006-2010		
	Residence County/State	Workplace County/State	Workers in Flow	Residence County/State	Workplace County/State	Workers in Flow
1	Queens County, NY	New York County, NY	346,268	Kings County, NY	New York County, NY	391,008
2	Kings County, NY	New York County, NY	341,155	Queens County, NY	New York County, NY	370,243
3	Orange County, CA	Los Angeles County, CA	185,145	Bronx County, NY	New York County, NY	191,620
4	Los Angeles County, CA	Orange County, CA	160,279	Los Angeles County, CA	Orange County, CA	181,744
5	Bronx County, NY	New York County, NY	159,664	Orange County, CA	Los Angeles County, CA	178,681
6	DuPage County, IL	Cook County, IL	152,433	Fort Bend County, TX	Harris County, TX	154,557
7	Cook County, IL	DuPage County, IL	146,135	Tarrant County, TX	Dallas County, TX	142,514
8	Tarrant County, TX	Dallas County, TX	136,092	Collin County, TX	Dallas County, TX	142,042
9	Middlesex County, MA	Suffolk County, MA	131,349	DuPage County, IL	Cook County, IL	139,477
10	Prince George's County,	District of Columbia, DC	126,138	Prince George's County,	District of Columbia, DC	136,219
11	Wayne County, MI	Oakland County, MI	124,137	Cook County, IL	DuPage County, IL	135,387
12	DeKalb County, GA	Fulton County, GA	121,921	Middlesex County, MA	Suffolk County, MA	133,068
13	Collin County, TX	Dallas County, TX	119,210	San Bernardino County,	Los Angeles County, CA	126,642
14	Broward County, FL	Miami-Dade County, FL	115,044	Broward County, FL	Miami-Dade County, FL	125,213
15	San Bernardino County,	Los Angeles County, CA	111,439	DeKalb County, GA	Fulton County, GA	118,018
16	Baltimore County, MD	Baltimore city MD	109,265	Baltimore County, MD	Baltimore city, MD	117,027
17	Oakland County, MI	Wayne County, MI	106,405	Snohomish County, WA	King County, WA	116,232
18	St. Louis County, MO	St. Louis city MO	105,207	Denton County, TX	Dallas County, TX	108,740
19	Snohomish County, WA	King County, WA	103,334	Montgomery County, MD	District of Columbia, DC	107,123
20	Montgomery County, MD	District of Columbia DC	99,672	Wayne County, MI	Oakland County, MI	104,700
21	Fort Bend County, TX	Harris County, TX	97,673	Oakland County, MI	Wayne County, MI	103,186
22	Contra Costa County, CA	Alameda County, CA	95,938	St. Louis County, MO	St. Louis city, MO	99,757
23	Denton County, TX	Dallas County, TX	95,367	Nassau County, NY	New York County, NY	95,332
24	Nassau County, NY	New York County, NY	94,485	Will County, IL	Cook County, IL	93,471
25	Macomb County, MI	Oakland County, MI	94,376	Contra Costa County, CA	Alameda County, CA	92,797
26	Cobb County, GA	Fulton County, GA	92,014	Cobb County, GA	Fulton County, GA	90,914
27	Suffolk County, NY	Nassau County, NY	90,930	Fairfax County, VA	District of Columbia, DC	90,207
28	Fairfax County, VA	District of Columbia DC	88,908	Norfolk County, MA	Suffolk County, MA	89,931
29	Norfolk County, MA	Suffolk County, MA	87,705	Macomb County, MI	Oakland County, MI	89,757
30	Queens County, NY	Kings County, NY	87,350	Riverside County, CA	San Bernardino County,	89,709
31	Arapahoe County, CO	Denver County, CO	84,795	Williamson County, TX	Travis County, TX	89,703
32	Lake County, IL	Cook County, IL	83,502	Arapahoe County, CO	Denver County, CO	88,130
33	Seminole County, FL	Orange County, FL	80,875	Suffolk County, NY	Nassau County, NY	87,213
34	Pierce County, WA	King County, WA	80,783	Queens County, NY	Kings County, NY	84,984
35	Westchester County, NY	New York County, NY	79,643	Pierce County, WA	King County, WA	84,697
36	Will County, IL	Cook County, IL	76,574	Westchester County, NY	New York County, NY	82,796
37	Jefferson County, CO	Denver County, CO	73,727	Seminole County, FL	Orange County, FL	81,056
38	Alameda County, CA	San Francisco County, CA	72,035	Lake County, IL	Cook County, IL	80,833
39	San Mateo County, CA	San Francisco County, CA	71,702	Montgomery County, TX	Harris County, TX	78,346
40	Alameda County, CA	Santa Clara County, CA	69,669	Hudson County, NJ	New York County, NY	75,830
41	Ramsey County, MN	Hennepin County, MN	68,796	San Mateo County, CA	San Francisco County, CA	75,047
42	Ventura County, CA	Los Angeles County, CA	68,505	Queens County, NY	Nassau County, NY	75,026
43	Williamson County, TX	Travis County, TX	66,756	Alameda County, CA	San Francisco County, CA	71,861
44	Nassau County, NY	Queens County, NY	66,085	St. Charles County, MO	St. Louis County, MO	71,293
45	Queens County, NY	Nassau County, NY	65,125	Miami-Dade County, FL	Broward County, FL	70,905
46	Cook County, IL	Lake County, IL	64,253	Nassau County, NY	Queens County, NY	70,433
47	Dakota County, MN	Hennepin County, MN	62,901	Kings County, NY	Queens County, NY	69,681
48	St. Charles County, MO	St. Louis County, MO	62,353	Ramsey County, MN	Hennepin County, MN	68,685
49	Kings County, NY	Queens County, NY	62,255	Riverside County, CA	Orange County, CA	67,180
50	Bergen County, NJ	New York County, NY	61,253	Ventura County, CA	Los Angeles County, CA	66,832

Source: U.S. Census Bureau, Census 2000 and 2006-2010 5-year American Community Survey.

Table 3 shows county combinations based on the percentage of workers who reside in one county but commute to a different county. Organizing commuting flows in this way highlights the extent to which some counties serve as ‘bedroom communities,’ or places with a high percentage of land devoted to residential uses. Such areas are often located just outside of major employment centers. For example, about 60 percent of workers who lived in Fort Bend Co., TX, a county outside of Houston, worked in Harris Co., TX, the most populous county in the Houston-Sugarland-Baytown metro area. Similarly, about 47 percent of workers in Pinal Co., AZ travel to Maricopa Co., AZ, the most populous county within the Phoenix-Mesa-Glendale metro area and home to the city of Phoenix. Several of the counties in Table 3 are located within large metropolitan areas. The high proportion of workers leaving these counties to work in a different county suggests that much of the landscape of the origin county is devoted to residential uses rather than commercial, industrial, or other land uses.

Table 3

Commuting Flows by Percent of Workers in Residence County who Work in Specified Workplace County: ACS 2006-2010[1]

	Residence State/County	Workplace State/County	Percent of Residence County Workers in Flow	Margin of Error	Total Workers in Flow[2]	Total Workers in Residence County who did not work at home[2]
1	Fort Bend County, TX	Harris County, TX	60.6	0.8	154,557	255,023
2	Pinal County, AZ	Maricopa County, AZ	47.2	1.3	57,598	122,033
3	Williamson County, TX	Travis County, TX	46.2	0.9	89,703	194,187
4	Osceola County, FL	Orange County, FL	44.9	1.4	52,642	117,225
5	Jefferson County, MO	St. Louis County, MO	44.4	1.1	46,788	105,359
6	Hamilton County, IN	Marion County, IN	44.4	1.0	58,895	132,794
7	Cleveland County, OK	Oklahoma County, OK	44.3	1.0	54,129	122,052
8	Montgomery County, TX	Harris County, TX	39.7	0.9	78,346	197,321
9	St. Charles County, MO	St. Louis County, MO	39.3	0.8	71,293	181,603
10	Seminole County, FL	Orange County, FL	39.2	0.8	81,056	206,779
11	Brazoria County, TX	Harris County, TX	38.7	1.0	52,785	136,415
12	Lexington County, SC	Richland County, SC	38.0	0.9	47,271	124,378
13	Collin County, TX	Dallas County, TX	37.8	0.5	142,042	375,829
14	St. Louis city, MO	St. Louis County, MO	37.3	0.8	53,606	143,871
15	Bronx County, NY	New York County, NY	36.9	0.5	191,620	518,939
16	Kings County, NY	New York County, NY	36.9	0.4	391,008	1,060,308
17	Arlington County, VA	District of Columbia, DC	36.8	1.0	47,226	128,181
18	DeKalb County, GA	Fulton County, GA	35.9	0.6	118,018	328,355
19	Queens County, NY	New York County, NY	35.9	0.3	370,243	1,031,087
20	Loudoun County, VA	Fairfax County, VA	35.8	0.8	55,044	153,550
21	Galveston County, TX	Harris County, TX	35.7	1.0	48,078	134,492
22	Anoka County, MN	Hennepin County, MN	35.7	0.7	61,141	171,448
23	Clayton County, GA	Fulton County, GA	35.1	1.1	40,363	114,991
24	Snohomish County, WA	King County, WA	33.8	0.5	116,232	344,354
25	Denton County, TX	Dallas County, TX	33.7	0.6	108,740	322,604

Source: 2006-2010 5-year American Community Survey.

[1]Does not include workers who worked at home

[2] Margins of error for totals can be found in the complete 2006-10 county-level commuting flow tables at <www.census.gov/hhes/commuting/>

High-Growth Commuting Flows between 2000 and 2006-10

As local populations and economies shift over time, so too do the commuting patterns within and across communities. Just as labor market shifts influence residential choices, residential preferences influence commercial investment patterns. Several aspects of the work commute such as travel time, travel mode, and workplace location may reflect shifts in the relationship between home and the workplace. Table 4 lists the 25 county-to-county worker flows among those that experienced the largest increases between 2000 and 2006-10. The table is restricted to

counties with 2006-10 commuter flows of at least 500 workers to avoid instances in which a small base number of workers results in a very large proportional increase for county combinations that have seen only modest increases of workers. Table 4 is dominated by states that experienced considerable population growth between 2000 and 2010, including several fast-growing Sunbelt states such as Texas, Georgia, Florida, North Carolina, and South Carolina. While each county combination has a unique story, rapid overall population growth within the residence county, workplace county, or both are prominent themes among these county pairs.

Residential location is often influenced by workplace location and vice versa. Economic and population growth in one county may foster considerable residential growth in nearby counties, strengthening economic ties and increasing commuting activity between counties. In a somewhat different scenario, workers already living in a given county may take advantage of new employment opportunities within an adjacent county, but not change residences. Both instances may result in notable increases in the proportion of workers who commute outside of their residence county.

Table 4

Commuting Flows by Percent Change in Number of Workers in Flow between Census 2000 and ACS 06-10 (Limited to Counties with at Least 500 Workers in 2006-10 Flow)[1]

	Residence State/County	Workplace State/County	Flow Count Census 2000	Flow Count ACS 2006-2010	Percent Change in Flow Count Across Surveys	Total Number of Workers in Residence County who Did not Work at Home 2006-2010
1	Cooke County, TX	Love County, OK	63	812	1,189	17,761
2	Etowah County, AL	Talladega County, AL	82	995	1,113	40,160
3	Kings County, NY	New London County, CT	53	573	981	1,060,308
4	Greenwood County, SC	Newberry County, SC	94	609	548	28,988
5	Lee County, FL	Broward County, FL	127	712	461	250,778
6	Weld County, CO	Laramie County, WY	121	649	436	115,789
7	Ascension Parish, LA	Orleans Parish, LA	134	718	436	47,589
8	St. Lucie County, FL	Broward County, FL	353	1,825	417	107,073
9	Washoe County, NV	Lassen County, CA	111	528	376	202,860
10	St. Clair County, AL	Talladega County, AL	357	1,689	373	34,493
11	Harris County, TX	Orleans Parish, LA	256	1,139	345	1,847,826
12	Mecklenburg County, NC	Richland County, SC	122	542	344	444,552
13	Wake County, NC	Pitt County, NC	124	517	317	430,676
14	Jefferson County, MO	Ste. Genevieve County,	123	502	308	105,359
15	Mesa County, CO	Garfield County, CO	593	2,420	308	67,278
16	Tarrant County, TX	Wise County, TX	495	2,011	306	833,242
17	Taney County, MO	Stone County, MO	275	1,109	303	22,981
18	Los Alamos County, NM	Santa Fe County, NM	180	711	295	9,205
19	Henry County, GA	Bibb County, GA	174	675	288	90,024
20	Dodge County, GA	Houston County, GA	160	619	287	7,353
21	Marion County, FL	Sumter County, FL	1,043	4,033	287	118,716
22	Rockdale County, GA	Walton County, GA	246	938	281	37,416
23	Tallapoosa County, AL	Talladega County, AL	170	646	280	17,358
24	Osceola County, FL	Polk County, FL	560	2,060	268	117,225
25	York County, PA	Howard County, MD	302	1,105	266	212,275

Source: 2006-2010 5-year American Community Survey.

[1]Does not include workers who worked at home.

Workplace Locations Outside of the U.S.

Fewer than 0.1 percent of all U.S. workers reported a workplace location outside of the United States in 2006-10.[12] Among them, about 17 percent reported working in Iraq, about 15 percent in Mexico, about 9 percent in Canada, and about 5 percent in Afghanistan. Geographic proximity to

[12] Author's calculation based on 2006-10 ACS data.

the U.S. and the presence of U.S. military troops are among the principal factors that influence out-of-country worker flows. Table 5 lists 15 county-to-nation flows that rank among the largest. Several of these counties are either located along the Mexico or Canadian border or contain a large military base. Notably, six out-of-country worker flows on the list originate in Texas. Four of them show large worker flows to Mexico, and two Texas counties show a large number of workers that reported Iraq as their workplace location. Whatcom County, WA shows a large worker flow to Canada, and two California counties show large flows to Mexico. The remaining counties on the list show large numbers of workers in who worked in Iraq or Afghanistan; as expected they each contain large military bases.

Table 5

Out-of-Country Commuting Flows

	Residence County and State	Workplace Country	Count of Workers in Flow	Margin of Error
1	El Paso CO, TX	Mexico	4,146	429
2	San Diego CO, CA	Mexico	2,760	432
3	Hidalgo CO, TX	Mexico	2,294	374
4	Cameron CO, TX	Mexico	1,337	297
5	Bell CO, TX	Iraq	963	173
6	Anne Arundel CO, MD	Afghanistan	830	211
7	Imperial CO, CA	Mexico	829	265
8	Whatcom CO, WA	Canada	750	205
9	El Paso CO, CO	Iraq	715	161
10	Webb CO, TX	Mexico	611	188
11	Coryell CO, TX	Iraq	562	183
12	Montgomery CO, TN	Iraq	537	158
13	Onslow CO, NC	Iraq	496	190
14	Los Angeles CO, CA	China	484	139
15	Pierce CO, WA	Iraq	477	148

Source: 2006-2010 5-year American Community Survey.

CONCLUSION

The information presented in this paper discusses commuting flows between counties, only one aspect of a diverse and complex set of commuting patterns across the nation's communities. Information about commuting flows provides an important indicator of socio-economic interconnectedness between communities. Such information helps shape our understanding of

the boundaries of local and regional economies. The typical commuting experience may vary dramatically from place to place, as is indicated by notable differences in the distribution of travel modes, average travel time, and rates of out-of-county commuting.

The timeliness and frequency with which ACS data are released allow local and state officials to continuously gauge shifts in the economy, residential and commercial development patterns, and the effects of growth management programs and other policy decisions. Commuting information is released annually as part of ACS standard tables. Although flow data is not included in standard ACS data products, the Census Bureau periodically features commuting and migration flow data in special tables and reports, including the periodic effort to support metropolitan and micropolitan area delineation. Additionally, several publicly available special tabulations representing a variety of sponsors and data user groups include commuting flows derived from Census survey data.[13]

In addition to ACS-based flow data, the Census Bureau provides flow data based on state-level administrative employment records. The Longitudinal Employer-Household Dynamics Program (LEHD) relates where people live to where they work using Quarterly Census of Employment and Wages data derived from reports filed by all employers subject to unemployment compensation laws.[14] For more information on commuting products, visit the Census Bureau's commuting homepage at <www.census.gov/hhes/commuting/>.

SOURCE AND ACCURACY

The data presented in this report are based on the ACS sample interviewed during the 5-year period of 2006-2010. The estimates based on this sample approximate the actual values and represent the entire household and group quarter population. Sampling error is the difference between an estimate based on a sample and the corresponding value that would be obtained if the estimate were based on the entire population (as from a census). Measures of the sampling errors are provided in the form of margins of error for most estimates included in this report. In some

[13] The Census Transportation Planning Products (CTPP) is a collaborative effort among the U.S. Census Bureau and several transportation-related agencies to produce a set of tabulations designed for transportation planners. This tabulation includes several commuting flow tables. For more information, see <www.ctpp.transportation.org>.

The Equal Employment Opportunity (EEO) tabulation provides flows by industry and occupation categories for several geographies. For more information, see < www.census.gov/hhes/www/ioindex/>.

[14] LEHD is a project of the U.S. Census Bureau that combines federal and state administrative data on employers and employees with socio-demographic information from the decennial Census and the ACS. It is built from administrative records, not the ACS survey. More information about LEHD can be found at <www.lehd.did.census.gov/led/>.

cases, margins of error are not included in the report table, but are readily available in the corresponding table available for download online. All comparative statements in this report have undergone statistical testing, and comparisons are significant at the 90 percent level unless otherwise noted. In addition to sampling error, nonsampling error may be introduced during any of the operations used to collect and process survey data such as editing, reviewing, or keying data from questionnaires. For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, please see the 2006-10 ACS Accuracy of the Data document at <www.census.gov/acs/www/data_documentation/documentation_main/ >. For more information about the commuting patterns of U.S. workers, go to the U.S. Census Bureau's Journey to Work and Migration Statistics Branch Web site, at <www.census.gov/hhes/commuting/>, or contact the Journey to Work and Migration Statistics Branch at 301-763-2454.