Mega Commuting in the U.S.

Time and Distance in Defining Long Commutes using the 2006-2010 American Community Survey

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Introduction

With a changing employment landscape, some U.S. commuters are travelling long times and distances to get to work. One study by Moss and Qing (2012) noted that "super" commuters are on the rise in the U.S. where a super commuter is defined as working in the central county of a metropolitan area, but lives beyond the boundaries of that metropolitan area, commuting long distances by air, rail, car, bus, or some combination. This is a definition based on distance. According to the U.S. Census Bureau (2005), extreme commuters are also growing, defined as workers who travel 90 minutes or more to work, one-way – a definition based on time. As part of improving our understanding of the relationship of time and distance in a commute, this analysis looks at workers who deal with both extremes.

Using the 2006-2010 5-year American Community Survey (ACS), we examine the spatial patterns, demographic, and transportation characteristics of commuters who travel 50 or more miles AND 90 minutes or more to get to work, "mega" commuters, utilizing the mean travel times and average block-to-block distances traveled for individual home-to-work flows.

The analysis

- Evaluates the national, county-level and metropolitan area patterns of "mega" commuting
- Examines time and distance, first, independently, and then jointly
- Analyzes county-to-county flow pairs with the highest average distance and time; noting counties with the highest distance traveled, and extremes in inflow and outflow.
- Maps mega commutes by counties and metropolitan areas
- Examines the relationship to travel mode choice and demographic characteristics such as, age, marital status, presence of children, wages, gender, and occupation
- Compares Washington, DC, mega commuters to all other commuters and their national counterparts .

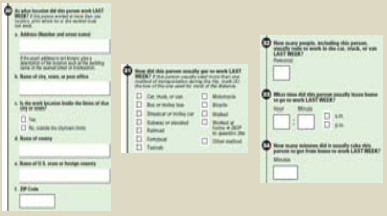
Data and Methodology

The ACS is an ongoing survey conducted annually by the U.S. Census Bureau that captures changes in the socioeconomic, housing, and demographic characteristics of communities across the United States and Puerto Rico. The ACS questions related to travel focus solely on commuting and do not ask about leisure travel or other non-work trips. Respondents answer questions about where they live, where they work, what time they leave home for work, the means of transportation used to get there, the number of workers riding in a car, truck, or van, and how long, in minutes, it takes to travel to work (see ACS transportation-related questions below). The full addresses of a worker's residence and workplace are collected in the survey. They are each geocoded to the place-level, and the block-level where possible.

We use both travel time and distance to analyze commuting patterns for full-time workers in the U.S. We obtain travel time from reported values on the ACS (see Question #33). The ACS does not ask about travel distance to work. To obtain travel distance, we utilize geocoded residence and place of work information from the 2006-2010 5-year ACS to calculate the Census block centroid -to-Census block centroid distance variable for each individual home-to-work flow pair based on Euclidean distance (i.e., "as the crow flies"). From here, we delineate workers who commute 90 minutes or more and 50 miles or more as "mega" commuters, workers who commute 90 minutes or more as "extreme," and workers who commute 50 miles or more as "long-distance."

Definitions

Extreme Commuting: Traveling 90 or more minutes to work.
Long-distance Commuting: Traveling 50 or more miles to work.
Mega Commuting: Traveling 90 or more minutes and 50 or more miles to work.



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Straight Line Distance = 3949.99 * arcos(sin(LAT_res) *
sin(LAT_mig) + cos(LAT_res) * cos(LAT_mig) *
cos(LONG_mig - LONG_res))

Inflated Distance = Straight Line Distance * 1.25
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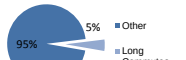
The Basics

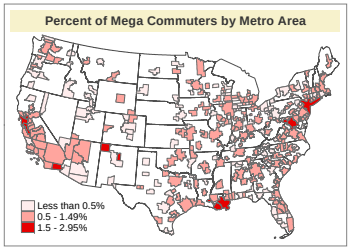
Basic Statistics for Commutes

	Mean Travel Time (in min)	Mean Distance	No. of Commuters (in thousands)	% Drove Alone	% Public Transportation	% Carpool	% Nonwhite	% Hispanic
All	26.1	18.8	71,203	81.9	5.0	9.5	22.4	12.9
Extreme	117.6	70.9	1,714	59.0	25.3	11.8	27.4	12.8
Long-distance	61.3	247.3	2,242	75.9	4.9	13.3	18.1	11.1
Mega	119.0	166.4	587	68.3	11.3	14.3	19.0	10.4

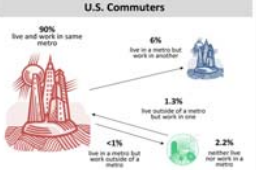


Of the 5% that are long commutes:

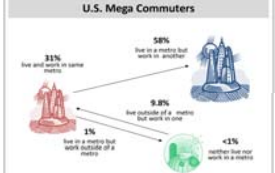
Percent of Mega Commuters by Metro Area



U.S. Commuters



U.S. Mega Commuters



Top Tens

Metro Areas with the Highest Mean Travel Time[1]	Percent Mega Commutes
San Francisco-Oakland-Fremont, CA	2.06
New York-Northern New Jersey-Long Island, NY-NJ-PA	1.90
Washington-Arlington-Alexandria, DC-VA-MD-WV	1.89
Trenton-Ewing, NJ Metropolitan Statistical Area	1.40
Los Angeles-Long Beach-Santa Ana, CA	1.25
Boston-Cambridge-Quincy, MA-NH	1.17
Atlanta-Sandy Springs-Marietta, GA	0.90
Chicago-Joliet-Naperville, IL-IN-WI	0.81
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.80
Seattle-Tacoma-Bellevue, WA	0.57

Metro Areas with Highest Mean Distance[2]	Percent Mega Commutes
San Francisco-Oakland-Fremont, CA	2.06
San Jose-Sunnyvale-Santa Clara, CA	1.90
Salinas, CA	1.23
Gulfport-Biloxi, MS	0.94
Hinesville-Fort Stewart, GA	0.93
Lawton, OK	0.82
Fayetteville, NC	0.73
Brunswick, GA	0.64
Anchorage, AK	0.25
Honolulu, HI	0.08

Top 10 Mega County Commuter Flows by Frequency[3]

State	County	POW State	POW County	Mean Travel Time	Mean Distance
California	San Bernardino County	California	Los Angeles County	104.2	68.0
California	Riverside County	California	Los Angeles County	109.3	77.4
New York	Suffolk County	New York	New York County	114.2	64.5
Connecticut	Fairfield County	New York	New York County	104.2	60.4
New York	Orange County	New York	New York County	110.7	62.3
New Jersey	Mercer County	New York	New York County	104.6	59.3
California	Riverside County	California	San Diego County	102.3	75.5
New York	Dutchess County	New York	New York County	116.8	76.3
California	San Joaquin County	California	Alameda County	104.1	61.5
Pennsylvania	Monroe County	New York	New York County	120.5	91.1

Mega Commuting Flows: Top Sending and Receiving Counties

Alaska[4]
POW state with the highest mean distance.

Cook Co., IL
POW county among the highest number of mega receiving flows.

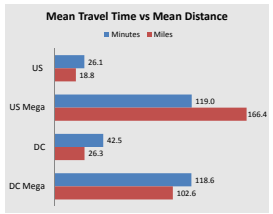
Houma-Bayou Cane-Thibodaux, LA[5]
POW metro area with the highest percent of mega commuters.

DC[6]
POW state with the highest mean travel time & percentage of mega commuters.

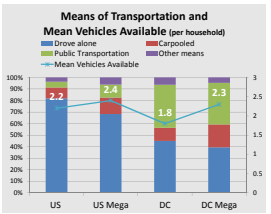
Nation vs Washington, D.C.

Transportation Characteristics

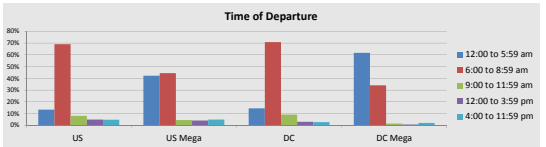
Mean Travel Time vs Mean Distance



Means of Transportation and Mean Vehicles Available (per household)

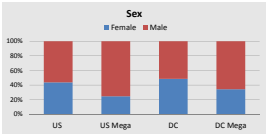


Time of Departure

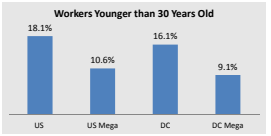


Socio-economic Characteristics

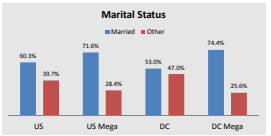
Sex



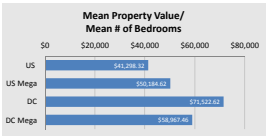
Workers Younger than 30 Years Old



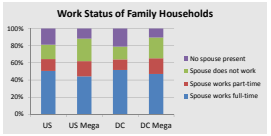
Marital Status



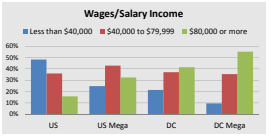
Mean Property Value/ Mean # of Bedrooms



Work Status of Family Households



Wages/Salary Income



References & Footnotes

Mateyka, P. J., Rapino, M. A., and L. C. Landivar, 2012. "Home-based Workers in the United States: 2010," Household Economic Studies, U.S. Census Bureau, P70-132, October.

Moss, Mitchell L. and Carson Qing, 2012. "The Emergence of the Super-Commuter," Rudin Center for Rudin Center for Transportation, New York University Wagner School of Public Service, February.

U.S. Census Bureau. 2005 (http://www.census.gov/newsroom/releases/pdf/2005-03-30_Commute_extremes.pdf

U.S. Census Bureau. 2006-2010 5-year American Community Survey.

1 Not all metro areas on this list have statistically different mean travel times from those ranked lower. San Francisco, CA, Boston, MA, and, Seattle, WA metro areas have percent mega commuters that are statistically different from all other metro areas on the list at the 90 percent confidence level but not necessarily from metro areas excluded from the list.
2 Anchorage, AK and Honolulu, HI have statistically different mean distances from other metro areas at the 90 percent confidence level, but not from each other. None of the metro areas on the list have percent mega commuters that is statistically different from all other metro areas on the list.
3 San Bernadino Co., CA to Los Angeles Co., CA and Fairfield Co., CT to New York Co., NY have commuter flow counts that are statistically different at the 90 percent confidence level. The flow from San Bernadino Co., CA to Los Angeles Co., CA has a mean travel time that is statistically different from the next flow and a mean distance that is statistically different from the other flows in the table at the 90 percent confidence level.
4 Alaska as a POW state has the statistically highest mean distance, except for Hawaii, at the 90 percent confidence level.
5 Statistically different from other POW metro areas by percent mega commuters, except Santa Fe, NM metro area, at the 90 percent confidence level.
6 Statistically different from other place of work states for mean travel time and percentage of mega commuters at the 90 percent confidence level.
7 Statistically different from other place of work states at the 90 percent confidence level.
8 Statistically different from other place of work counties at the 90 percent confidence level.
9 Not statistically different from all other place of residence states for mega commuters.
10 Statistically different from other place of work CBSAs at the 90 percent confidence limit, except for the New York-New York-Northern New Jersey-Long Island, NY-NJ-PA metropolitan statistical area.
11 The number of mega commuters from Spotsylvania County, VA into Washington, DC is statistically different at the 90 percent confidence level from other county flows into Washington, DC.
12 Statistically significant at the 90 percent confidence level for full-time commuting US workers versus their mega counterparts.

Study Area: Washington, D.C.

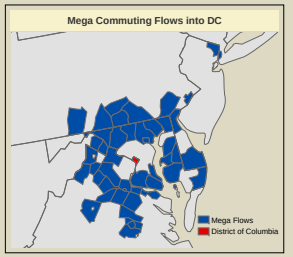
Washington, D.C. is located in the Mid-Atlantic region of the U.S. It is an ideal study area for extreme commuting because respondents have consistently reported long commutes in terms of time and it has a variety of transportation modes. Additionally, Washington, D.C. has a large geographic commuting shed due to the consistent and stable job opportunities located in the metro area and its distinct role as our nation's capital.

This research has shown that the District of Columbia

- Highest percent of mega commuters for place of work state[7] (2.15%)
- 4th highest number of receiving mega commuters for place of work counties[8]
- Among the highest average distance and time for place of residence state for mega commuters[9]
- Highest mean travel time for place of work CBSA (along with the NYC metro area) for all full-time working commuters[10]

In the graphs to the left we compared characteristics for all commuters and mega commuters in D.C. to national averages. There are significant differences among the groups.

The map of the mega commuter flows into D.C. shows a ring around the District of Columbia encompassing counties in Maryland, Pennsylvania, Virginia, West Virginia, and New Jersey. These flows contain at least 3 unweighted cases. Counties among the top five county mega commuter flows into the District of Columbia in terms of commuter frequency are: Spotsylvania Co., VA, Frederick Co., MD, Baltimore Co., MD, Stafford Co, VA, and Berkeley Co., WV.[11] Each of these flows have relatively high proportions of carpooling and public transportation usage but each county varies on the percent of mega commuters by means of transportation.



Top 5 Mega Commuter County Flows into DC by Means of Transportation

State	County	Mode of Transportation	Percent Mega	Percent of Mode Share
Virginia	Spotsylvania County	Drove alone	51.2	24.7
		Carpooled	38.5	28.1
		Public Transportation	84.0	47.2
Maryland	Frederick County	Drove alone	21.8	35.3
		Carpooled	30.3	14.7
		Public Transportation	49.3	50.0
Maryland	Baltimore County	Drove alone	18.5	43.1
		Carpooled	15.8	5.9
		Public Transportation	27.1	51.0
Virginia	Stafford County	Drove alone	14.0	32.7
		Carpooled	9.2	24.5
		Public Transportation	39.6	42.9
West Virginia	Berkeley County	Drove alone	73.7	35.9
		Carpooled	100.0	10.3
		Public Transportation	100.0	53.8

Results and Conclusions

- Mega commuters are more likely to depart for work before 6 am, be male, older, married, make a higher salary, and have a spouse that does not work.[12]
- Mega commuters are more likely to travel to another metro or micro area for work, as opposed to the one in which they reside.[12]
- Mega receiving flows are geographically concentrated in populous cities, while sending flows are more geographically dispersed.
- D.C. mega commuters have different characteristics from D.C. commuters as a whole, as well as their U.S. counterparts.

Time and distance are two different measures for examining commutes. Each paints a different picture regarding the obstacles along the journey to work. Extreme times tend to highlight areas that tend to have more density and therefore, congestion, while areas with long distance travel may be in more remote areas of the U.S. with geographically clustered employment opportunities.

Additionally, further research is needed to better understand whether mega commuting is a choice or a necessity for workers. Mega commuters may choose to commute to an onsite location part of the week and work from home other days (see Mateyka, Rapino, and Landivar 2012). Or, mega commuters may be a result of the changing employment landscape, meaning workers have to travel further and longer to existing job opportunities.

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Mega Commuters in the U.S.

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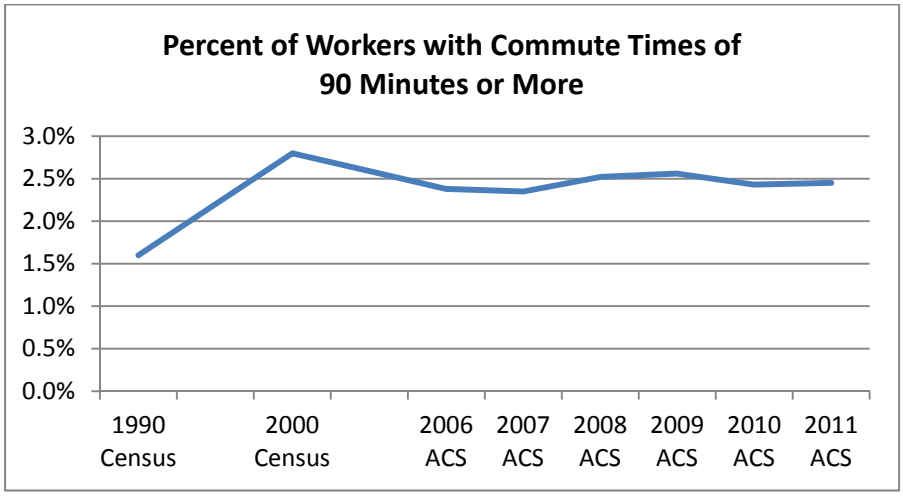
Introduction

With a changing employment landscape, some U.S. commuters are travelling long times and distances to get to work. One study by Moss and Qing (2012) noted that "super" commuters are on the rise in the U.S. In their analysis, a super commuter is defined as working in the central county of a metropolitan area, but lives beyond the boundaries of that metropolitan area, commuting long distances by air, rail, car, bus, or some combination. This is a definition based on distance. Extreme commuting has been increasing since at least 1990 (see Figure 1). Extreme commuters are defined as workers who travel 90 minutes or more to work, one-way – a definition based on time (U.S. Census Bureau, 2005). Additionally, this research defines long-distance commuters as workers who travel 50 miles or more to work, one-way. And mega commuters as those who combine these two definitions and travel 90 minutes or more and 50 miles or more to work, one-way.

Definitions
Extreme Commuting: Traveling 90 or more minutes to work.
Long-distance Commuting: Traveling 50 or more miles to work.
Mega Commuting: Traveling 90 or more minutes and 50 or more miles to work.

This analysis evaluates the national, county-level, and metropolitan area patterns of "mega" commuting, examining time and distance, first, independently, and then jointly. We analyze commutes determining the county-to-county flow pairs with the highest average distance and time; noting counties with the highest distance traveled, and extremes in inflow and outflow. We mapped the mega commutes by counties and metropolitan areas and examine these measures in relationship to travel mode choice, in the presence of demographic characteristics such as, age, marital status, presence of children, wages, gender, and occupation. Additionally, using the study area of Washington, D.C., we compare mega commuters to other commuters and their national counterparts. Washingtonian commuters report some of the longest commute times in the U.S. and have a variety of transportation modes from which to choose. These results will better inform how to define these commutes with respect to both time and distance.

Figure1: Percent of Workers with Commute Times of 90 Minutes or More, 1990-2011



Source: U.S. Census Bureau, 1990 Census, Census 2000, 2006 ACS, 2007, 2008 ACS, 2009 ACS, 2010 ACS, 2011 ACS.

Research Questions

- What are the geographic patterns and distribution of mega commuters?
- What are the transportation and socio-economic characteristics of mega commuters in comparison to other commuters?
- How do commuters into the District of Columbia compare to commuters across the U.S.?

Data and Methodology

The American Community Survey (ACS) is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic, and housing data for the nation, states, congressional districts, counties, places, and other localities every year. It had a 2011 sample size of about 3.3 million addresses across the United States and Puerto Rico and includes both housing units and group quarters (e.g.,nursing facilities and prisons). The ACS is conducted in every county throughout the nation and every municipio in Puerto Rico, where it is called the Puerto Rico Community Survey. Beginning in 2006, ACS data for 2005 were released for geographic areas with populations of 65,000 and greater. For information on the ACS sample design and other topics, visit <www.census.gov/acs/www>.

This research utilizes the 2006-2010 5-year ACS. The 5-year ACS estimates contain 60 months of collected data, which allows for a larger sample size and more reliable, precise, but less current, estimates than the 1-year and 3-year datasets. For this research, the 5-year dataset was advantageous to examine such a small sect of the population at geographies below the national or state level.

The ACS questions related to daily travel patterns focus solely on commuting and do not ask about leisure travel or other non-work trips. Respondents answer questions about where they live, where they work, what time they leave home for work, the means of transportation used to

get there, the number of workers riding in a car, truck, or van, and how long, in minutes, it takes to travel to work (see ACS transportation-related questions on associated poster). The full addresses of a worker's residence and workplace are collected in the survey. They are each geocoded to the place-level, and the block-level where possible.

We use both travel time and distance to analyze commuting patterns for full-time workers in the U.S., where full-time workers have been defined as those who reported working 50 or more weeks a year and 35 or more hours per week. We obtain travel time from reported values on the ACS (see Question #33). The ACS does not ask about travel distance to work. To estimate travel distance, we utilize geocoded residence and place of work information from the 2006-2010 5-year ACS to calculate the Census block centroid -to-Census block centroid distance variable for each individual home-to-work flow pair based on Euclidean distance (i.e., "as the crow flies") (see Equation 1). In order to account for the transportation network effect, the travel distance obtained from Equation 1 is multiplied by a constant of 1.25 (see Equation 2).

From here, we delineate workers who commute 90 minutes or more *and* 50 miles or more as "mega" commuters, workers who commute 90 minutes or more as "extreme," and workers who commute 50 miles or more as "long-distance" (see Definitions box above).

Equation 1
Straight Line Distance = 3949.99 * arcos(sin(LAT_res) * sin(LAT_pow) + cos(LAT_res) * cos(LAT_pow) * cos(LONG_pow - LONG_res))

where, LAT_res is the latitude of the centroid of the residential block of each commuter, LAT_pow is the latitude of the centroid of the place of work census block of each commuter, LONG_res is the longitude of the centroid of the place of residence of each commuter, and LONG_pow is the longitude of the centroid of the place of work of each commuter.

Equation 2
Inflated Distance = Straight Line Distance * 1.25

where, Straight Line Distance is defined in Equation 1 and 1.25 is a constant (Sparks et al., 2011).

Findings and Discussion

Of all reported commutes in the U.S. for full-time workers, approximately 5% are considered to be "long", while 95% make up other commutes. Of the long commutes, about 2.41% or 1,713,931 can be categorized as extreme, 3.15% or 2,241,915 as long-distance, and 0.82% or 586,805 as mega.

This research has shown that in the U.S.:

- Mega commuters are more likely to depart for work before 6 am, be male, older, married, make a higher salary, and have a spouse that does not work (see Appendix Table 1).[1]

[1] Statistically significant at the 90 percent confidence level for full-time working U.S. commuters versus their mega counterparts.

- Mega commuters are more likely to travel to another metro or micro area for work, as opposed to the one in which they reside.[2]
- Mega receiving flows are geographically concentrated in populous cities, while sending flows are more geographically dispersed (see 'Mega Commuting Flows: Top Sending and Receiving Counties' map).

Table 1: Percent Mega Commutes for Metro Areas with the Highest Mean Travel Time for Full-time Working Commuters[3]

Metro Areas with the Highest Mean Travel Time	Percent Mega Commutes
San Francisco-Oakland-Fremont, CA	2.06
New York-Northern New Jersey-Long Island, NY-NJ-PA	1.90
Washington-Arlington-Alexandria, DC-VA-MD-WV	1.89
Trenton-Ewing NJ Metropolitan Statistical Area	1.40
Los Angeles-Long Beach-Santa Ana, CA	1.25
Boston-Cambridge-Quincy, MA-NH	1.17
Atlanta-Sandy Springs-Marietta, GA	0.90
Chicago-Joliet-Naperville, IL-IN-WI	0.81
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.80
Seattle-Tacoma-Bellevue, WA	0.57

Table 2: Percent Mega Commutes for Metro Areas with the Highest Mean Distance for Full-time Working Commuters[4]

Metro Areas with Highest Mean Distance	Percent Mega Commutes
San Francisco-Oakland-Fremont, CA	2.06
San Jose-Sunnyvale-Santa Clara, CA	1.90
Salinas, CA	1.23
Gulfport-Biloxi, MS	0.94
Hinesville-Fort Stewart, GA	0.93
Lawton, OK	0.82
Fayetteville, NC	0.73
Brunswick, GA	0.64
Anchorage, AK	0.25
Honolulu, HI	0.08

[2] Statistically significant at the 90 percent confidence level for full-time working U.S. commuters versus their mega counterparts.

[3] Not all metro areas on this list have statistically different mean travel times from those ranked lower. San Francisco, CA, Boston, MA. and, Seattle, WA metro areas have percent mega commuters that are statistically different from all other metro areas on the list at the 90 percent confidence level but not necessarily from metro areas excluded from the list.

[4] Anchorage, AK and Honolulu, HI have statistically different mean distances from other metro areas at the 90 percent confidence level, but not from each other. None of the metro areas on the list have percent mega commuters that is statistically different from all other metro areas on the list.

Geographic Dispersions

The map of the percent of mega commuters by metro area shows a dispersion across the U.S. with the biggest clusters located in major metro areas on the east and west coasts such as New York, NY, Washington, D.C., San Francisco, CA, and Los Angeles, CA. Interestingly, there are two additional clusters in the New Orleans, LA and Houma, LA areas as well as the Santa Fe, NM and Farmington, NM. Included in the Appendix is a tabulation of place of work metropolitan statistical areas with the estimated number of mega commuters, estimated margin of error, percent of mega commuters, and percent margin of error (see Appendix Table 2).

Of note,

- San Bernadino Co., CA to Los Angeles Co., CA and Fairfield Co., CT to New York Co., NY flows have flow counts that are statistically larger than other mega commuter flows at the 90 percent confidence level (see Table 3).

- The flow from San Bernadino Co., CA to Los Angeles Co., CA has a mean travel time and mean distance that is statistically larger than other mega commuter flows at the 90 percent confidence level (see Table 3).

Table 3: Mean Travel Time and Mean Distance for the Most Frequent Mega Commuter Flows

Top 10 Mega County Commuter Flows by Frequency

State	County	POW State	POW County	Mean Travel Time	Mean Distance
California	San Bernardino County	California	Los Angeles County	104.2	68.0
California	Riverside County	California	Los Angeles County	109.3	77.4
New York	Suffolk County	New York	New York County	114.2	64.5
Connecticut	Fairfield County	New York	New York County	104.2	60.4
New York	Orange County	New York	New York County	110.7	62.3
New Jersey	Mercer County	New York	New York County	104.6	59.3
California	Riverside County	California	San Diego County	102.3	75.5
New York	Dutchess County	New York	New York County	116.8	76.3
California	San Joaquin County	California	Alameda County	104.1	61.5
Pennsylvania	Monroe County	New York	New York County	120.5	91.1

Focus: Washington, D.C.

Washington, D.C. is located in the Mid-Atlantic region of the U.S. It is an ideal area to further examine long commuting patterns because respondents have consistently reported long commutes in terms of time and it has a variety of transportation modes. According to a U.S. Census Bureau report, more than a quarter (27.4 percent) of District of Columbia workers traveled 60 minutes or longer to get to work, notably higher than that of any other state (McKenzie 2013). Additionally, Washington, D.C. has a large geographic commuting shed due to the consistent and stable job opportunities located in the metro area and its distinct role as our nation's capital.

This research has shown that in the District of Columbia:

- D.C. mega commuters have different characteristics from D.C. commuters as a whole, as well as their U.S. counterparts.
- In terms of place of work state, the highest percent of mega commuters work in D.C.[5] (2.15%)
- In terms of place of work county, D.C. has the 4th highest number of receiving mega commuters.[6]
- For place of residence state, D.C. mega commuters have among the highest average distance and time.[7]
- Highest mean travel time for place of work CBSA (along with the NYC metro area) for all full-time working commuters.[8]

The map of the mega commuter flows into D.C. shows a ring around the District of Columbia encompassing counties in Maryland, Pennsylvania, Virginia, West Virginia, and New Jersey. These flows contain at least 3 unweighted cases. Counties among the top five county mega commuter flows into the District of Columbia in terms of commuter frequency are: Spotsylvania Co., VA, Frederick Co., MD, Baltimore Co., MD, Stafford Co, VA, and Berkeley Co., WV (see Table 4).[9] Each of these flows have relatively high proportions of carpooling and public transportation usage but each county varies on the percent of mega commuters by means of transportation.

[5] Statistically different from other place of work states at the 90 percent confidence level.

[6] Statistically different from other place of work counties at the 90 percent confidence level.

[7] Not statistically different from all other place of residence states for mega commuters.

[8] Statistically different from other place of work CBSAs at the 90 percent confidence limit, except for the New York-New York-Northern New Jersey-Long Island, NY-NJ-PA metropolitan statistical area.

[9] The number of mega commuters from Spotsylvania County, VA into Washington, DC is statistically different at the 90 percent confidence level from other county flows into Washington, DC.

Table 4: Percent Mega Commuters and Percent of Mode Share for the Most Frequent Mega Commuter Flows into Washington, D.C. by County

Top 5 Mega Commuter County Flows into DC by Means of Transportation

State	County	Mode of Transportation	Percent Mega	Percent of Mode Share
Virginia	Spotsylvania County	Drove alone	51.2	24.7
		Carpooled	38.5	28.1
		Public Transportation	84.0	47.2
Maryland	Frederick County	Drove alone	21.8	35.3
		Carpooled	30.3	14.7
		Public Transportation	49.3	50.0
Maryland	Baltimore County	Drove alone	18.5	43.1
		Carpooled	15.8	5.9
		Public Transportation	27.1	51.0
Virginia	Stafford County	Drove alone	14.0	32.7
		Carpooled	9.2	24.5
		Public Transportation	39.6	42.9
West Virginia	Berkeley County	Drove alone	73.7	35.9
		Carpooled	100.0	10.3
		Public Transportation	100.0	53.8

Concluding Thoughts

Further research is needed to better understand whether mega commuting is a choice or a necessity for workers. Mega commuters may choose to commute to an onsite location part of the week and work from home other days (see Mateyka, Rapino, and Landivar 2012). Or, mega commuters may be a result of the changing employment landscape, meaning workers have to travel further and longer to existing job opportunities.

References

Mateyka, P. J., Rapino, M. A., and L. C. Landivar, 2012. “Home-based Workers in the United States: 2010,” Household Economic Studies, U.S. Census Bureau, P70-132, October.

McKenzie, B. 2013. “Out of State and Long Commutes: 2011,” American Community Survey Reports, U.S. Census Bureau, ACS-20, February.

Moss, M. L. and C. Qing, 2012. “The Emergence of the Super-Commuter,” Rudin Center for Rudin Center for Transportation, New York University Wagner School of Public Service, February.

Sparks, A. L., Bania, N., and L. Leete, 2011. “Comparative Approaches to Measuring Food Access in Urban Areas: The Case of Portland, Oregon,” Urban Studies 48: 1715-1737.

U.S. Census Bureau, 2005. “Extreme Commute Rankings,” (http://www.census.gov/newsroom/releases/pdf/2005-03-30_Commute_extremes.pdf

U.S. Census Bureau. 2006-2010 5-year American Community Survey.

Appendix Table 1: Selected Characteristics of Mega Commuters and all other Commuters in the U.S. and Washington, D.C., 2006-2010

	U.S. Commuters			U.S. Mega Commuters			D.C. Commuters			D.C. Mega Commuters		
Selected Characteristics	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent
Means of Transportation												
Drove alone	58,315,022	97,304	81.9	400,833	4,810	68.3	229221	3671	44.9	4,338	466	39.4
Carpooled	6,750,149	32,414	9.5	83,796	2,231	14.3	58476	1744	11.5	2,176	354	19.8
Public Transportation	3,552,815	13,564	5.0	66,278	1,648	11.3	190174	2665	37.3	3,971	463	36.1
Other means	2,584,759	14,365	3.6	35,898	1,268	6.1	32529	1113	6.4	519	135	4.7
Occupation												
Management, business science, and arts occupations	28,989,151	142,284	40.7	263,965	3,822	45.0	335692	4344	65.8	7,580	625	68.9
Service occupations	8,919,159	41,131	12.5	42,353	1,333	7.2	56169	2092	11.0	898	196	8.2
Sales and office occupations	18,069,960	34,170	25.4	98,276	2,268	16.7	83388	2020	16.3	1,383	287	12.6
Production, transportation, and material moving occupations	8,701,910	22,875	12.2	86,361	1,611	14.7	15801	1058	3.1	277	102	2.5
Natural resources, construction and maintenance occupations	6,183,227	16,461	8.7	92,540	2,322	15.8	16204	899	3.2	805	184	7.3
Military specific occupations	339,338	5,874	0.5	3,310	446	0.6	3146	360	0.6	61	44	0.6
Wages/Salary Income												
Less than $40,000	34,347,772	67,963	48.2	145,402	2,824	24.8	109303	2236	21.4	1,045	213	9.5
$40,000 to $79,999	25,610,475	101,434	36.0	251,488	3,605	42.9	189213	3262	37.1	3,887	455	35.3
$80,000 or more	11,244,498	78,129	15.8	189,915	3,183	32.4	211884	3334	41.5	6,072	555	55.2
Mean ($)	52,676.00	139.10	-	75,414.00	606.70	-	84,863.00	872.00	-	91,346.00	3,665.00	-
Age												
Less than or equal to 29	12,859,005	25,391	18.1	61,968	2,176	10.6	82117	1834	16.1	996	266	9.1
30-64	56,509,820	107,185	79.4	510,966	5,511	87.1	413126	4816	80.9	9,627	844	87.5
65 and Over	1,833,920	8,418	2.6	13,871	600	2.4	15157	745	3.0	381	136	3.5
Mean (years)	42.5	0.0	-	44.5	0.1	-	42.9	0.1	-	45.3	0.7	-
Class of Worker												
Government workers	12,066,821	68,012	16.9	92,177	2,507	15.7	209027	3402	41.0	5,511	595	50.1
Private wage and salary workers	53,957,906	58,454	75.8	459,881	4,529	78.4	282703	3549	55.4	5,257	514	47.8
Self-employed workers	5,119,985	18,034	7.2	34,530	1,296	5.9	18483	975	3.6	236	91	2.1

Appendix Table 1: Selected Characteristics of Mega Commuters and all other Commuters in the U.S. and Washington, D.C., 2006-2010

	U.S. Commuters			U.S. Mega Commuters			D.C. Commuters			D.C. Mega Commuters		
Selected Characteristics	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent
Unpaid family workers	58,033	1,802	0.1	217	111	0.0	187	118	0.0	0	-	0.0
Sex												
Female	31,024,200	33,915	43.6	144,375	2,696	24.6	246806	3653	48.4	3,767	478	34.2
Male	40,178,545	102,588	56.4	442,430	5,182	75.4	263594	3229	51.6	7,237	556	65.8
Marital Status												
Married	42,923,445	287,624	60.3	420,181	5,194	71.6	270708	3980	53.0	8,190	653	74.4
Other	28,279,300	177,399	39.7	166,624	3,117	28.4	239692	3552	47.0	2,814	382	25.6
Presence of Children												
Children under 6 only	6,983,308	74,083	9.8	57,706	1,823	9.8	50009	1788	9.8	1,398	277	12.7
Children 6-17 only	17,522,961	95,370	24.7	162,837	3,210	27.8	102586	2524	20.1	2,836	398	25.8
Children under 6 and 6-17 years	6,099,072	23,549	8.6	60,446	1,888	10.3	33103	1404	6.5	892	220	8.1
No children present	40,382,670	70,855	56.9	305,445	3,974	52.1	323797	3673	63.6	5,878	522	53.4
Property Value												
Mean ($)	123,894.97	423.40	-	160,590.79	2,416.47	-	214,567.86	3,965.41	-	200,489.36	17,961.08	-
Number of Bedrooms												
Mean	3.0	0.0	-	3.2	0.0	-	3.0	0.0	-	3.4	0.1	-
Property Value/Bedrooms ($)	41,298.32	-	-	50,184.62	-	-	71,522.62	-	-	58,967.46	-	-
Number of Vehicles Available												
Mean	2.2	0.0	-	2.4	0.0	-	1.8	0.0	-	2.3	0.1	-
Time of Departure												
12:00 to 5:59 am	9,461,218	22,878	13.3	247,926	3,444	42.3	73681	1909	14.4	6,786	675	61.7
6:00 to 8:59 am	49,149,190	145,045	69.0	260,230	4,114	44.3	361594	4205	70.8	3,751	375	34.1
9:00 to 11:59 am	5,748,363	24,371	8.1	26,476	1,064	4.5	46404	1652	9.1	162	69	1.5
12:00 to 3:59 pm	3,456,332	17,074	4.9	23,919	950	4.1	14844	897	2.9	76	47	0.7
4:00 to 11:59 pm	3,387,642	13,545	4.8	28,254	1,173	4.8	13877	830	2.7	229	95	2.1
Travel Time												
Mean (minutes)	26.1	0.0	-	119.0	0.3	-	42.5	0.3	-	118.6	1.7	-
Distance to Work[1]												

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	U.S. Commuters			U.S. Mega Commuters			D.C. Commuters			D.C. Mega Commuters		
Selected Characteristics	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent	Total	Margin of Error (+/-)	Percent
Mean (miles)	18.8	0.1	-	166.4	3.0	-	26.3	1.3	-	102.6	8.9	-
Work Status of Spouse in Family Households												
Spouse works full-time	22,986,397	183,745	32.3	182,155	3,091	31.0	153259	3023	30.0	3,828	435	34.8
Spouse works part-time	6,274,525	76,275	8.8	72,935	1,950	12.4	36365	1321	7.1	1,485	262	13.5
Spouse does not work	7,685,184	40,825	10.8	108,599	2,273	18.5	44790	1374	8.8	1,990	261	18.1
No spouse present	8,516,945	53,733	12.0	48,602	1,653	8.3	62291	1878	12.2	842	203	7.7
Not Applicable	25,739,694	134,976	36.1	174,514	2,942	29.7	213695	3666	41.9	2,859	379	26.0
Metro/Micro Status												
Living in Metro/Micro Statistical Area, working in Metro/Micro Statistical Area of residence	64,206,838	102,010	90.2	182,123	3,187	31.0						
Living in Metro/Micro Statistical Area, working in different Metro/Micro Statistical Area	4,342,853	18,673	6.1	338,985	4,349	57.8						
Living in Metro/Micro Statistical Area, working outside any Metro/Micro Statistical Area	216,561	2,977	0.3	5,789	454	1.0						
Living outside any Metro/Micro Statistical Area, working in a Metro/Micro Statistical Area	904,991	5,926	1.3	57,847	1,625	9.9						
Living and working outside any Metro/Micro Statistical Area	1,531,502	10,354	2.2	2,061	269	0.4						

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

1/ Calculated by authors. See methodology in Working Paper 2013-13.