

# Time Pressure in Metropolitan America

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## Do people in large metropolitan areas (MSAs) face greater time constraints?

Two main reasons why residents of large cities may experience greater time crunch.

1. The time cost of commuting is expected to be greater in large MSAs.
2. We expect that residents of large MSAs work longer hours (ex: partners at law firms, doctors in major hospitals, management consultants etc)

## Do people commute more in large cities?

Theoretical literature on systems of cities (Henderson, 1974) suggests a relationship between average commuting time and city size as measured by population. Literature develops a model with a circular city, and commuting to a central business district.

Suggests a relationship between average commuting time and city size:

$$ACT = c n^{1/2} \quad (1)$$

where ACT is average commuting time, n is city size, and c is a constant.

This suggests a linear in logarithms relationship, with coefficient of city population of 0.50.

$$\log ACT = a + b \log(n) \quad (2)$$

We will later generalize equation (2) to describe whether a circular city is restricted by ocean or lakes, and so cannot expand in some directions.

## Empirical evidence

Glaeser, Gyourko, and Saks (2005) remarked that average commuting times do not vary widely across U.S. cities. No regression evidence was presented.

We find estimates of b, relating average commuting time to MSA population, are positive and significant. However, estimates of b are in a range of 0.10 to 0.15, less than the theoretical value of 0.50.

When we include Consolidated MSAs (CMSAs), the population of CMSA and MSA is associated with the average commuting time, but most of the effect for the MSA population is retained.

## Do people work longer hours in larger cities?

To our surprise, the answer is no. If anything, workers in general and highly educated workers tend to work fewer hours in the largest cities. It could be because people working long hours in largest cities do not live in those cities, they live in suburbs outside the MSA.

The relationship is negative and not significant. We will look at this in the Census of Population data.

Our result: although people in large cities commute more, they do not work longer hours.

## Which activities do people in large cities reduce to make time for longer commutes?

No consistent pattern. We can not determine specific time expenditures which are reduced to adjust for increased commuting.

Category	Total Sample		Weekday commuters	
	Coeff	t ratio	Coeff	t ratio
(1) (2)	(3)	(4)	(5)	(6)
01 Personal care	1.31	1.33	.23	.15
0101 Sleep	.88	.94	-.99	-.68
02 Personal activities	-1.68	-1.47	.01	.01
03 Caring and helping Household members	2.81	1.86	-1.40	-.70
04 Caring and helping Nonhousehold members	-3.14	-1.52	-.01	-.00
05 Working	-4.21	-1.79	-3.47	-1.51
06 Education	3.91	.69	6.46	.64
07 Consumer purchases	.59	.80	1.00	.92
08 Prof/personal care	1.88	1.00	2.86	1.14
09 HH services	.13	.04	-4.39	-.84
10 Govt services	-.55	-.10	7.94	.95
11 Eating/drinking	-.02	-.04	.27	.45
12 Leisure	-2.63	-1.65	.38	.20
13 Sports, recreation	-3.33	-1.98	-1.67	-.77
14 Religious activity	-1.09	-.56	-2.44	-.61
15 Volunteer Activity	-3.58	-.95	-1.14	-.19
16 Telephone calls	1.61	1.93	3.34	2.87
17 Traveling	2.95	4.94	5.27	5.98
1707 Travel for Cons Purch	.64	1.42	1.61	2.43
170501 Commuting	6.02	12.91	6.22	10.40
Various Time with Family	-7.51	-3.65	-8.42	-3.18

## Our data

Data come from the 2003 American Time Use Survey (ATUS), supplemented by detailed geographic information obtained from the Current Population Survey (CPS) and from the 2000 Census of Population. In particular, we examine how time use varies systematically with city size, as measured by Metropolitan Statistical Area (MSA) population.

With each doubling of MSA population size, there is a six minute increase in daily commuting time (round trip). Since there are more than six doublings in the sample, from non-metro population to the largest MSAs, this represents a more than 36 minute increase in commuting time from the smallest to the largest city.

MSA Population	Average Commuting Time (daily total, weekday)	Average Travel Time	Average Work Time
5,000,000 +	<b>55.8</b>	98.0	462
2,500,000- 4,999,999	<b>49.8</b>	89.6	506
1,000,000- 2,499,999	<b>42.9</b>	87.8	478
500,000-999,999	<b>37.3</b>	89.3	469
250,000- 499,999	<b>35.0</b>	88.4	487
100,000- 249,999	<b>34.3</b>	78.7	493
less than 100,000 or non-metro	<b>34.0</b>	81.5	491

## Further work:

- To what extent does time spent on commuting contribute to high values of the total work hours category, which combines commuting and working hours?

- What are the effects of wages and income on measures of work time, household production, and leisure?

Glaeser and Mare (2001) show that the high money wages paid in large cities are offset by a higher cost of living, so real wages are no greater in large cities.

- We will estimate equations determining work hours, household production, and leisure within the total ATUS sample, and will compare the results with parallel estimates for cities of comparable sizes, where the prices should be similar.