Just what do we actually know about household spending on transportation services and how are they changing in the 21st Century?

Jonathan R. Peters, Ph.D.
The College of Staten Island & The CUNY Graduate School
David A. King, Ph.D.
Arizona State University
Cameron E. Gordon, Ph.D.
University of Canberra
Nora Tabori Santiago, MUA
The CUNY High Performance Computing Center

Bureau of Labor Statistics
2018 Consumer Expenditure Surveys (CE) Microdata Users' Workshop
Washington, DC
July 20, 2018

How did we (Transportation Finance Folks & Urban Planners) wind up here at the BLS? Part III (2014, 2017 & 2018)

Why are we interested in tracking the cost of transport services and fees?

The Changing US Portfolio of Travel

- Look at aspects of travel costs that are changing.
- How are these costs reflected in the CEX?
- How are these cost measured through other methods?
- How are these costs spread across income groups?
- How can we plan to measure future costs?

citi bike

Ola Cabs - India

lyft

UBER

CAR 2GO

autopartage

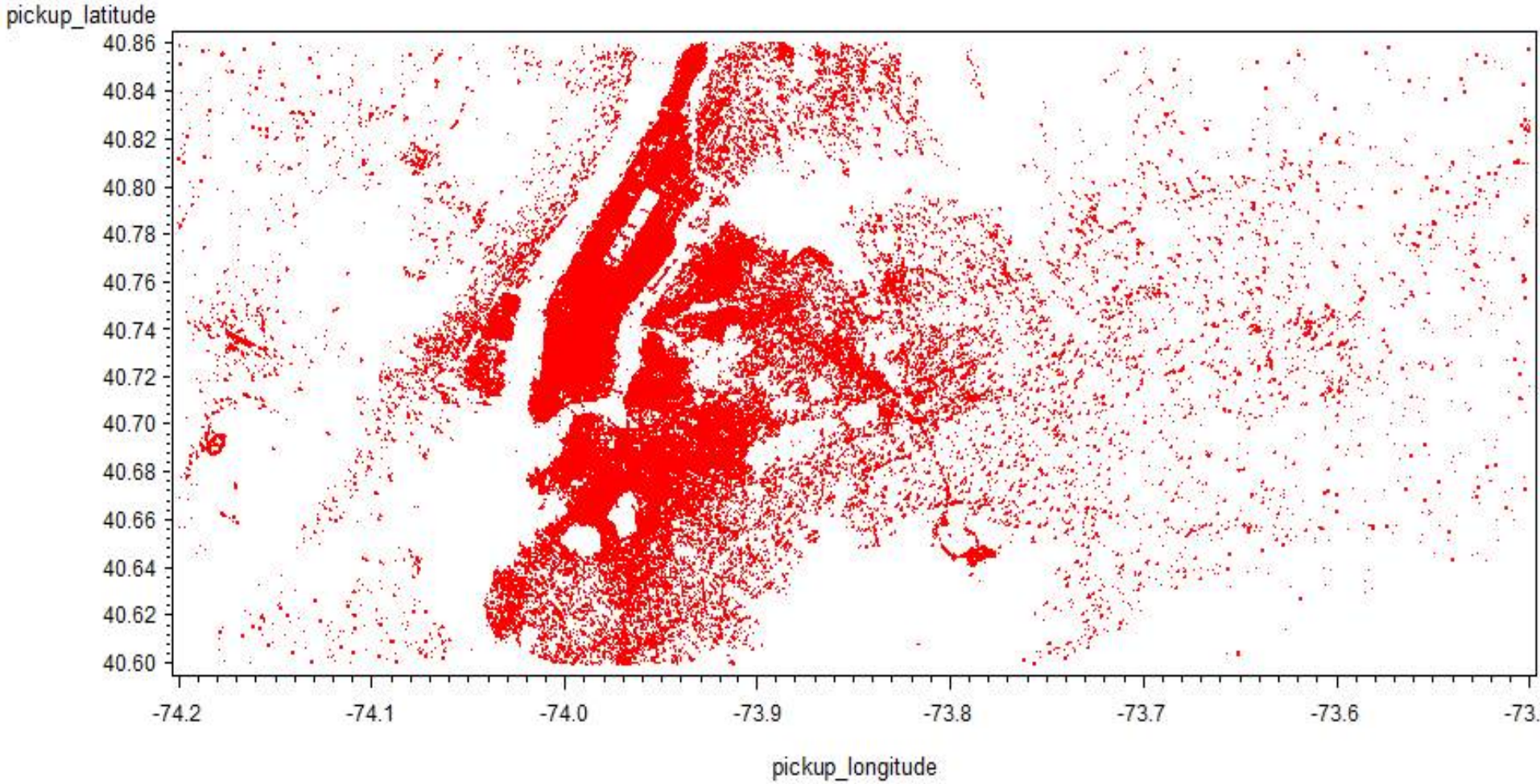
Sidecar - DOA

SuperShuttle

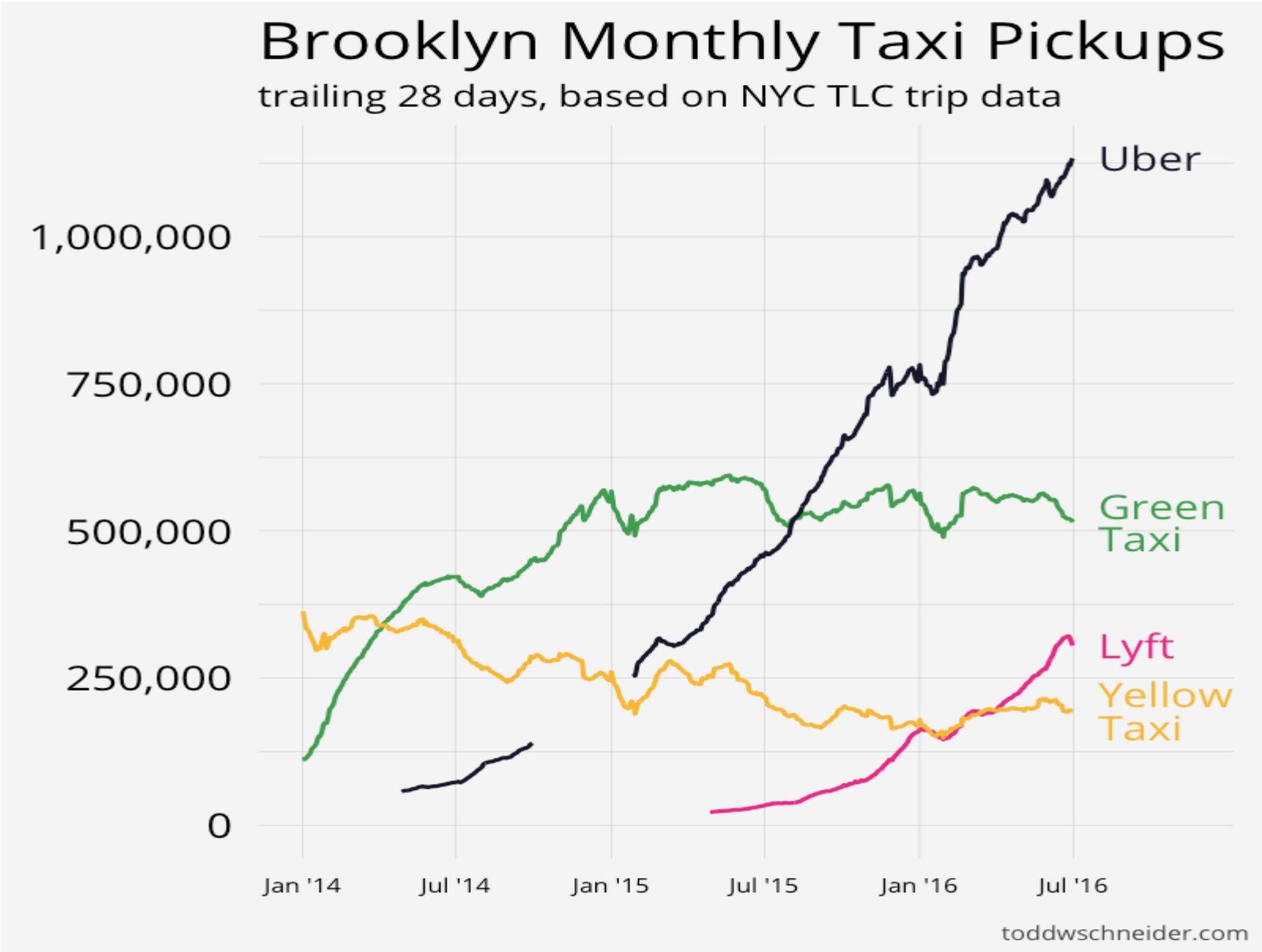
zipcar wheels when you want them

UBER EATS

Uber Trips Origins in “New York” – From Uber



Data Obtained From Uber by NYC Taxi and Limousine Commission for April – October 2014


Brooklyn Monthly Taxi Pickups
trailing 28 days, based on NYC TLC trip data
Uber
Green Taxi
Lyft
Yellow Taxi
1,000,000
750,000
500,000
250,000
0
Jan '14
Jul '14
Jan '15
Jul '15
Jan '16
Jul '16
toddwschneider.com

Hitchin' a ride: Fewer Americans have their own vehicle

Jan 23, 2014 Contact Bernie DeGroat

11

ANN ARBOR—American households without a vehicle have increased nearly every year since 2007—providing further evidence that motorization may have peaked in the United States, says a University of Michigan researcher.

Following up his research from last year showing that Americans own fewer light-duty vehicles per household, drive them less and consume less fuel than in the past, Michael Sivak of the U-M Transportation Research Institute examined recent trends (2005-12) in the proportion of U.S. households without a car, pickup truck, SUV or minivan. He also studied variations in this proportion for the 30 largest U.S. cities for 2007 and 2012.

Sivak found that 9.2 percent of U.S. households

U.S. households without a vehicle (%)

RECENT FEATURES

Few local leaders satisfied with public transit options

A crash in space: Six things you didn't know about MESSENGER's Mercury impact

US Households Without a Vehicle

Rank	City	% car-free
1	New York City	56%
2	Washington, DC	38%
3	Boston	37%
4	Philadelphia	33%
5	San Francisco	31%
6	Baltimore	31%
7	Chicago	28%
8	Detroit	26%

U.S. Average = 9.22%

Household Modes of Travel

- Private Automobile
- Shared Vehicle – Carpool / Fampool
- Shared Vehicle – Taxi, Jitney, Lyft, Uber
- Walking
- Bicycle
- Mass Transit – Commuter Rail, Metro, Bus, Ferry
- Air Travel
- Non-Travel – Online Shopping / Video Meetings
- And Lodging - AirBNB versus Hotels

Changing Households

- Households used to travel a lot to get goods and services.
- Go to store to rent a DVD or buy a CD – Now Netflix and I-Tunes.
- Go to a restaurant to get a meal
- Go to store to purchase a physical map – now cell phone and GPS services
- Buy a car and have it for your own use every day – now Lyft, Uber and Zipcar.
- Travel to a location to have a meeting – now Skype or GotoMeeting.
- Now these services are bundled in some cases with transportation services, communications or the delivery of goods.
- **It will move the stuff between the UCC boxes.**

Our First Project - 2014 Examining Tolling in Data

Price Data Should be in

Producer Price Index (PPI)

or

Consumer Price Index (CPI)

2530-07 (2).pdf - Adobe Reader
File Edit View Window Help
55 (1 of 10) 162%
Tools Sign Comment

For Whom the Consumer Price Index Tolls

Reporting of Road Pricing in the Consumer Expenditure Survey

Jonathan Peters, David A. King, Cameron Gordon, and Nora Tabori Santiago

User fees have long been seen as an efficient financing mechanism because beneficiaries of services pay for the benefits received. This point of view is especially applicable to public services with commercial aspects and in situations for which links between consumption and price are relatively easy to make. However, road pricing, such as tolls, can be very high and important to local price levels. This paper examines the way in which expenditures on tolls are tracked and measured in the United States through the consumer expenditure survey (CES) run by the U.S. Bureau of Labor Statistics. The paper describes the CES and its methods, both generally and for tolls and road charges specifically, and compares those

RISE OF ROAD PRICING IN AMERICA

During the 20th century in the United States, the primary national source of funding for highways and, later on, transit was the fuel excise, or gas tax. Beginning with Oregon, all U.S. states and the District of Columbia implemented a fuel tax between 1919 and 1929. President Hoover initially instituted the federal tax with the Revenue Act of 1932. These taxes are a specific excise that is a fixed price per unit sold (as opposed to an ad valorem, or percentage of sales price) tax. This tax is collected at the national and state levels and has the advantage

2:21 AM
7/16/2017

Consumer Expenditure Survey

BROWSE CE
CE HOME
CE OVERVIEW
CE NEWS RELEASES
CE DATABASES
CE TABLES
CE MICRODATA
CE SURVEY FORMS
CE PUBLICATIONS
CE FAQS
CE EVENTS IN YOUR AREA
CONTACT CE

SEARCH CE
Go

CE TOPICS
REPORTS
GEOGRAPHY
PUBLIC-USE MICRODATA
GLOSSARY OF TERMS
INFORMATION FOR CE RESPONDENTS
POVERTY RESEARCH
DATA COMPARISONS
GEMINI REDESIGN PROJECT
METHODOLOGY

Section 12 Part C - Vehicle Operating Expenses - Other Vehicle Operating Expenses

Section 12, Part C deals with other vehicle operating expenses, including a monthly average expenditure on gasoline, purchases of oil and other fluids, parking fees, towing charges, docking or landing fees, and expenses for auto repair service policies and clubs.

Since the first of reference month not including this month --
what has been your your/your household's AVERAGE MONTHLY expense for gasoline and other fuels for all vehicles? [enter value]
_____

For definitions Information Booklet »

Was any of this expense for diesel fuel?

1. Yes
2. No

How much? [enter value] _____

What percentage of the AVERAGE MONTHLY COST was counted as a business expense? [enter value] _____

Since the first of the reference month not including this month --
have you or any member of your household purchased any oil for operating vehicles?

1. Yes
2. No

What was the total cost? [enter value] _____

Since the first of the reference month not including this month --
have you or any member of your household purchased any antifreeze, brake fluid, transmission fluid, windshield wiper fluid, or additives, except if purchased with a tune-up?

82.5%

Consumer Unit (CU) Characteristics And Income – FMLY

Summary Expenditure Data

	VARIABLE_NAME	VARIABLE_DESCRIPTION	Format	Note
	MAINRPPQ	Maintenance and repairs last quarter 470220 480110 480212 480213 480214 480215 490110 490211 490212 490221 490231 490232 490311 490312 490313 490314 490318 490319 490411 490412 490413 490501 490900	NUM(12,4)	
	MAINRPCQ	Maintenance and repairs this quarter same UCCs as above	NUM(12,4)	
	VEHINSPQ	Vehicle insurance last quarter 500110	NUM(12,4)	
	VEHINSCQ	Vehicle insurance this quarter same UCC as above	NUM(12,4)	
	VRNTLOPQ	Vehicle rental, leases, licenses, and other charges last quarter 450310 450313 450314 450410 450413 450414 520110 520310 520410 520511 520512 520521 520522 520531 520532 520541 520542 520550 520560 520902 520905 620113	NUM(12,4)	
	VRNTLOCQ	Vehicle rental, leases, licenses, and other charges this quarter same UCCs as above	NUM(12,4)	
*	PUBTRAPQ	Public and other transportation last quarter TRNTRPPQ + TRNOTHPQ	NUM(12,4)	C(Y112)
*	PUBTRACQ	Public and other transportation this quarter same composition as above	NUM(12,4)	C(Y112)
*	TRNTRPPQ	Public and other transportation on trips last quarter 530110 530210 530312 530411 530510 530901	NUM(12,4)	C(Y112)

Expenditure category	Components of category (where applicable)
New cars	
New trucks and other non-recreational vehicles	New trucks; New motorcycles; New aircraft
Cars and trucks, used	
Used cars	
Used trucks and other non-recreational vehicles	Used trucks; Used motorcycles; Used aircraft
Gasoline and motor oil	
Other vehicle expenses	
Vehicle finance charges	
Maintenance and repairs	
Vehicle insurance	
Vehicle rental, leases, licenses, and other charges	
Leased and rented vehicles	
Miscellaneous vehicle expenses	Vehicle registration state; Vehicle registration local; Drivers' license; Vehicle inspection; Parking fees; Tolls or electronic toll passes; Tolls on out-of-town trips; Towing charges; Global positioning services; Automobile service clubs
Public transportation	
Airline fares	
Other public transportation expenses	Intracity mass transit fares; Local trans on out-of-town trips; Taxi fares and limousine services on trips; Taxi fares and limousine services; Intercity train fares; Ship fares; School bus
Healthcare	
Health insurance	Commercial health insurance; Blue Cross, Blue Shield; Health maintenance organization (not BCBS)

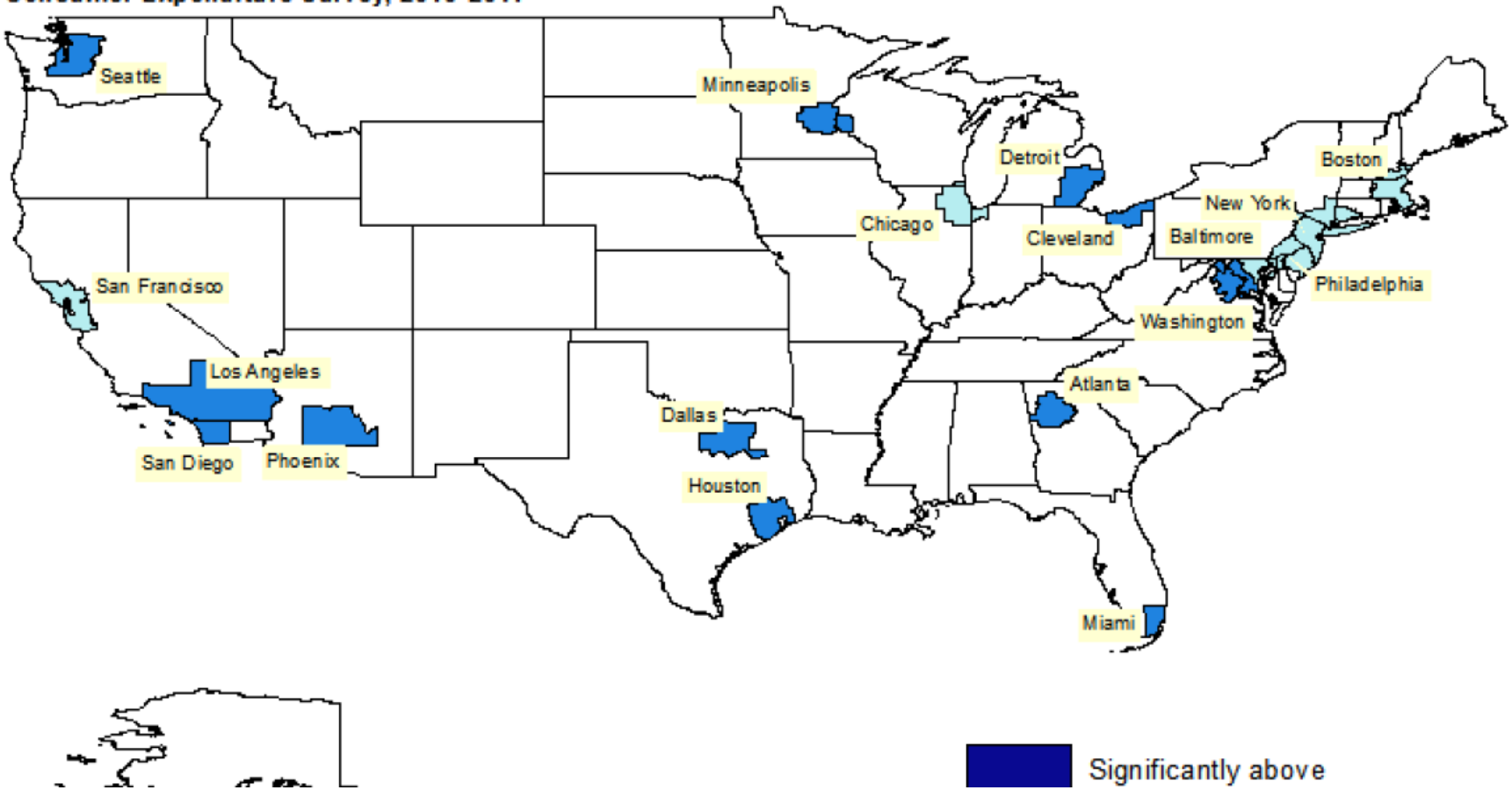
Share of Expenditures Spent on Transportation

Significantly below

Source: U.S. Bureau of Labor Statistics

Note: Statistical significance testing at the 95-percent confidence interval.

Chart 3. Expenditure shares spent on transportation in 18 metropolitan statistical areas compared to the U.S. average, Consumer Expenditure Survey, 2010-2011



Last Year's Project (2017) – Social Justice

- Also known as Social Equity, Environmental Justice or Social Inclusion (in Europe)
- Measures of Fairness (in service quality)
- Measures of Burden (in costs and fees)
- So – we looked to examine the burden of tolling and fees by income class, race, gender and educational status
- Both in BLS Data and in other survey data.

Geographic, Racial and Income Variation in Road User and Transportation Fees – Paying the Price for New Transportation: Evidence from Household Surveys

David A. King, Arizona State University; Cameron E. Gordon, The University of Canberra;

Jonathan R. Peters, and Nora Tabori Santiago - City University of New York – College of Staten Island

Abstract

There has been an explosive growth in various types of new transportation options and fees over the last 15 years. With growing structural deficits in state Departments of Transportation (DOTs) and stagnant sources of federal revenue, there has been a rapid deployment of new and proposed road use charges to fill these funding gaps. Cities have realized that parking is a scarce resource and started to use pricing as a way to manage demand as well as traffic. At the same time, transportation users have more options to reduce private automobile use through new technology enabled transportation options (mass transit, transportation network companies (Uber, Lyft and such) and car sharing. Yet the extent of these new tolls, fees and fares—as well as their actual prevalence rather than hype—is not well documented, and there are no easily accessible data sources to do so. In part, this is because many of the new payments are made to private firms that do not readily share information about their revenues or overall use. This research describes the growth of these fees through a study of consumer expenditures. All of these new services should be reflected in household consumption expenditures and are altering the consumption basket of households.

Research Questions

This project explores the following questions:

- Are household expenditures on transportation changing?
- What is the effect of perceived growth in tolls, parking and taxis on household spending? Does actual spending reflect popular hype?
- What are the geographic and income differences in household transportation spending?

Introduction

In the past decade or so transport spending has changed, however. Popular press and investors have promoted the idea that there is a revolution in passenger travel underway, where fewer people are driving and more people are using app-based mobility services. State have responded to shrinking transport spending and public demands to manage congestion with new toll facilities, such as conversion of High Occupancy Vehicle (HOV) lanes to High Occupancy Toll (HOT) lanes that solo drivers can pay a fee to use. Cities are reducing parking requirements, which makes parking more scarce and likely to be charged. Cities are also increasing the use of parking meters as a source of municipal revenue by extending the hours enforced and raising the parking rate. Road tolls have also increased. The federal government has not increased the gas tax since the early 1990s, which led to ever more limited funding available through the highway trust fund, and a declining share of federal spending on total transportation investment. As a response, most states have increased their own gas taxes. To a lesser degree, but still substantial, states have pursued toll roads either through contracts, public-private partnerships or opening their own toll facilities. Transponder technology has made tolling technologically more feasible, and currently well over half of all US have at least one tolled facility. This all represents a substantial shift in how households spend their transport budget. It may be that households spend more overall with these new charges, or it may be that households change the composition of their spending bundle. The growth of these types of charges also introduces higher marginal costs of travel for many trips, which has implications for traffic modeling and planning.

Data

This research uses data from the Bureau of Labor Statistics Consumer Expenditure Survey (CEX). The CEX is composed of interview and diary survey data collected from households by the BLS, which is part of the U.S. Census Bureau. Households selected for the interview survey are interviewed quarterly for a year, with rolling participation so that during each quarterly interview period 25 percent of respondents are replaced with new households. The diary survey is collected over a two-week period concurrent with the interview period. By design, the interview survey is intended to capture large and/or recurring expenditures such as car purchases or rent, while the diary survey is meant to capture smaller and more variable purchases. At any time, there are approximately 7,000 households participating. This sample size allows for detailed analysis at fine geographic and socio-demographic scales.

Table 1: Changes in Select Transport Expenses by User and Household, All Households, 2005-2015

	2005				2015				Change 2005-2015	
	Households	% Households with User	Average Paid by User	% of Household Spending	Households	% Households with User	Average Paid by User	% of Household Spending	% Change in Users	% Change in User Spending (Real Dollars)
Tolls	7469	3.6%	$ 9.87	0.06%	6481	13.1%	$ 23.85	0.05%	261%	97%
Local Parking	7456	9.7%	$ 20.62	0.07%	6481	12.5%	$ 28.26	0.06%	30%	12%
Taxi/Car Services	7456	3.3%	$ 40.10	0.04%	6481	5.0%	$ 40.88	0.04%	48%	-17%
Gaseline	7456	89.7%	$ 183.06	3.37%	6481	88.6%	$ 191.58	2.96%	-1%	-15%
Diesel	7456	1.9%	$ 145.20	0.09%	6481	2.9%	$ 162.81	0.08%	50%	-9%
Intracity Mass Transit	7636	9.4%	$ 47.16	0.15%	6627	10.6%	$ 73.11	0.14%	13%	26%

Table 1 shows:

- Growth in all spending categories except gasoline
- Spending on tolls roughly doubled 2005-15
- Use of taxis increased by 50%, though fares paid declined. This is likely due to Uber/Lyft subsidy.
- Paid parking increased overall.

Table 2: Changes in Select Transport Expenses by User and Household, Top 1% by Income, 2005-2015

	2005				2015				Change 2005-2015	
	Households	% Households with User	Average Paid by User	% of Household Spending	Households	% Households with User	Average Paid by User	% of Household Spending	% Change in Users	% Change in User Spending (Real Dollars)
Tolls	81	12.3%	$ 18.90	0.04%	61	37.7%	$ 31.84	0.04%	205%	34%
Local Parking	80	27.5%	$ 40.86	0.09%	61	34.4%	$ 74.52	0.08%	25%	49%
Taxi/Car Services	80	12.5%	$ 48.20	0.10%	61	29.5%	$ 92.89	0.09%	136%	57%
Gasoline	80	96.3%	$ 335.40	0.97%	61	91.8%	$ 289.43	0.86%	-5%	-30%
Diesel	80	6.3%	$ 205.20	0.12%	61	9.8%	$ 324.17	0.10%	57%	29%
Intracity Mass Transit	80	10.0%	$ 93.13	0.13%	68	39.7%	$ 92.96	0.12%	297%	-19%

Table 2:

- Top 1% by income increased transport spending and use in all categories except gasoline.
- Large increases in tolls and taxi usage.

Table 3: Changes in Select Transport Expenses by User and Household, Middle Income Households, 2005-2015

	2005				2015				Change 2005-2015	
	Households	% Households with User	Average Paid by User	% of Household Spending	Households	% Households with User	Average Paid by User	% of Household Spending	% Change in Users	% Change in User Spending (Real Dollars)
Tolls	715	2.2%	$ 5.13	0.06%	643	9.5%	$ 21.00	0.07%	324%	234%
Local Parking	714	7.4%	$ 24.19	0.09%	643	11.7%	$ 23.08	0.09%	57%	-22%
Taxi/Car Services	714	2.8%	$ 60.05	0.02%	643	3.4%	$ 21.55	0.02%	22%	-71%
Gasoline	714	94.0%	$ 152.14	5.33%	643	95.6%	$ 175.83	5.51%	2%	-6%
Diesel	714	1.0%	$ 192.14	0.10%	643	1.9%	$ 167.17	0.10%	90%	-29%
Intracity Mass Transit	728	7.4%	$ 50.89	0.16%	654	7.5%	$ 65.59	0.16%	1%	5%

Table 3:

- Middle income households saw the largest increase in toll usage and payment.
- Parking and taxi usage increased while fees and fares paid declined.

Table 4: Changes in Select Transport Expenses by User and Household, Lowest Income Households, 2005-2015

	2005				2015				Change 2005-2015	
	Households	% Households with User	Average Paid by User (Nominal Dollars)	% of Household Spending	Households	% Households with User	Average Paid by User (Nominal Dollars)	% of Household Spending	% Change in Users	% Change in User Spending (Real Dollars)
Tolls	728	1.0%	$ 10.29	0.06%	665	3.9%	$ 12.10	0.05%	324%	-4%
Local Parking	728	3.8%	$ 10.82	0.11%	665	3.4%	$ 25.08	0.10%	57%	89%
Taxi/Car Services	728	4.3%	$ 27.35	0.12%	665	4.5%	$ 32.23	0.10%	22%	-4%
Gasoline	728	75.8%	$ 112.54	8.47%	665	71.1%	$ 141.49	7.17%	2%	3%
Diesel	728	0.3%	$ 125.00	0.15%	665	1.1%	$ 173.86	0.13%	90%	13%
Intracity Mass Transit	748	11.5%	$ 32.83	0.62%	688	13.5%	$ 54.38	0.52%	1%	35%

Table 4:

- Lowest income households saw large increases in parking fees.
- Flat trends for tolls paid, though usage increased.
- No meaningful difference in taxi usage or payments.
- Gasoline is a non-trivial household expense.

Change in Consumer Expenditures by PSU

Consumer Expenditures on Local Tolls

	2016		2006		% Change 2006 to 2016	
	Avg for All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense
NON-PSU AREAS	$1.73	10%	$0.46	5%	276.1%	122%
Boston-Cambridge-Newton, MA-NH	$10.83	39%	$1.67	26%	195.1%	50%
New York-Newark-Jersey City, NY-NJ-PA	$12.54	29%	$1.73	18%	235.8%	66%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	$9.74	30%	$1.47	33%	78.1%	-8%
Chicago-Naperville-Elgin, IL-IN-WI	$6.51	25%	$2.98	20%	118.3%	28%
Detroit-Warren-Dearborn, MI	$1.43	3%	$1.18	6%	21.2%	-44%
Minneapolis-St. Paul-Bloomington, MN-WI	$0.23	3%	$0.67	7%	-65.7%	18%
Washington-Arlington-Alexandria, DC-VA-MD-WV	$3.88	22%	$0.83	10%	367.5%	115%
Miami-Fort Lauderdale-West Palm Beach, FL	$6.30	33%	$3.85	29%	7.7%	15%
Atlanta-Sandy Springs-Roswell, GA	$0.39	1%	$0.39	7%	0.0%	-84%
Baltimore-Columbia-Towson, MD	$8.62	28%	$1.99	14%	333.2%	101%
Dallas-Fort Worth-Arlington, TX	$11.54	33%	$2.84	18%	306.3%	84%
Houston-The Woodlands-Sugar Land, TX	$8.33	37%	$8.82	28%	-5.6%	32%
Phoenix-Mesa-Scottsdale, AZ	-	-	$0.07	2%		
Los Angeles-Long Beach-Anaheim, CA	$4.05	10%	$0.72	5%	462.3%	100%
San Francisco-Oakland-Hayward, CA	$11.43	50%	$2.25	33%	57.7%	52%
Riverside-San Bernardino-Ontario, CA	$2.62	7%	$5.27	10%	-71.7%	-28%
Seattle-Tacoma-Bellevue, WA	$4.64	34%	$0.18	3%	2500.0%	1170%
San Diego-Carlsbad, CA	$2.21	12%	$1.73	4%	27.7%	203%

Consumer Expenditures on Parking

	2016		2006		% Change 2006 to 2016	
	Avg for All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense
NON-PSU AREAS	$2.13	10%	$1.61	9%	32.3%	19%
Boston-Cambridge-Newton, MA-NH	$19.66	20%	$8.01	19%	145.4%	4%
New York-Newark-Jersey City, NY-NJ-PA	$13.32	16%	$6.04	9%	120.7%	80%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	$5.15	13%	$2.76	11%	86.6%	22%
Chicago-Naperville-Elgin, IL-IN-WI	$6.75	14%	$1.80	10%	275.0%	40%
Detroit-Warren-Dearborn, MI	$1.02	14%	$2.50	19%	-59.2%	-25%
Minneapolis-St. Paul-Bloomington, MN-WI	$14.20	37%	$7.94	25%	78.8%	51%
Washington-Arlington-Alexandria, DC-VA-MD-WV	$10.45	22%	$6.14	13%	70.2%	64%
Miami-Fort Lauderdale-West Palm Beach, FL	$3.42	12%	$0.70	2%	388.6%	475%
Atlanta-Sandy Springs-Roswell, GA	$3.04	12%	$2.66	12%	14.3%	3%
Baltimore-Columbia-Towson, MD	$3.99	11%	$2.29	13%	74.7%	-14%
Dallas-Fort Worth-Arlington, TX	$0.87	4%	$1.79	5%	-51.4%	-28%
Houston-The Woodlands-Sugar Land, TX	$3.54	14%	$1.45	18%	144.1%	-24%
Phoenix-Mesa-Scottsdale, AZ	$0.15	4%	$1.00	6%	-85.0%	-40%
Los Angeles-Long Beach-Anaheim, CA	$3.87	23%	$2.69	14%	43.9%	67%
San Francisco-Oakland-Hayward, CA	$14.14	31%	$6.32	16%	123.7%	87%
Riverside-San Bernardino-Ontario, CA	$1.22	7%	$1.68	5%	-27.4%	28%
Seattle-Tacoma-Bellevue, WA	$7.08	33%	$7.65	24%	-7.5%	35%
San Diego-Carlsbad, CA	$7.62	22%	$1.76	10%	333.0%	112%

Consumer Expenditure on Taxi Services

	2016		2006		% Change 2006 to 2016	
	Avg for All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense
NON-PSU AREAS	$1.45	4%	$0.86	3%	68.6%	42%
Boston-Cambridge-Newton, MA-NH	$5.95	20%	$1.61	8%	269.6%	151%
New York-Newark-Jersey City, NY-NJ-PA	$9.87	16%	$5.86	11%	68.3%	44%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	$0.61	2%	$1.06	4%	-42.5%	-58%
Chicago-Naperville-Elgin, IL-IN-WI	$1.37	5%	$1.28	5%	7.0%	11%
Detroit-Warren-Dearborn, MI	$1.60	6%	$1.64	2%	-2.4%	180%
Minneapolis-St. Paul-Bloomington, MN-WI	$4.48	14%	$0.04	1%	11100.0%	1182%
Washington-Arlington-Alexandria, DC-VA-MD-WV	$10.63	19%	$1.12	7%	849.1%	164%
Miami-Fort Lauderdale-West Palm Beach, FL	$4.97	6%	$3.93	3%	26.3%	110%
Atlanta-Sandy Springs-Roswell, GA	$2.90	11%	$0.04	1%	7150.0%	1223%
Baltimore-Columbia-Towson, MD	$6.89	12%	$0.69	1%	898.6%	757%
Dallas-Fort Worth-Arlington, TX	$1.38	5%	$0.31	3%	345.2%	74%
Houston-The Woodlands-Sugar Land, TX	$2.26	6%	$0.16	1%	1312.5%	533%
Phoenix-Mesa-Scottsdale, AZ	$0.41	3%	$0.00	0%	Infinite	Infinite
Los Angeles-Long Beach-Anaheim, CA	$4.49	17%	$0.96	3%	367.7%	569%
San Francisco-Oakland-Hayward, CA	$5.19	14%	$0.40	3%	1197.5%	435%
Riverside-San Bernardino-Ontario, CA	$2.34	3%	-	-	Infinite	Infinite
Seattle-Tacoma-Bellevue, WA	$4.02	10%	$0.48	4%	737.5%	189%
San Diego-Carlsbad, CA	$8.00	27%	$0.00	0%	Infinite	Infinite

Conclusions

- This is a descriptive study of changes in consumer expenditures on transportation categories.
- Tolls, parking and taxi usage and payments are all up substantially since 2005.
- Income and geographic differences are large.
- Growth and changes in these categories of spending should be incorporated into integrated simulation and modeling of transport and land use.
- Research is needed on characteristics and effects of multiple price setters in a regional transportation market--multiple goals and firms may lead to sub-optimal outcomes.
- Changes in price and use of transportation sub-categories will have uneven distributional effects—paid parking seems to burden the lowest income households more than tolls, for instance.

Consumer Expenditures on Local Tolls

	2016		2006		% Change 2006 to 2016	
	Avg for All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense	Average Spending - All HH	% of HH with Expense
NON-PSU AREAS	$1.73	10%	$0.46	5%	276.1%	122%
Boston-Cambridge-Newton, MA-NH	$10.83	39%	$3.67	26%	195.1%	50%
New York-Newark-Jersey City, NY-NJ-PA	$12.54	29%	$3.73	18%	235.8%	66%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	$9.74	30%	$5.47	33%	78.1%	-8%
Chicago-Naperville-Elgin, IL-IN-WI	$6.51	25%	$2.98	20%	118.5%	28%
Detroit-Warren-Dearborn, MI	$1.43	3%	$1.18	6%	21.2%	-44%
Minneapolis-St. Paul-Bloomington, MN-WI	$0.23	3%	$0.67	2%	-65.7%	18%
Washington-Arlington-Alexandria, DC-VA-MD-WV	$3.88	22%	$0.83	10%	367.5%	115%
Miami-Fort Lauderdale-West Palm Beach, FL	$6.30	33%	$5.85	29%	7.7%	15%
Atlanta-Sandy Springs-Roswell, GA	$0.39	1%	$0.39	7%	0.0%	-84%
Baltimore-Columbia-Towson, MD	$8.62	28%	$1.99	14%	333.2%	101%
Dallas-Fort Worth-Arlington, TX	$11.54	33%	$2.84	18%	306.3%	84%
Houston-The Woodlands-Sugar Land, TX	$8.33	37%	$8.82	28%	-5.6%	32%
Phoenix-Mesa-Scottsdale, AZ	.	.	$0.07	2%		
Los Angeles-Long Beach-Anaheim, CA	$4.05	10%	$0.72	5%	462.5%	100%
San Francisco-Oakland-Hayward, CA	$11.43	50%	$7.25	33%	57.7%	52%
Riverside-San Bernardino-Ontario, CA	$2.62	7%	$9.27	10%	-71.7%	-28%
Seattle-Tacoma-Bellevue, WA	$4.68	34%	$0.18	3%	2500.0%	1170%
San Diego-Carlsbad, CA	$2.21	12%	$1.73	4%	27.7%	203%

Consumer Expenditures on Local Tolls

	2016		
	Avg for All HH	% of HH with Expense	Average Spendin All HH
NON-PSU AREAS	$1.73	10%	$0.46
Boston-Cambridge-Newton, MA-NH	$10.83	39%	$3.67
New York-Newark-Jersey City, NY-NJ-PA	$12.54	29%	$3.73
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	$9.74	30%	$5.47
Chicago-Naperville-Elgin, IL-IN-WI	$6.51	25%	$2.98
Detroit-Warren-Dearborn, MI	$1.43	3%	$1.18
Minneapolis-St. Paul-Bloomington, MN-WI	$0.23	3%	$0.67
Washington-Arlington-Alexandria, DC-VA-MD-WV	$3.88	22%	$0.83
Miami-Fort Lauderdale-West Palm Beach, FL	$6.30	33%	$5.85
Atlanta-Sandy Springs-Roswell, GA	$0.39	1%	$0.39
Baltimore-Columbia-Towson, MD	$8.62	28%	$1.99
Dallas-Fort Worth-Arlington, TX	$11.54	33%	$2.84
Houston-The Woodlands-Sugar Land, TX	$8.33	37%	$8.82
Phoenix-Mesa-Scottsdale, AZ	.	.	$0.07
Los Angeles-Long Beach-Anaheim, CA	$4.05	10%	$0.72
San Francisco-Oakland-Hayward, CA	$11.43	50%	$7.25
Riverside-San Bernardino-Ontario, CA	$2.62	7%	$9.27
Seattle-Tacoma-Bellevue, WA	$4.68	34%	$0.18
San Diego-Carlsbad, CA	$2.21	12%	$1.73

Table 2: Changes in Select Transport Expenses by User and Household, Top 1% by Income, 2005-2015

	2005				2015				Change 2005-2015	
	Households	% Households with User	Average Paid by User	% of Household Spending	Households	% Households with User	Average Paid by User	% of Household Spending	% Change in Users	% Change in User Spending (Real Dollars)
Tolls	81	12.3%	$ 18.90	0.04%	61	37.7%	$ 31.04	0.04%	205%	34%
Local Parking	80	27.5%	$ 40.86	0.09%	61	34.4%	$ 74.52	0.08%	25%	49%
Taxi/Car Services	80	12.5%	$ 48.20	0.10%	61	29.5%	$ 92.89	0.09%	136%	57%
Gasoline	80	96.3%	$ 335.40	0.97%	61	91.8%	$ 289.43	0.86%	-5%	-30%
Diesel	80	6.3%	$ 205.20	0.12%	61	9.8%	$ 324.17	0.10%	57%	29%
Intracity Mass Transit	80	10.0%	$ 93.13	0.13%	68	39.7%	$ 92.96	0.12%	297%	-19%

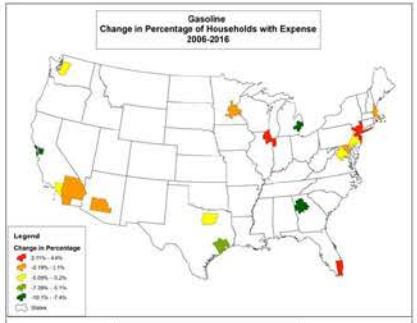
Table 2: Changes in Select Transport Expenses by User and Household, Top 1% by I

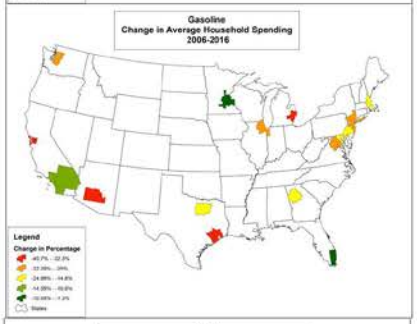
	2005				2015		
	Households	% Households with User	Average Paid by User	% of Household Spending	Households	% Households with User	Ave b
Tolls	81	12.3%	$ 18.90	0.04%	61	37.7%	$
Local Parking	80	27.5%	$ 40.86	0.09%	61	34.4%	$
Taxi/Car Services	80	12.5%	$ 48.20	0.10%	61	29.5%	$
Gasoline	80	96.3%	$ 335.40	0.97%	61	91.8%	$
Diesel	80	6.3%	$ 205.20	0.12%	61	9.8%	$
Intracity Mass Transit	80	10.0%	$ 93.13	0.13%	68	39.7%	$

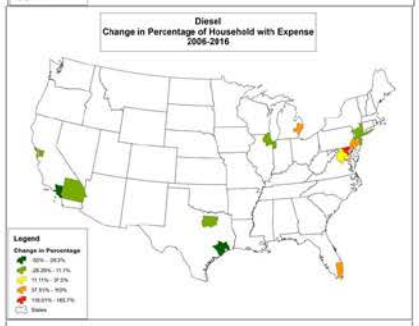
Geographic, Racial and Income Variation in Road User and Transportation Fees – Paying the Price for New Transportation: Evidence from Household Surveys

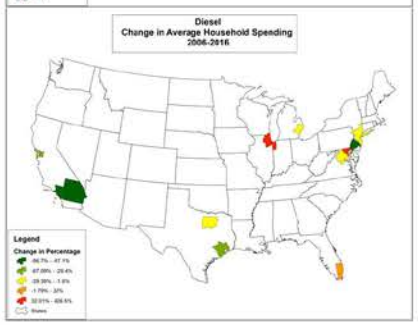
David A. King, Arizona State University; Cameron E. Gordon, The University of Canberra;

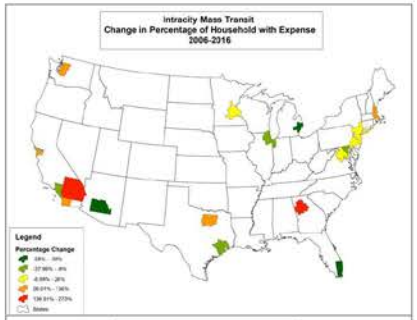
Jonathan R. Peters, and Nora Tabori Santiago - City University of New York – College of Staten Island

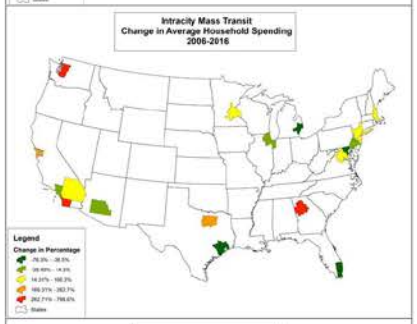


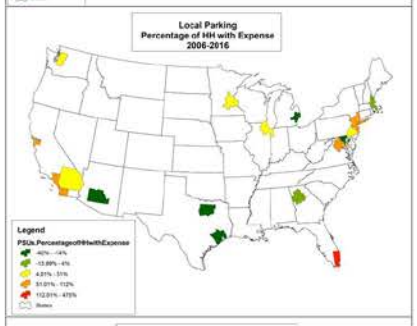


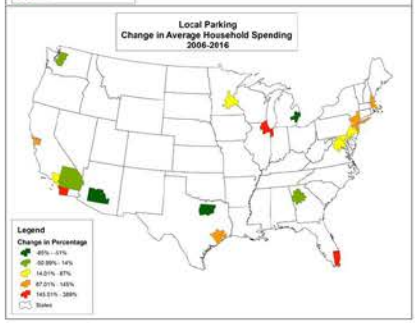


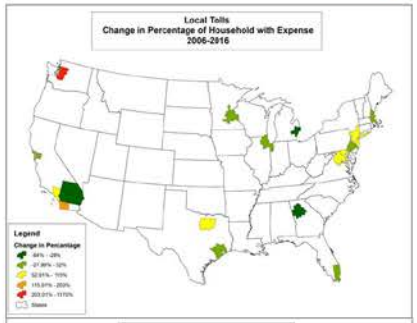


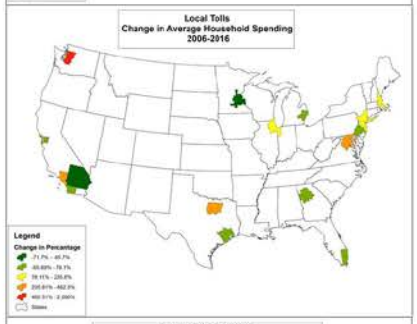


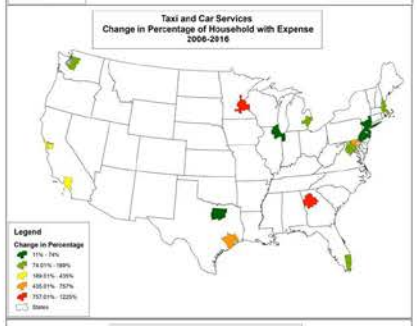


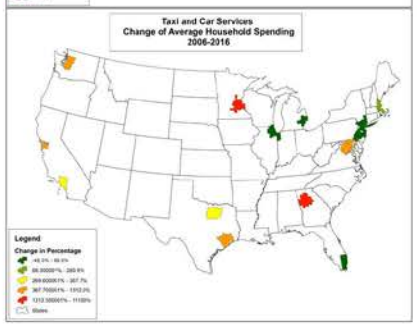




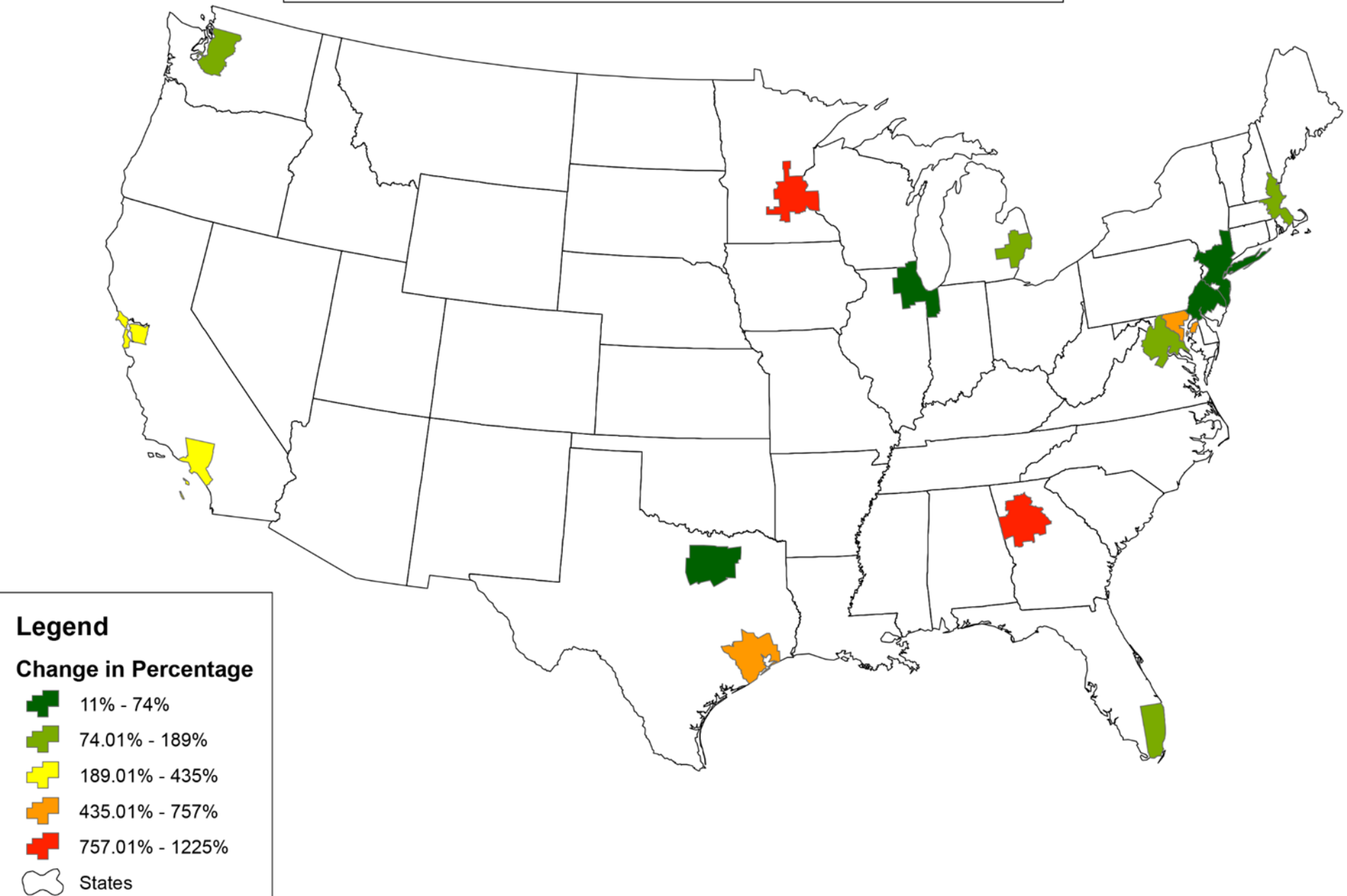






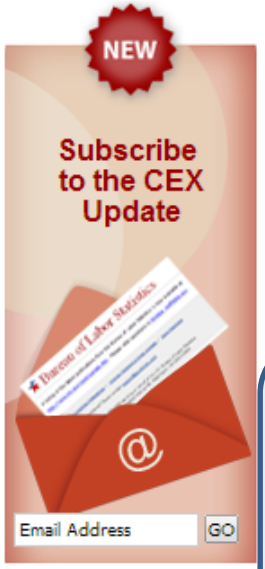


Taxi and Car Services
Change in Percentage of Household with Expense
2006-2016



CES Data from (Public Use Microsample)

Data on Transportation Series



How much? [enter value] _____

What percentage of the AVERAGE MONTHLY COST was counted as a business expense? [enter value] _____

Since the first of the reference month not including this month --
have you or any member of your household purchased any oil for operating vehicles?

1. Yes
2. No

What was the total cost? [enter value] _____

Since the first of the reference month not including this month --
have you or any member of your household purchased any antifreeze, brake fluid, transmission fluid, windshield wiper fluid, or additives, except if purchased with a tune-up?

1. Yes
2. No

What was the total cost of these purchases? [enter value] _____

Since the first of the reference month not including this month --
Had any expenses for parking, such as parking garages, parking lot fees, or parking meters? Do not include expenses that are part of your property ownership or rental costs, a business expense or expenses that will be totally reimbursed.

1. Yes
2. No

How much was paid, not including any payments made this month? [enter value] _____

Since the first of the reference month not including this month, have you or any member of your household had any expenses for -

Local tolls or electronic toll passes?

1. Yes
2. No

How much was paid, not including any payments made this month? [enter value] _____

Since the first of the reference month not including this month, have you or any member of your household had expenses for -

Docking and landing fees for boats and planes?

490413 Motor repair and replacement
490501 Vehicle accessories including labor
490900 Auto repair service policy
500110 Vehicle insurance
510110 Automobile finance charges
510901 Truck or van finance charges
510902 Motorcycle finance charges
520310 Driver's license
520410 Vehicle inspection
520511 Auto rental, excl. trips
520512 Auto rental on out-of-town trips
520521 Truck or van rental, excl. trips
520522 Truck or van rental on out-of-town trips
520531 Parking fees at garages, meters, and lots excl. fees that are costs of property ownersh
520532 Parking fees on out-of-town trips
520541 Tolls or electronic toll passes
520542 Tolls on out-of-town trips
520550 Towing charges (excl. contracted or pre-paid)
520560 Global positioning services
520901 Docking and landing fees for boats and planes
520902 Motorcycle, motor scooter, or moped rental
520904 Rental of non camper-type trailer, such as for boat or cycle
520905 Same as 520902 – out-of-town trips
520907 Rental of boat or non camper-type trailer, such as for boat or cycle on out-of-town trips
530110 Airline fares on out-of-town trips
530210 Intercity bus fares on out-of-town trips
530311 Intracity mass transit fares
530312 Local transportation (excl. taxis) on out-of-town trips
530411 Taxi fares on out-of-town trips
530412 Taxi fares and limousine service (not on trips)
530510 Intercity train fares on out-of-town trips

Why Use the CEX?

- Both Income and Consumption for households
- Longitudinal aspects of data
- Well organized and documented
- Has various aspects of household lifestyle
- Has geographic location
- Can compare consumption of various goods in same household

Options for Descriptives in the CEX

- Consumption by PSU
- Consumption by State (new – some states)
- Consumption by Income Group
- Consumption by Age Cohort (Generation)
- Consumption by Educational Status
- Consumption by Gender
- Consumption by Race
- Consumption patterns over time

Some Transportation Costs

- Local Tolls
- Parking Fees
- Taxi Type Services – Out of Town Trips
- Taxi Type Services – Local Use
- Gasoline Consumption
- Diesel Consumption
- Intracity Mass Transit

```
*libname DIARY 'c:\ces2011\diary\';
libname EXPN 'c:\ces2015\EXPN15\';
libname INTERV 'c:\ces2015\INTRVw15\';

data cesstate; set interv.cesstate3;
    statename = state;
                    state=sct;
                    sc=sct;

proc sort; by sc;

data qtr1; set interv.mtbi153;
  where ucc in ("470111") and ref_mo = "06";

  tcount = 1;

proc sort; by newid;

proc corr;

data family; set interv.fmli153;
   fcount =1;
                  sc=state+0;

PROC SORT; BY newid state cuid;

data allbang; merge family qtr1;
 by newid;

   *incclass = 4;
                  if     0 lt inc_rank le .10 then incclass = 1;
                  if .10001 lt inc_rank le .20 then incclass = 2;
                  if .20001 lt inc_rank le .30 then incclass = 3;
                  if .30001 lt inc_rank le .40 then incclass = 4;
                  if .40001 lt inc_rank le .50 then incclass = 5;
                  if .50001 lt inc_rank le .60 then incclass = 6;
                  if .60001 lt inc_rank le .70 then incclass = 7;
```

Income Class	Surveys	Payers	Expenditures (Gasoline)	MVE	Avg MVE	Ave Payer (Gasoline)	Avg All (Gasoline)	Percent Consuming
.	.	.	.	.	.	.	.	.
1	1644	1207	$195,249	$9,373	$5.70	$161.76	$118.76	73.4%
2	1646	1447	$215,969	$13,663	$8.30	$149.25	$131.21	87.9%
3	1600	1534	$295,553	$18,246	$11.40	$192.67	$184.72	95.9%
4	1591	1553	$393,117	$60,652	$38.12	$253.13	$247.09	97.6%
	======	======	==========	==========				
	6481	5741	$1,099,888	$101,934				

Note about 90% of HH in CEX consume gasoline

Lower Income HHs have a 73.4% Gasoline Usage Rate

High Income HH have a 97.6% Gasoline Usage Rate

Gasoline Consumption is 10x the level of Miscellaneous Vehicle Expenditures

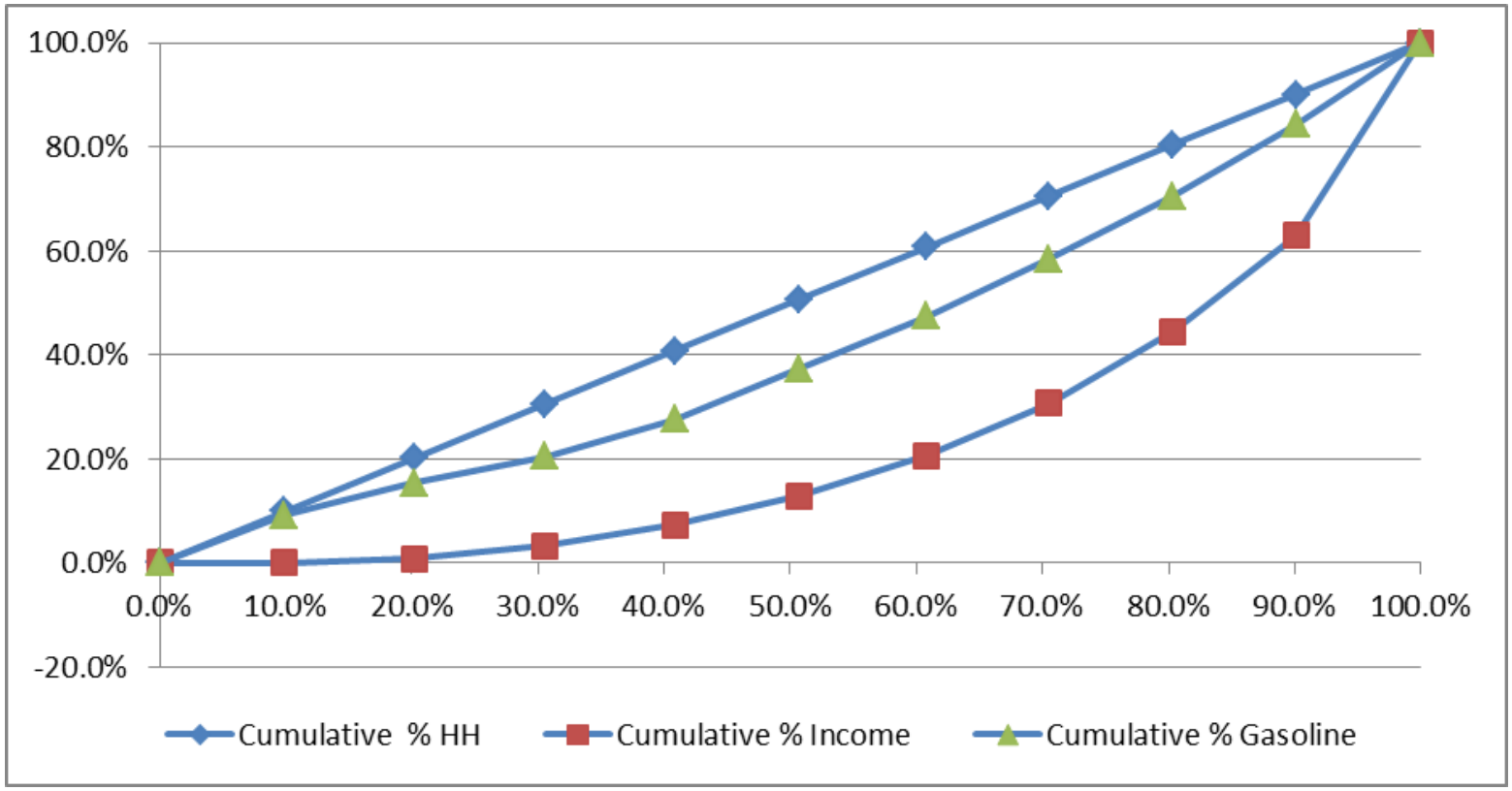
Fuel Taxation is regressive as a source of tax revenue.

Cohort	Total Income	Ann HH Income
0% to 25%	$ 6,812,904	$ 4,144
25% to 50%	$ 41,901,198	$ 25,456
50% to 75%	$ 91,367,932	$ 57,105
75% to 100%	$ 238,313,343	$ 149,788

Income	VEHQ		Veh per HH		Age_Ref	Ave. Age
0% to 25%	2,023		1.23		86,271	52.48
25% to 50%	2,413		1.47		90,940	55.25
50% to 75%	3,343		2.09		78,409	49.01
75% to 100%	4,089		2.57		76,450	48.05
Total	11,868		1.83		332,070	51.24

Income Group	% of HHs	% of Income	% of Gaso	Equity	Cumulative % HH	Cumulative % Income	Cumulative % Gasoline
				0.0%	0.0%	0.0%	0
0-10%	9.9%	0.0%	9.2%	9.9%	9.9%	0.0%	9.2%
10%-20%	10.3%	0.7%	6.1%	20.2%	20.2%	0.7%	15.3%
20% - 30%	10.4%	2.5%	5.2%	30.6%	30.6%	3.3%	20.5%
30%-40%	10.3%	4.0%	7.0%	40.8%	40.8%	7.3%	27.5%
40% - 50%	9.9%	5.6%	9.8%	50.7%	50.7%	12.9%	37.4%
50% - 60%	10.0%	7.7%	10.1%	60.8%	60.8%	20.6%	47.5%
60% - 70%	9.7%	10.1%	11.0%	70.5%	70.5%	30.7%	58.4%
70% - 80%	9.8%	13.7%	12.0%	80.4%	80.4%	44.4%	70.5%
80% - 90%	9.7%	18.5%	13.9%	90.1%	90.1%	62.9%	84.4%
90% - 100	9.9%	37.1%	15.6%	100.0%	100.0%	100.0%	100.0%

Then – We can plot a Lorenz Curve



pub/mlr/2018/article/pdf/fun-facts-about-millennials.pdf

Monthly Labor Review

BLS

March 2018

Fun facts about Millennials: comparing expenditure patterns from the latest through the Greatest generation

This article compares the spending patterns of Millennials with those of earlier generations. The analysis uses data from a 2015 Consumer Expenditure Surveys experimental table, which provides information on generational demographics, income, and expenditures. Although some patterns, particularly those related to demographics, are different across generations, others are substantially similar, especially with respect to shares of expenditures allocated to food and apparel.

It is almost axiomatic that each generation of Americans believes that the next generation will be better off, or at least that this has been so historically.[1] It is not surprising, then, that a new generation now coming of age—the

Geoffrey D. Paulin

https://www.bls.gov/opub/mlr/2018/article/pdf/fun-facts-about-millennials.pdf

Table 1. Annual expenditure means and standard errors (SEs), by generation of reference person, 2015

Category	All consumer units		Millennial (born 1981 and later)		Generation X (born 1965 to 1980)		Baby Boom (born 1946 to 1964)		Silent (born 1929 to 1945)		GI (born 1928 and earlier)	
Household furnishings and equipment	1,818.31	56.24	1,557.53	55.64	2,091.05	100.87	2,017.41	94.52	1,354.55	96.64	643.92	153.83
Household textiles	114.79	7.61	77.24	7.60	123.04	11.53	149.24	17.71	89.51	16.04	20.57*	9.86
Furniture	502.25	26.87	482.42	33.83	682.80	69.51	474.87	33.29	270.72	41.67	183.51*	95.07
Floor coverings	17.73	1.68	12.13	1.51	19.01	3.08	20.09	2.62	20.63*	6.86	1.49*	0.65
Major appliances	268.16	11.89	198.09	15.33	303.14	32.06	295.40	17.28	262.47	33.69	124.50*	43.85
Small appliances, miscellaneous housewares	117.50	6.43	92.08	6.75	138.30	13.59	134.58	10.97	86.77	10.25	32.97*	15.01
Miscellaneous household equipment	797.88	34.52	695.57	46.89	824.77	53.13	943.23	77.82	624.45	65.16	280.89*	77.93
Apparel and services	1,846.21	98.91	1,708.03	78.99	2,442.06	143.69	1,936.74	254.10	847.53	68.74	221.25	43.28
Men and boys	421.86	17.50	418.60	29.47	563.48	42.05	417.57	28.99	200.23	21.06	17.33*	8.02
Men, 16 and over	330.94	15.29	312.26	24.22	395.77	37.51	367.38	28.75	180.25	20.00	15.59*	7.90
Boys, 2 to 15	90.93	4.98	106.34	13.04	167.71	13.99	50.19	5.74	19.99	4.43	1.74*	1.72
Women and girls	697.15	37.37	579.17	44.01	910.60	53.75	776.30	94.61	344.44	39.39	101.47*	35.14
Women, 16 and over	595.66	36.53	495.76	44.36	699.89	50.58	713.23	93.64	327.27	38.29	95.94*	35.16
Girls, 2 to 15	101.49	4.94	83.41	8.24	210.71	16.00	63.07	8.00	17.17	3.77	5.53*	3.88
Children under 2	82.81	7.12	168.85	19.85	100.10	20.51	36.66*	11.73	21.81*	11.43	11.65*	11.30
Footwear	353.80	19.33	302.06	25.85	509.58	41.27	360.22	39.24	149.80	28.27	32.32*	20.50
Other apparel products and services	290.59	46.88	239.35	25.21	358.30	87.81	346.00*	115.66	131.25	10.80	58.47	13.48
Transportation	9,502.79	218.03	8,920.20	383.55	11,069.97	324.58	10,224.01	345.65	6,325.28	393.89	2,489.90	465.51
Vehicle purchases (net outlay)	3,996.92	187.87	4,236.34	323.44	4,654.88	303.71	4,113.74	296.39	2,369.74	317.75	555.06*	252.48
Cars and trucks, new	1,956.44	126.00	1,846.94	279.38	1,933.30	226.51	2,417.02	202.05	1,225.21	217.02	279.27*	227.67
Cars and trucks, used	1,981.71	96.92	2,301.53	183.00	2,669.57	193.74	1,630.46	188.35	1,132.43	206.12	275.78*	143.47
Other vehicles	58.77	10.84	87.87*	29.85	52.01*	21.67	66.26*	21.08	12.11*	10.69	0.00	0.00
Gasoline and motor oil	2,089.56	24.17	1,962.90	46.35	2,559.20	40.81	2,163.35	34.54	1,336.27	34.14	540.38	69.69
Other vehicle expenses	2,755.65	57.92	2,179.42	79.68	3,069.69	100.88	3,225.04	133.01	2,109.91	148.74	1,255.47*	357.65
Vehicle finance charges	216.14	5.50	228.87	11.63	280.50	11.55	219.57	8.85	77.41	6.97	17.31*	6.80
Maintenance and repairs	836.77	23.03	603.83	24.44	973.72	38.97	981.02	45.76	657.78	62.09	237.48	52.53
Vehicle insurance	1,078.56	54.06	742.35	60.89	1,087.68	98.10	1,391.75	123.60	896.75	134.84	822.28*	360.23

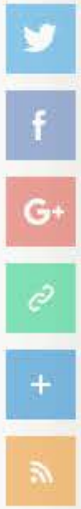
See footnotes at end of table.

	Blue - Overpunching - spending greater amounts than expected given spending
	Red - Underpunching - consuming less than expected - given overall spending

Vehicles	1.9	1.5	2.1	2.2	1.6	0.8
Generation	**All consumer units**	**Millennial (born 1981 and later)**	**Generation X (born 1965 to 1980)**	**Baby Boom (born 1946 to 1964)**	**Silent Generation (born 1929 to 1945)**	**GI (born 1928 and earlier)**
Households	128,437,362	29,008,802	35,857,621	44,174,972	17,116,020	2,279,947
Percent of Households		22.6%	27.9%	34.4%	13.3%	1.8%
Total Vehicles in HH	244,030,988	43,513,203	75,301,004	97,184,938	27,385,632	1,823,958
Percent of Vehicles		17.8%	30.9%	39.8%	11.2%	0.7%
Relative % of Vehicles as compared to HH		78.9%	110.5%	115.8%	84.2%	42.1%
Total expenditures as compared to Average HH		84.2%	119.7%	106.6%	75.6%	51.9%
Transport Dollar Spending as compared to Average HH		$ (582.59)	$ 1,723.35	$ 721.22	$ (3,177.51)	-7,012.89
Transport Spending as a % of HH Sp	17.0%	18.9%	16.5%	17.1%	14.9%	8.6%

Generations in the CEX

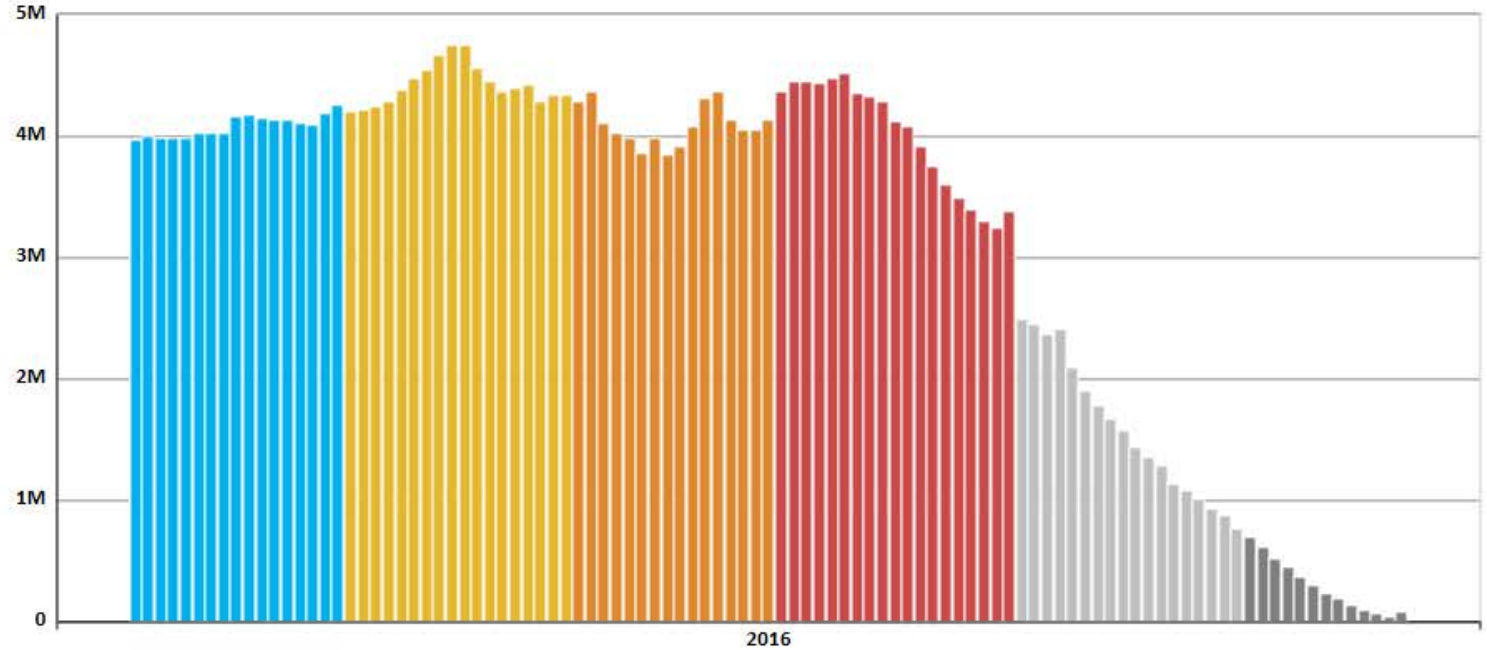
- So – Geoffrey Paulin's article and comments gave us a few new ideas as to how we can use the data.
- And it sent us back to the detailed PUMS data for further analysis.
- We then cut the data by generation



Gen-Z	Millennials	Gen-X
73.61M	79.41M	65.72M
Born 1947-1965 *(Age in 2016: 51 to 69)*	**Born 1929-1946** *(Age in 2016: 70 to 87)*	**Born 1916-1928** *(Age in 2016: 88 to 100)*

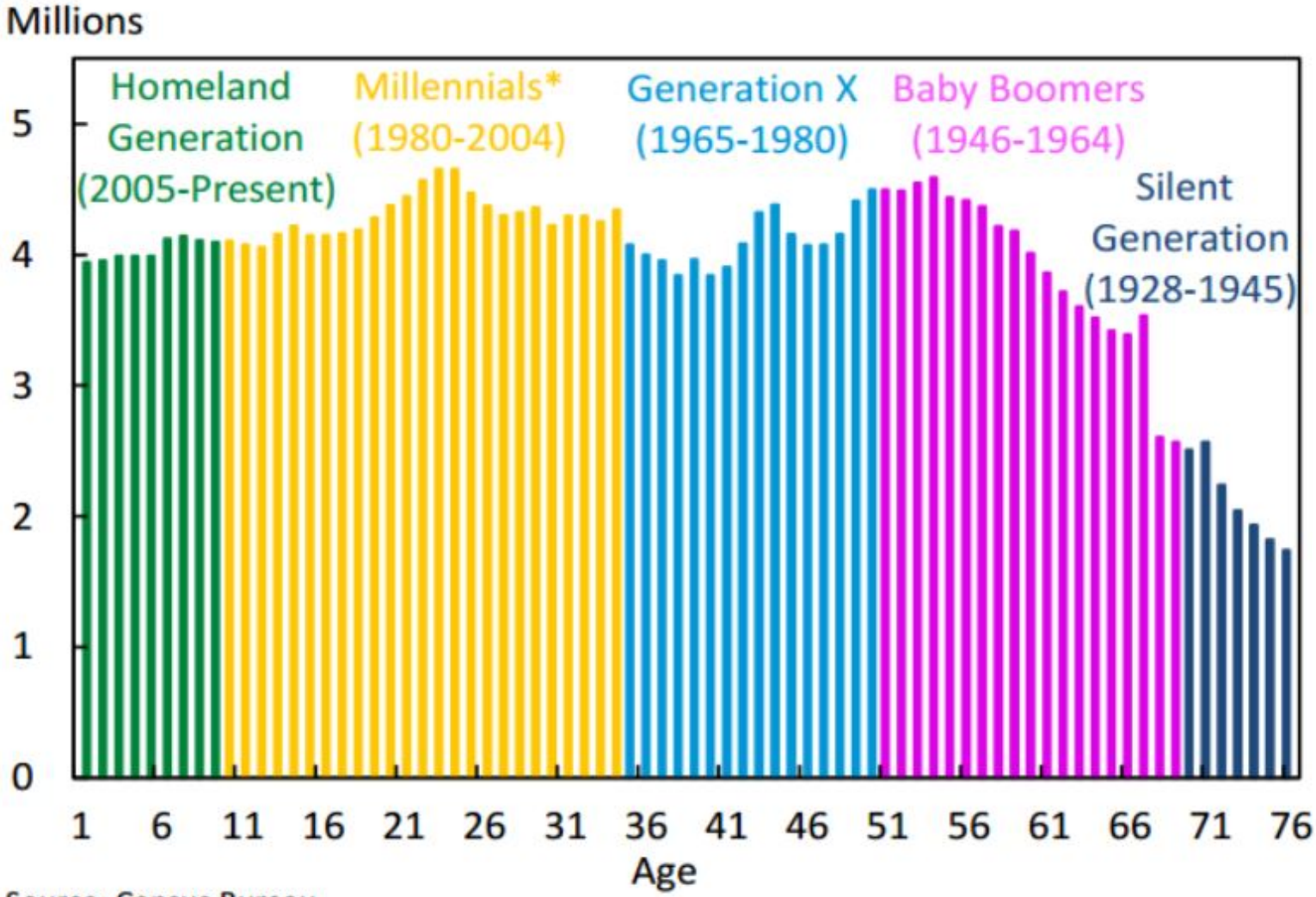
Baby Boomers	Silent Gen	Greatest Gen
75.52M	28.32M	3.79M

Total US Population by Age
(Persons)

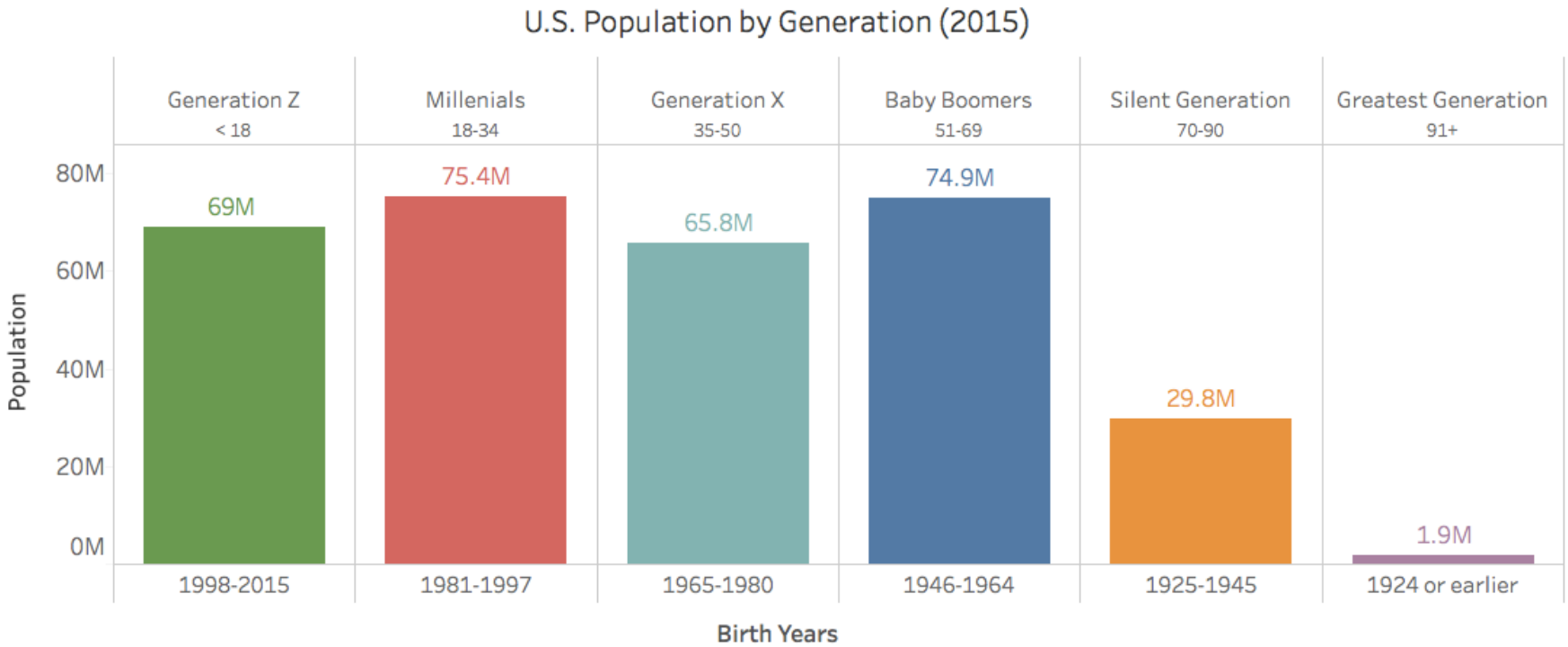


Total US Population by Generation
(share of total population)

Figure 1: US Population Distribution by Age, 2013



Source: Census Bureau.



Source: U.S. Census Bureau, Pew Research Center

SAS Code for 2015

```
IF      AGE_REF GE 87 THEN GEN = "1 GREATEST ";
IF 70 Le AGE_REF LE 86 THEN GEN = "2 SILENT   ";
IF 51 Le AGE_REF LE 69 THEN GEN = "3 BABYBOOM ";
IF 35 Le AGE_REF LE 50 THEN GEN = "4 GENERAT X";
IF      AGE_REF LE 34 THEN GEN = "5 MILLENIAl";
```

SAS Code for 2005

```
IF      AGE_REF GE 77 THEN GEN = "1 GREATEST ";
IF 60 Le AGE_REF LE 76 THEN GEN = "2 SILENT   ";
IF 41 Le AGE_REF LE 59 THEN GEN = "3 BABYBOOM ";
IF 25 Le AGE_REF LE 40 THEN GEN = "4 GENERAT X";
IF      AGE_REF LE 24 THEN GEN = "5 MILLENIAl";
```

	Comparison of BLS CEX Data and U.S. Population - 2015						
Generation	Average Age	US Population	% of US Population	BLS CEX Surveys	% of CEX Surveys		Delta CEX to POP
GREATEST	87.00	1.9	1%	274	4%		-3%
SILENT	75.17	29.8	12%	790	12%		0%
BABYBOOM	59.86	79.9	32%	2,245	35%		-3%
GENERAT X	42.74	65.8	26%	1,773	27%		-1%
MILLENIAl	27.65	75.4	30%	1,399	22%		8%
		252.8	100%	6,481			

Detailed Tables by Age Cohort

Transportation Fees and Goods

	Local Tolls - UCC 520541 - All Households - June 2005							
Generation	Total Surveys	Toll User %	Ann. Avg. Exp. Local Tolls Of Users	Ann. Avg. Exp. Local Tolls All HH	Percent of HH Spending on Local Tolls	Number of Toll Users	Average Income	Average Vehicles Per HH
GREATEST	611	2.62%	$70.75	$1.85	0.01%	16	$28,766	1.152
SILENT	1503	9.18%	$174.84	$16.05	0.03%	138	$50,570	1.929
BABYBOOM	2806	10.76%	$213.91	$23.02	0.03%	302	$75,555	2.304
GENERAT X	2082	9.22%	$227.79	$21.01	0.03%	192	$62,962	1.836
MILLENIAl	454	5.07%	$76.17	$3.86	0.01%	23	$29,109	1.366
	------					------		
	7456	9.0%		$18.15		671	$ 60,340	

	Local Tolls - UCC 520541 - All Households - June 2010							
Generatio	Total Surveys	Toll User %	Ann. Avg. Exp. Local Tolls Of Users	Ann. Avg. Exp. Local Tolls All HH	Percent of HH Spending on Local Tolls	Number of Toll Users	Average Income	Average Vehicles Per HH
GREATEST	259	2.70%	$57.71	$1.56	0.01%	7	$29,106	1.046
SILENT	776	6.19%	$145.83	$9.02	0.02%	48	$40,280	1.523
BABYBOO	2278	11.46%	$267.91	$30.70	0.04%	261	$69,947	2.115
GENERAT	2169	13.19%	$296.94	$39.15	0.05%	286	$78,726	2.040
MILLENIAl	1577	9.00%	$220.42	$19.85	0.04%	142	$50,951	1.450
	---					---		
	7059	10.5%		$27.42		744	$ 63,641	

		Local Tolls - UCC 520541 - All Households - June 2015						
Generation	Total Surveys	Toll User %	Ann. Avg. Exp. Local Tolls Of Users	Ann. Avg. Exp. Local Tolls All HH	Percent of HH Spending on Local Tolls	Number of Toll Users	Average Income	Average Vehicles Per HH
GREATEST	274	4.01%	$103.27	$4.15	0.01%	11	$28,050	0.956
SILENT	790	9.11%	$217.89	$19.86	0.04%	72	$45,049	1.670
BABYBOOM	2245	14.03%	$287.52	$40.34	0.06%	315	$73,219	2.103
GENERAT X	1773	16.47%	$330.32	$54.40	0.06%	292	$88,275	1.966
MILLENIAl	1399	11.44%	$246.35	$28.17	0.05%	160	$57,957	1.486
	---					---		
	6481	13.1%		$37.53		850		

Key Patterns

- Comparing 2005 to 2010 to 2015
- Looking at each generation as a unique group
- Not at a pattern of consumption at a given age
- But the consumption pattern for a generation
- Shrinking size of sample from older generations
- Increase in sample of younger generation
- Reduction in some activities as we age

General Trends

- Declining vehicle ownership for Greatest and Silent Generations from 2005 to 2015.
- Increasing ownership rate of vehicles for Baby Boom, Generation X and Millennials from 2005 to 2015.
- Increasing income for BB, GX & MI
- Examine Participation Rates – 2005 to 2015
- Examine Average Expenditures – 2005 to 2015

			Paid Parking - UCC 520531 - All Households - June 2005					
Generation	Total Surveys	Parking User %	Ann. Avg. Exp. Paid Parking Of Users	Ann. Avg. Exp. Paid Parking All HH	Percent of HH Spending on Paid Parking	Number of Paid Parking Users	Average Income	Average Vehicles Per HH
GREATEST	611	3.27%	$232.20	$7.60	0.03%	20	$28,766	1.152
SILENT	1503	8.45%	$145.70	$12.31	0.02%	127	$50,570	1.929
BABYBOOM	2806	10.51%	$280.08	$29.45	0.04%	295	$75,555	2.304
GENERAT X	2082	11.34%	$255.32	$28.94	0.05%	236	$62,962	1.836
MILLENIAl	454	9.69%	$286.73	$27.79	0.10%	44	$29,109	1.366
	---					---		
	7456	9.7%		$23.96		722	$60,340	

			Paid Parking - UCC 520531 - All Households - June 2015					
Generation	Total Surveys	Parking User %	Ann. Avg. Exp. Paid Parking Of Users	Ann. Avg. Exp. Paid Parking All HH	Percent of HH Spending on Paid Parking	Number of Paid Parking Users	Average Income	Average Vehicles Per HH
GREATEST	274	4.01%	$362.55	$14.55	0.05%	11	$28,050	0.956
SILENT	790	7.97%	$267.49	$21.33	0.05%	63	$45,049	1.670
BABYBOOM	2245	12.43%	$307.48	$38.21	0.05%	279	$73,219	2.103
GENERAT X	1773	14.44%	$375.03	$54.15	0.06%	256	$88,275	1.966
MILLENIAl	1399	14.58%	$358.10	$52.22	0.09%	204	$57,957	1.486
	---					---		
	6481	12.5%		$42.54		813	$68,700	

		Out of Town Use - Taxi Type Services - UCC 530411 - All Households - June 2005						
Generation	Total Surveys	Taxi Type User %	Ann. Avg. Exp. Taxi Type Of Users	Ann. Avg. Exp. Taxi Type All HH	Percent of HH Spending on Taxi Type	Number of Taxi Type Users	Average Income	Average Vehicles Per HH
GREATEST	611	0.98%	$137.64	$1.35	0.00%	6	$28,766	1.152
SILENT	1505	3.26%	$386.37	$12.58	0.02%	49	$50,747	1.932
BABYBOOM	2806	3.17%	$349.01	$11.07	0.01%	89	$75,555	2.304
GENERAT X	2083	2.59%	$233.18	$6.04	0.01%	54	$62,966	1.836
MILLENIAl	454	1.10%	$101.23	$1.11	0.00%	5	$29,109	1.366
	---					---		
	7459	2.7%		$8.57		203		

		Out of Town Use of Taxi Type Services - UCC 530411 - All Households - June 2015						
Generation	Total Surveys	Taxi Type User %	Ann. Avg. Exp. Taxi Type of Users	Ann. Avg. Exp. Taxi Type All HH	Percent of HH Spending on Taxi Type	Number of Taxi Type Users	Average Income	Average Vehicles Per HH
GREATEST	274	1.46%	$248.64	$3.63	0.01%	4	$28,050	0.956
SILENT	791	1.77%	$642.53	$11.37	0.02%	14	$45,611	1.671
BABYBOOM	2250	2.71%	$450.91	$12.22	0.02%	61	$73,507	2.102
GENERAT X	1774	2.82%	$401.38	$11.31	0.01%	50	$88,399	1.966
MILLENIAl	1400	1.50%	$324.12	$4.86	0.01%	21	$57,986	1.486
	---					---		
	6489	2.3%		$9.92		150	$68,909	

	Local Use - Taxi Type Services - UCC 530412 - All Households - June 2005							
Generation	Total Surveys	Taxi Type Services - UC User %	Ann. Avg. I Taxi Type Of Users	Ann. Avg. Taxi Type All HH	Percent of HH Spend on Taxi Ty	Number o Taxi Type Users	Average Income	Average Vehicles Per HH
GREATEST	611	2.29%	$364.00	$8.34	0.03%	14	$28,766	1.152
SILENT	1503	3.06%	$353.57	$10.82	0.02%	46	$50,570	1.929
BABYBOOM	2806	3.31%	$541.51	$17.95	0.02%	93	$75,555	2.304
GENERAT X	2082	3.94%	$499.61	$19.68	0.03%	82	$62,962	1.836
MILLENNIAL	454	3.08%	$510.29	$15.74	0.05%	14	$29,109	1.366
	------					------		
	7456	3.3%		$16.07		249		1.946

	Local Use - Taxi Type Services - UCC 530412 - All Households - June 2015							
Generation	Total Surveys	Taxi Type Services - UC User %	Ann. Avg. I Taxi Type Of Users	Ann. Avg. Taxi Type All HH	Percent of HH Spend on Taxi Ty	Number o Taxi Type Users	Average Income	Average Vehicles Per HH
GREATEST	274	3.28%	$241.78	$7.94	0.03%	9	$28,050	0.956
SILENT	790	3.92%	$709.68	$27.85	0.06%	31	$45,049	1.670
BABYBOOM	2245	3.43%	$475.27	$16.30	0.02%	77	$73,219	2.103
GENERAT X	1773	5.64%	$563.36	$31.77	0.04%	100	$88,275	1.966
MILLENNIAL	1399	7.43%	$388.31	$28.87	0.05%	104	$57,957	1.486
	---					---		
	6481	5.0%		$24.30		321		1.831

		Gasoline Consumption - UCC 470111 - All Households - June 2005						
Generation	Total Surveys	Gasoline User %	Ann. Avg. Exp. Gasoline Of Users	Ann. Avg. Exp. Gasoline All HH	Percent of HH Spending Gasoline	Number of Gasoline Users	Average Income	Average Vehicles Per HH
GREATEST	611	77.74%	$1,065.75	$828.53	2.88%	475	$28,766	1.152
SILENT	1503	90.69%	$1,726.42	$1,565.61	3.10%	1363	$50,570	1.929
BABYBOOM	2806	91.59%	$2,569.17	$2,353.09	3.11%	2570	$75,555	2.304
GENERAT X	2082	90.63%	$2,387.34	$2,163.74	3.44%	1887	$62,962	1.836
MILLENIAl	454	86.34%	$1,841.97	$1,590.42	5.46%	392	$29,109	1.366
	------					------		
	7456	89.7%		$1,970.10		6687		

			Gasoline Consumption - UCC 470111 - All Households - June 2015					
Generation	Total Surveys	Gasoline User %	Ann. Avg. Exp. Gasoline of Users	Ann. Avg. Exp. Gasoline All HH	Percent of HH Spending Gasoline	Number of Gasoline Users	Average Income	Average Vehicles Per HH
GREATEST	274	67.52%	$1,097.45	$740.98	2.64%	185	$28,050	0.956
SILENT	790	86.96%	$1,644.12	$1,429.76	3.17%	687	$45,049	1.670
BABYBOOM	2245	89.35%	$2,302.07	$2,056.99	2.81%	2006	$73,219	2.103
GENERAT X	1773	91.60%	$2,728.59	$2,499.28	2.83%	1624	$88,275	1.966
MILLENIAl	1399	88.56%	$2,273.56	$2,013.54	3.47%	1239	$57,957	1.486
	---					---		
	6481	88.6%		$2,036.52		5741		

		Diesel Consumption - UCC 470112 - All Households - June 2005						
Generation	Total Surveys	Diesel User %	Ann. Avg. Exp. Diesel Of Users	Ann. Avg. Exp. Diesel All HH	Percent of HH Spending Diesel	Number of Diesel Users	Average Income	Average Vehicles Per HH
GREATEST	611	0.16%	$960.00	$1.57	0.01%	1	$28,766	1.152
SILENT	1503	2.46%	$1,440.00	$35.45	0.07%	37	$50,570	1.929
BABYBOOM	2806	2.35%	$1,908.18	$44.88	0.06%	66	$75,555	2.304
GENERAT X	2082	1.83%	$1,776.95	$32.43	0.05%	38	$62,962	1.836
MILLENIAl	454	0.66%	$1,648.00	$10.89	0.04%	3	$29,109	1.366
	---					---		
	7456	1.9%		$33.89		145		

			Diesel Consumption - UCC 470112 - All Households - June 2015					
Generation	Total Surveys	Diesel User %	Ann. Avg. Exp. Diesel of Users	Ann. Avg. Exp. Diesel All HH	Percent of HH Spending Diesel	Number of Diesel Users	Average Income	Average Vehicles Per HH
GREATEST	274	0.73%	$570.00	$4.16	0.01%	2	$28,050	0.956
SILENT	790	1.90%	$1,420.00	$26.96	0.06%	15	$45,049	1.670
BABYBOOM	2245	3.83%	$2,020.60	$77.40	0.11%	86	$73,219	2.103
GENERAT X	1773	3.61%	$2,163.00	$78.08	0.09%	64	$88,275	1.966
MILLENIAl	1399	1.57%	$1,573.09	$24.74	0.04%	22	$57,957	1.486
	------					------		
	6481	2.9%		$56.97		189		

		Intracity Mass Transit - UCC 530311 - All Households - June 2005						
Generation	Total Surveys	Mass Tra. User %	Ann. Avg. Exp. Mass Tra. Of Users	Ann. Avg. Exp. Mass Tra. All HH	Percent of HH Spending Mass Tra.	Number of Mass Tra. Users	Average Income	Average Vehicles Per HH
GREATEST	616	4.87%	$207.20	$10.09	0.04%	30	$28,647	1.146
SILENT	1523	7.55%	$432.52	$32.66	0.06%	115	$50,656	1.917
BABYBOOM	2875	9.15%	$647.91	$59.27	0.08%	263	$74,808	2.269
GENERAT X	2157	12.10%	$606.67	$73.41	0.12%	261	$62,812	1.801
MILLENIAl	465	10.75%	$444.48	$47.79	0.17%	50	$28,941	1.353
	---					---		
	7636	9.4%		$53.29		719		

			Intracity Mass Transit - UCC 530311 - All Households - June 2015					
Generation	Total Surveys	Mass Tran User %	Ann. Avg. Exp. Mass Transit of Users	Ann. Avg. Exp. Mass Transit All HH	Percent of HH Spending Mass Transit	Number of Mass Transit Users	Average Income	Average Vehicles Per HH
GREATEST	275	2.91%	$321.00	$9.34	0.03%	8	$28,025	0.953
SILENT	793	5.30%	$426.57	$22.59	0.05%	42	$45,081	1.667
BABYBOOM	2297	10.84%	$801.25	$86.86	0.12%	249	$72,959	2.082
GENERAT X	1817	11.34%	$1,030.19	$116.80	0.13%	206	$88,092	1.935
MILLENIAl	1445	13.70%	$932.06	$127.71	0.22%	198	$58,925	1.461
	---					---		
	6627	10.6%		$93.07		703		

Findings

- Lots of new areas to study
- Further research is needed to continue to evaluate new spending and taxing patterns.
- Household consumption appears to be changing – there is a need for continued evaluation of CE survey questions.
- Additional external sources may suggest future research areas and questions.
- BLS Staff is continuing to develop survey and methods to reflect new spending categories.

Questions?

Jonathan.peters@csi.cuny.edu