

Declining car usage among younger age cohorts: An exploratory analysis of private car and car-related expenditures in the United States – abridged version
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DECLINING CAR USAGE AMONG YOUNGER AGE COHORTS: AN EXPLORATORY ANALYSIS OF PRIVATE CAR AND CAR-RELATED EXPENDITURES IN THE UNITED STATES – ABRIDGED VERSION

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ABSTRACT

The impact of the personal automobile in American society and its importance to American culture has been the subject of a significant amount of research since the beginning of 20th century. This paper aims to add to that body of knowledge by analyzing the presence of the car in American society in the 21st century, and assessing – to the extent possible – whether the so-called “digital age” (the overwhelming presence of digital devices – smartphones, tablets, etc. – in contemporary people’s lives) is somehow affecting the relationship between younger Americans (aged 15 through 34) and the automobile.

Results indicate that automobile usage has reached a plateau that has lasted half a decade so far, and that car-related expenditures have declined since 2000. On top of that, getting a driver’s license seems to be a lower priority nowadays for younger cohorts than it used to be. Regarding digital consumption, smartphones and tablets have reached high levels of market penetration, expenditures on cell phone services have increased threefold in real terms in 10 years, and data traffic on handheld devices is expected to grow by great amounts in coming years.

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The implications of the findings on automobile usage and expenditures in America, combined with the ever increasing “digitalization” of the life of younger Americans for the future is difficult to assess at this point: will the smartphone displace the automobile? Will automobile usage return to high levels of growth? If not, what will that mean in terms of infrastructure demand, capacity and investment, land use, etc.? Further research will be needed to assess the true impact of these findings.

Keywords: American Youth, Automobile Expenditures, Digital Age, Disposable Income

HIGHLIGHTS:

- Automobile-related expenditures are declining, especially in younger cohorts
- Distance traveled has been stagnant since 2005, while other modes are on the rise
- Expenditures on cellphones and cellphone services are increasing
- Mobile media consumption is expected to keep growing at very high rates
- A structural shift might be revealing itself

INTRODUCTION

Automobiles have become omnipresent in the modern world, leading to indelible marks on the cultural fabric of modern societies, in ways both intangible (popular culture, the possibility of going anywhere at any time and the associated “freedom”, etc.) and tangible (all the infrastructure devoted to the automobile, the reshaping of the urban and suburban landscape towards an automobile-oriented design, etc.).

The democratization of the automobile started in the United States with the Ford Motor Company, the model Ford Model T and the mass production manufacturing system created by Henry Ford. As they became more common, cars had a great impact on society, first replacing horses and bicycles as the most common mode of private transportation and being widely adopted among farmers. After World War II, the waves of growth in economic output, disposable income and suburbanization allowed consumers to buy cars at even greater rates. By 1951, 73 percent of American households already owned at a least one vehicle and the automobile had replaced mass transit for almost all short and medium trips made in America (Offer, 2006, p. 196). In the decades after the Ford Model T was introduced, the automobile would change the places where Americans lived, shopped, traveled, worked, had fun, and even how they conducted war (Jones, 2010; Foster, 2003).

However, in recent years, a number of key indicators relating to automobile usage, disposable income, and automobile-related expenditures, seem to indicate a change from the continuous growth of previous decades, especially for the younger cohorts of the American people. This paper will analyze that data, with a focus on the 15 to 34 age cohort, in order to determine the magnitude of those trends and identify the changes taking place.

AUTOMOBILE USAGE

In order to assess the evolution of car usage among the American youth, this section will outline some of the key variables relating to car ownership, number of licensed drivers, and car usage, among the general population, and the 15-34 age groups.

Table I shows the number of licensed drivers in 2000 and 2010 in four different age groups.¹

¹ Breakdown by sex is not presented, because no relevant differences were found.

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Table I – Percentage of licensed drivers between the ages of 15 and 34 in the United States.
 Source: calculations by the authors based on data from the U.S. Census Bureau (U.S. Census Bureau, 2000, 2010) and the Federal Highway Administration (Office of Highway Policy Information, 2001, 2011).

		Licensed drivers (millions)		Population (millions)		% Licensed		
		2000	2010	2000	2010	2000	2010	Difference
Age group	15-19	9.7	9.6	20.2	22.0	48%	43%	– 5 p.p. ²
	20-24	16.0	17.5	19.0	21.6	84%	81%	– 3 p.p.
	25-29	17.6	18.4	19.4	21.1	91%	87%	– 4 p.p.
	30-34	19.2	17.8	20.5	20.0	93%	89%	– 4 p.p.

Results show that there has been a decline in the percentage of people with driver’s licenses among the younger cohorts of the American population, and this holds true for every age group considered in the analysis. This new³ trend might arise from economic difficulties (that raise the cost of getting a driver’s license out of reach for many people), greater constraints in accessing a driver’s license (more rigorous testing, e.g.), or perhaps a shift in priorities and preferences for these younger generations (getting a driver’s license ceasing to be a mandatory “rite of passage” when people reach the eligible age or wishing to diminish their environmental impact, among other possible explanations).

In terms of vehicle ownership and car usage, a non-age-related analysis was first conducted: figure 1 shows vehicle ownership⁴ per capita since 1900, and figure 2 vehicle kilometers traveled (VKT) in the United States in the same period. Both figures show the typical S-curve format that characterizes the “life cycle” of a product, namely road vehicles and road travel. Such stagnation is to be expected because, after a certain period, everyone wishing to acquire the product already has done so (Button, 2010). An additional factor for the case of vehicle ownership is that the market in United States is oversaturated (and has been for a while), with more cars and light trucks in circulation than licensed drivers being able to drive them (Meyer, 2011). In the last few years of the sample, it can be seen that both motor vehicles and total miles traveled experience not only a stagnation (around 800 vehicles per 1000 people and 1.8 trillion VKT, respectively), but even a slight decline (with the peak being in 2005 in the case of motor vehicles, and 2007 in

² Percentage point

³ Analyzing the data available from the Federal Highway Administration and the Census, the figures for percentage of people with driver’s license had been always upward since World War II.

⁴ Both automobiles and total motor vehicles are shown on Figure 1. This is done because of the significant number of light trucks that are used as personal vehicles in the United States, thus the figures for just automobiles would not have shown the complete picture of vehicle ownership.

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the case of VKT⁵), but with annual data up to 2011 it is not clear at this time if the decline will continue (the decline of VKT could be a result of the economic downturn of the late 2000's, e.g.). While such stagnation is expected in a typical technology life cycle, continuation of this stagnation raises new and important policy issues, because traffic forecasts and infrastructure design and financing mostly assume continuous growth in road traffic. A new paradigm where road traffic is stagnant or in decline, with the, *ceteris paribus*, consequential decline in gasoline tax revenues⁶, will necessarily affect the evolution of the road transportation network.

⁵ Per capita, VKT (and vehicle miles travelled – VMT) reached its peak in 2005, i.e., at the same time as vehicle ownership did, with the annual distance travelled being 16,415 km (10,200 miles) per person. Annual VKT/VMT had passed 16,093 km (10,000 miles) per person in 2004, 14,484 km (9,000 miles) in 1994, and 12,875 km (8,000 miles) in 1988.

⁶ Which is already suffering the effect of inflation and ever-increasing fuel efficiency, with money having to be transferred from the general budget to compensate the shortfalls in the Highway Trust Fund (United States Government Accountability Office, 2011).

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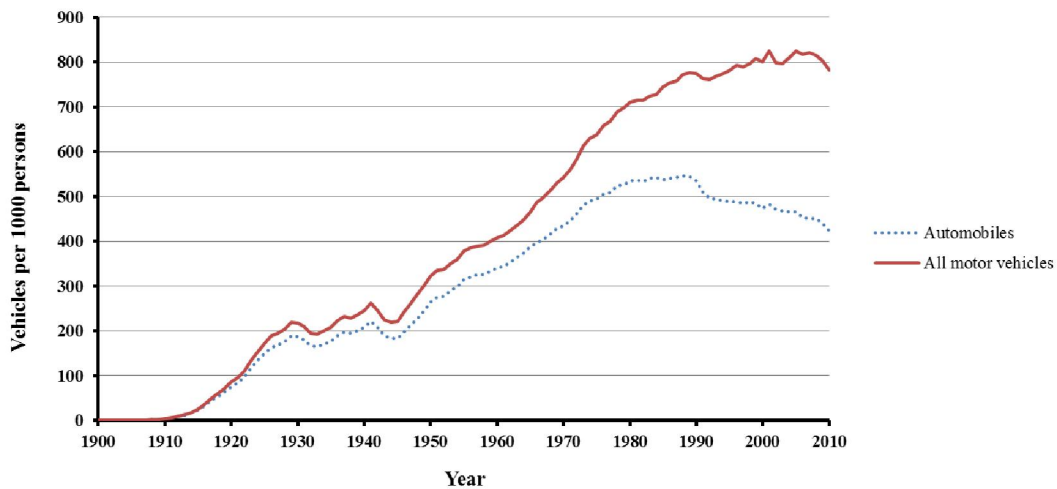


Figure 1 – Automobiles and motor vehicles per 1000 persons over time in the United States.
 Source: graph by the authors based on data from the U.S. Census Bureau and the Federal Highway Administration.⁷

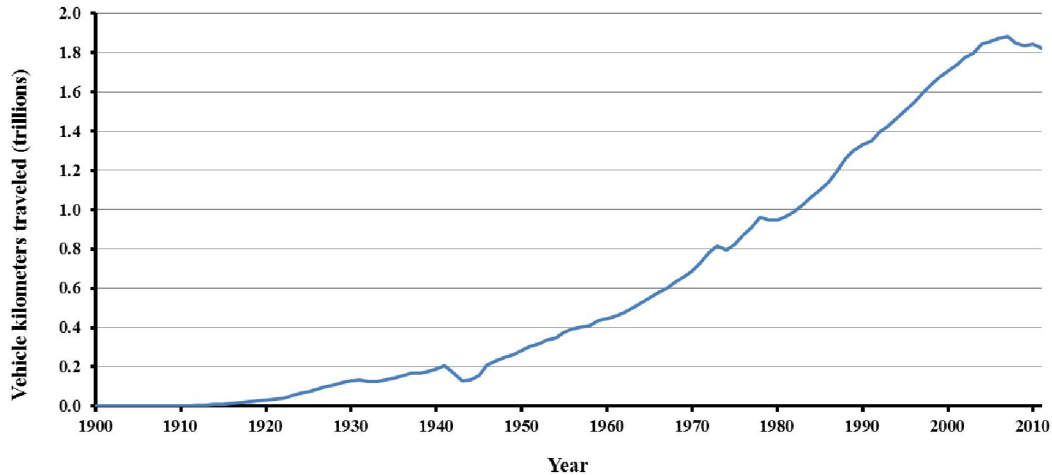


Figure 2 – Vehicle kilometers traveled in the United States.
 Source: graph by the authors based on data from the Federal Highway Administration.

⁷ The Federal Highway Administration (FHWA) releases an annual report called “Highway Statistics” every year (available at <http://www.fhwa.dot.gov/policyinformation/statistics.cfm>). Those annual reports were the source for the data on vehicle registrations but, for practical reasons, not all reports are listed in the reference list.

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Analyzing the younger cohorts, data from the National Household Travel Survey (2009 and other years) – shown in Figure 3 – reveals that both the total vehicle miles traveled and, perhaps more relevant, VKT (vehicle-miles of travel, VMT) per person have decreased considerably in the period from 1995 to 2009: while in 1995 and 2001, each person of these age cohorts drove more than 16,600 km (10,300 miles) per year, by 2009 that value was below 12,800 km (8,000 miles), a decline of 23 percent compared to 2001⁸. For the same 2001-2009 period and for the same 16-34 age groups, the National Household Travel Survey (2009 and other years) shows that distance traveled using transit increased 40 percent (to a total of 536 km (333 miles) per person), miles biked increased 34 percent (to a total of 48 km (30 miles) per person), and miles walked 16 percent (to a total of 169 km (105 miles) per person).

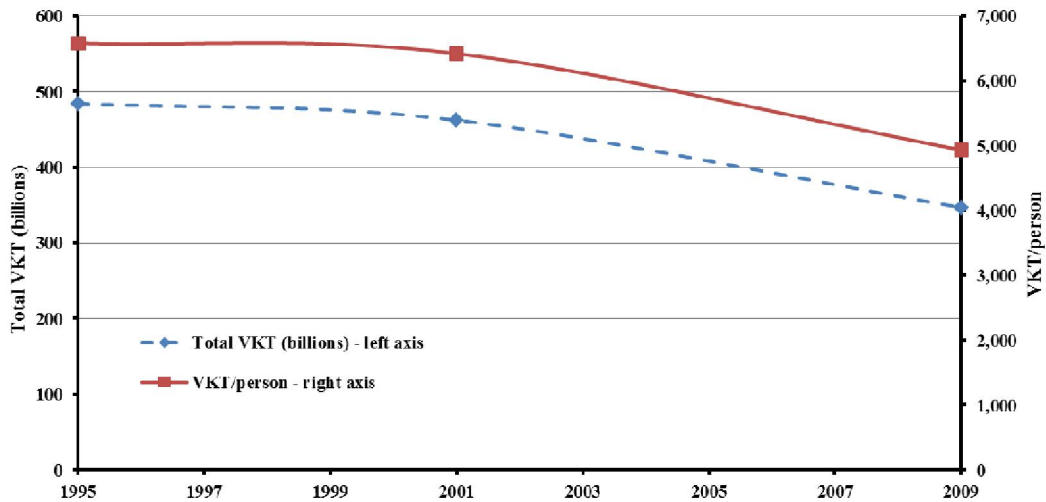


Figure 3 – Total VKT and VKT per capita for people aged 16-34.

Source: graph by the authors based on data from the National Household Travel Survey for the years 1995, 2001, and 2009.

As in the case of the reduction of the number of licensed drivers among the younger cohorts, the reduction in VKT per capita among the same cohorts can also have a number of explanations. Economic and financial conditions certainly play a role here, with the increase in youth unemployment that resulted from the financial crisis of the late 2000's, the stagnation of salaries, and the increase in fuel prices all combining⁹ to make driving less affordable. On top of that, tougher *Graduated Drivers' Licensing* laws that have been enacted in the last 15 years have not

⁸ The decline was bigger at the 16-17 cohort (38 percent), while at the other cohorts was 21 percent (18-24), 20 percent (25-29), and 17 percent (30-34). The decline in total VKT totaled 28 percent from 2001 through 2009.

⁹ The issue of income and expenditures on automobiles will be discussed in more detail in the next section.

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only made driver's licenses more expensive in many cases, but also have put a number of constraints on what younger drivers can do (Davis, Dutzik & Baxandall, 2012)¹⁰, thus diminishing the incentives for driving. A third possible explanation, once again resides with cultural values, not economic, financial or legislative constraints: there is a chance that at least part of these new trends could result from changes in values and preferences in these younger generations. Preferences that might result in less driving include: a desire to be "always connected" (and thus, less willing to spend time driving), less need for face-to-face interactions (substituted by phone calls, texting, social media¹¹ and other sorts online activity), greater concern about the environmental impact of driving (thereby reducing the total mileage driven), or the substitution of in-store shopping by on-line shopping¹².

CURRENT EXPENDITURE TRENDS

To complement the information provided on the previous section, this section will analyze some of the current expenditure trends in the United States since the year 2000.

Disposable income as defined by the Bureau of Labor Statistics (BLS) is income after personal taxes (federal, state, and local income taxes and other taxes). Therefore, mandatory or voluntary contributions to retirement funds (Social Security, and other public or private retirement funds) are not subtracted from total income. Figure 4 shows disposable income (in 2010 dollars) for the entire population of the United States, and for the 15-24 and 25-34 age cohorts¹³, from the years 2000 through 2010.

¹⁰ However, these laws cannot explain the reduction in older (21 and above) drivers, who do not have such restrictions.

¹¹ One minute out of every six minutes spent on-line was spent in social media in 2011 (ComScore, 2012).

¹² E-commerce reached \$256 billion in 2011 in the US, and all-time record, and an increase of 12 percent from 2010 (ComScore, 2012).

¹³ The disposable income data provided by the BLS only has two age cohorts for the 15-34 population, unlike Census and FHWA that had for age cohorts for the same population.

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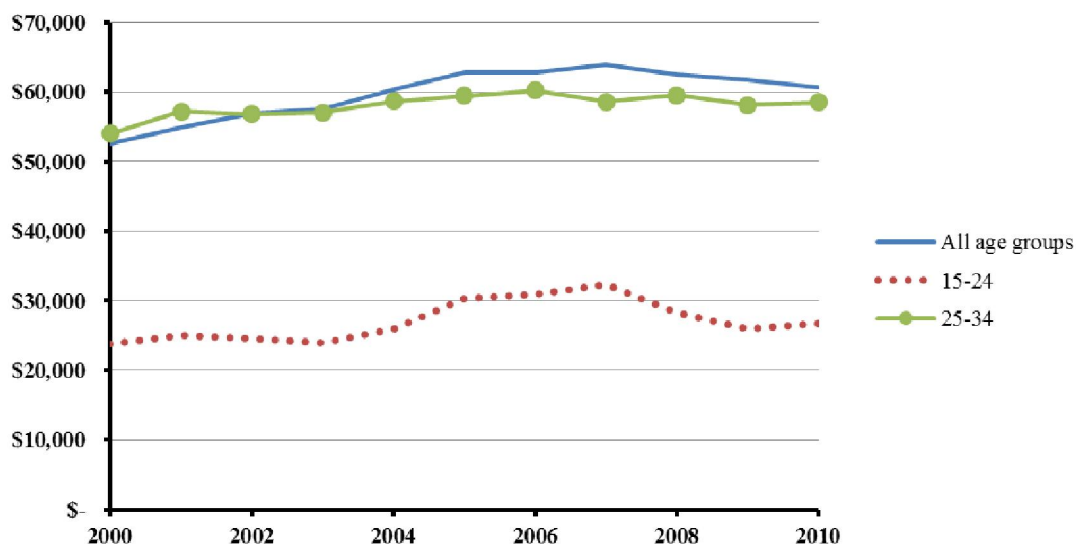


Figure 4 – Disposable income in selected age groups in the United States (2010 dollars).
 Source: graph by the authors based on data from the Bureau of Labor Statistics (2010 and other years)¹⁴.

The effects of the financial crisis of 2008 are somewhat evident in figure 4, especially for the younger cohorts. The increase in the beginning of the century can be explained, at least in part, by the reduction in taxes that resulted from both the “Economic Growth and Tax Relief Reconciliation Act of 2001” and the “Jobs and Growth Tax Relief Reconciliation Act of 2003”¹⁵. By 2010, the average consumer had an income 15 percent higher than in 2000 (again, in 2010 constant dollars), with the younger cohorts of 15-24 and 25-34 having had an increase of 12 and 8 percent, respectively¹⁶.

Regarding automobile and automobile-related expenditures¹⁷, figure 5 shows the total amount of money spent in these categories (left vertical axis) in 2010 dollars, and these expenditures as a percentage of disposable income (right vertical axis). Both metrics are shown for the period from 2000 to 2010.

¹⁴ The Consumer Expenditure Survey is released every year. For practical reasons, only the most recent one used is listed on the references.

¹⁵ These two acts are colloquially known as the “Bush tax cuts”, named after President George W. Bush who enacted them.

¹⁶ This represented a decline of 5 percent from the 2007 peak for all age groups, a decline of 17 percent from the 2007 peak for the 15-24 cohort, and a decline of 3 percent from the 2006 peak for the 25-34 cohort. Since BLS data does not disaggregate between contributions to Social Security and other private retirement funds, these figures do not take into account the reductions in Social Security contributions enacted after 2008, so it is not possible to assess how that reduction in mandatory contributions affected the level of disposable income.

¹⁷ These include not only vehicle purchases, but also gasoline and motor oil, other vehicle expenses (vehicle finance charges, maintenance and repairs, and vehicle insurance), and vehicle rental, leases, licenses, and other charges.

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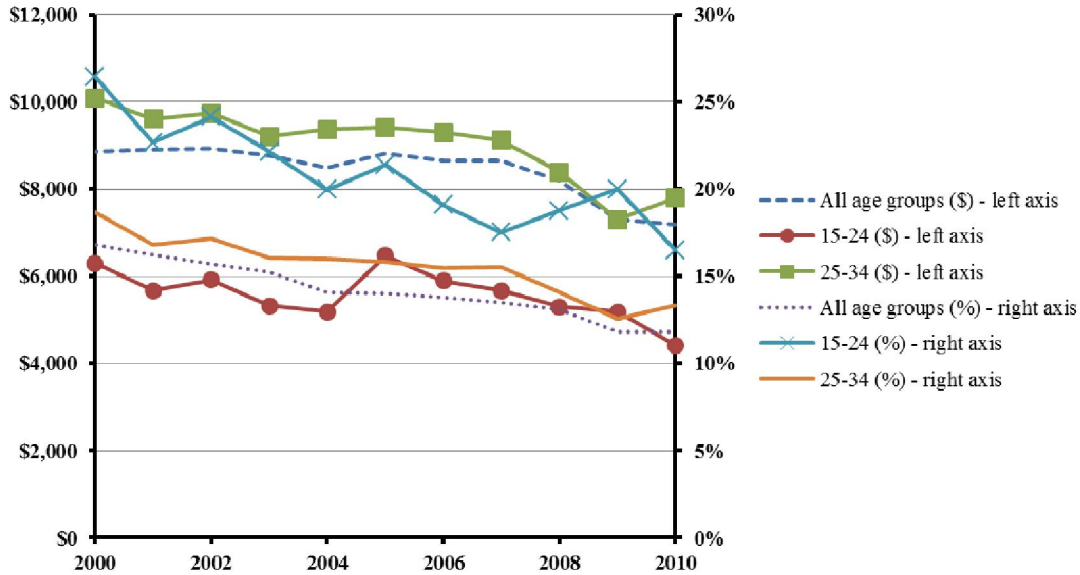


Figure 5 – Automobile-related expenditures in selected age groups in the United States (2010 dollars).
 Source: graph by the authors based on data from the Bureau of Labor Statistics (2010 and other years).

Total real expenditures for automobiles have declined significantly in this decade for all the age groups considered in this analysis, but especially for the two younger cohorts: a decrease of 30 percent (from \$6,297 to \$4,417) in the 15-24 cohort, and a decrease of 23 percent (from \$10,082 to \$7,797) in the 25-34 cohort. For the entire sample, the decrease was 19 percent, from \$8,851 to \$7,184. In percentage of disposable income, the decrease was 9.9 percentage points (from 26.4 to 16.5 percent) for the 15-24 cohort, 5.3 percentage points (from 18.7 to 13.3 percent) for the 25-34 cohort, and 5.0 percentage points (from 16.8 to 11.8) for the entire sample.

DIGITAL REVOLUTION?

The previous section outlined the decline of car-related expenditures, along with the trends in some other major areas of consumer spending. This section will discuss a possible explanation for that decline: a shift towards digital media consumption, mainly in mobile form (smartphones, tablets, etc.). This shift might lead to two different outputs: people having less disposable income

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to spend on personal transportation, and people being less willing to spend time in a mode of transportation that requires them to stop paying attention to their mobile devices (i.e., while driving).

Relevant data for this analysis is somewhat scarce, and does not offer many insights and a full-fledged sociological study would probably be needed to answer some of the questions presented in this paper. Nevertheless, evaluating expenditure data for cell phone services and analyzing trends in the digital media industry can help discern possible trends that might impact car usage in the future for these younger cohorts.

Starting with cell phone and cell phone services (i.e., expenditures for voice, text, and data services), figure 6 presents data from the BLS for the years 2001 to 2010¹⁸ in 2010 dollars.

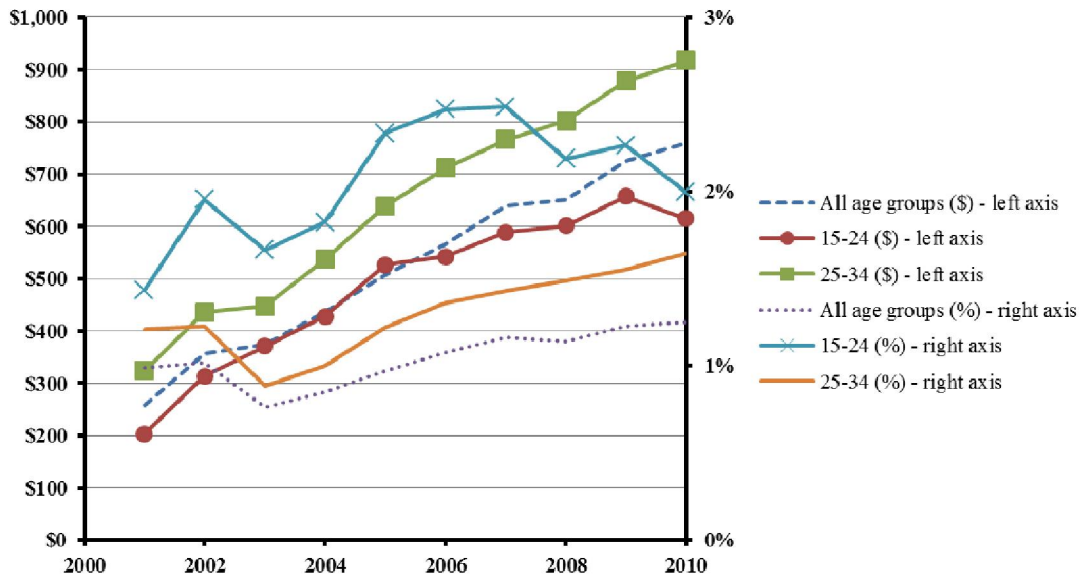


Figure 6 – Expenditures with cellular phones and cellular phone services in selected age groups in the United States (2010 dollars).

Source: graph by the authors based on data from the Bureau of Labor Statistics (2010 and other years).

Cell phone expenditures in constant 2010 dollars triple during this period, reaching \$600 and \$900 per annum depending on the age group considered. As a percentage of disposable income, this expenditure category remains relatively small, reaching 2 percent in the 15-24

¹⁸ Cell phone services were only part of the Consumer Expenditure Survey since 2001, thus the analysis cannot be made since 2000 like was the case with disposable income and automobile expenditures in the previous section.

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cohort in 2010. The increase over the decade was between 0.3 and 0.6 percentage points, with the largest increase in the younger cohort.

Despite this threefold increase in cellphone expenditures, industry forecasts predict continued growth at a fast pace. By the end of 2011, 8 percent of all Internet traffic in the US went through mobile devices (smartphones and tablets), with more than 50 percent of cell phone owners consuming mobile media in their device, the first time in history that threshold had been crossed. Smartphones, which are normally more expensive and entail more expenditure¹⁹ for their use than “traditional” cellular phones, represent since mid-2011 the majority of new cellular phones sold in the United States (ComScore, 2012). Cisco (2012) predicts that mobile data usage in North America²⁰ will, in 2016, be 16 times higher than in 2011, and such an exponential growth will mean more people connected during longer periods of time.

CONCLUSION

What these findings in automobile usage and expenditure in America, combined with the ever increasing “digitalization” of the lives of younger Americans will mean for the future is difficult to assess at this point: will the smartphone displace the automobile? Will automobile usage return to have high levels of growth? If not, what will that mean in terms of infrastructure needs, capacity and investment, land use, etc.? Further research will be needed to assess the true impact of these findings.

Clearly, auto expenditures remain an order of magnitude greater than cell phone expenditures, but have declined steadily over the period, at the same time as cell phone expenditures have increased. Given the different order of magnitude of these two expenditure categories, it may be farfetched to suggest that expenditures on cell phones are displacing expenditures on automobiles. On the other hand, the rise in cell phone expenditures has been much steeper. Naturally, the future is inherently uncertain. When these young people get older, start forming families and having children, they may behave the same way their parents did, moving to the suburbs and relying more on automobiles. More in-depth research is certainly needed on these issues. But so far, data and anecdotal evidence presented in this paper²¹ suggest that many younger people may not regard the automobile as much as a lifestyle indicator as they used to and may look at it from a more utilitarian point-of-view, as a means to provide transportation and

¹⁹ Namely because besides voice and texting, smartphones users also use data services on their phones, which are not free.

²⁰ This is a figure for Canada and the US, since this report does not desegregate the data.

²¹ One aspect that this paper did not analyze was the presence of this topic in the news media, but many articles (see Belson (2012) and Chozick (2012), just to name two examples) have been released in the last few years that present many of the issues discussed in this paper. For a more global view see The Economist (2012).

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mobility, and start using it at older ages, using it less than previous generations, and spending less money on it.

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