



Zero Car Growth

A Challenge for Transport Justice

Discussion Paper

181
Roundtable

David King
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Tempe

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Zero car growth: A challenge for transport justice

The US economy is largely oriented around automobile access for households. This carries high costs for people who own and maintain cars, as participation in the economy requires access to automobiles in most places. Recent experience caused many to question this, however. In many western countries there was a decline in vehicle kilometres travelled (VKT) in the years around the Great Recession. Concurrent with this, a new, large generation of millennials came of driving age, smart phones became ubiquitous, and the urban revival that started in the 1990s accelerated. These concurrent trends led many observers to declare that we had reached “peak car” and that consumer preferences had permanently changed toward less driving (see Zhong and Lee, 2017). Yet after the recession, driving began to increase again, and the likely explanation for a decline in VKT was economic (e.g. Blumenberg et al., 2016; Manville et al., 2017). The driving downturn was also not offset by any substantial increase in transit use or other modal substitutes.

Moreover, despite the high costs of ownership, lower income households are on average better off for such household spending. Using the United States’ Panel Study of Income Dynamics, Smart and Klein show that car access is strongly correlated with stable employment, retaining employment and higher earnings (Smart and Klein, 2018). The same study does find evidence that in places with very high levels of transit service, people without cars can succeed economically on par with auto owners. The constraint on this latter point is there are relatively few places in the United States that qualify as having high levels of transit service, and in most US metro areas, job access is much higher by auto than transit (Blumenberg and Ong, 2001; Borowski et al., 2018; Grengs, 2010; Taylor and Ong, 1995). The United States fares far worse in this regard than other countries, in that auto access nearly always provides better employment opportunities and US cities offer far fewer opportunities to those without cars than cities in other countries (Kawabata and Shen, 2006). Any turn toward environmentally-sustainable transport needs to address this auto orientation of metropolitan economies, and recognise that while reduction in car ownership and usage may be environmentally desirable, such a reduction will be economically harmful to many households, in particular lower-income households.

The paper is organised into four sections. Firstly, the ingrained auto dependence in the United States is discussed. Secondly, characteristics of auto access, income and spatial structure are presented. Thirdly, programs and interventions to improve transport access for the disadvantaged are shown. Fourthly, social concerns about automobility beyond environmental concerns are examined in the context of transport justice. These sections are followed by concluding remarks.

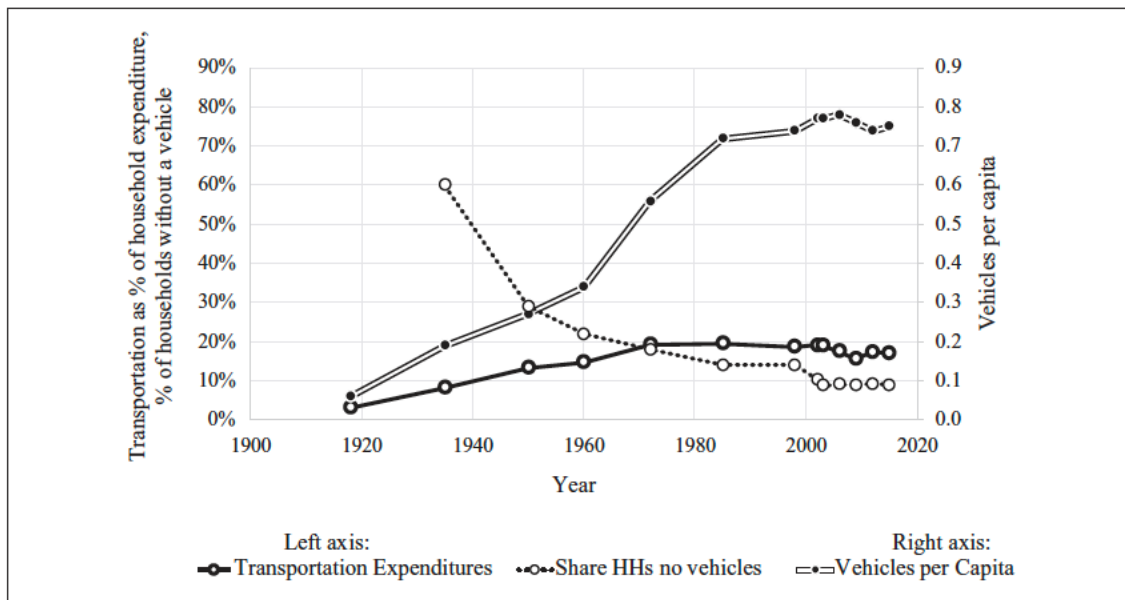
Ingrained auto dependence

Households that do not have access to reliable transport are more likely to live in poverty, and remain in poverty as they have limited economic opportunities. This relationship is getting worse over time. Between 1969 and 2013, average US household income for households with cars rose 20%. During the same period,

households without cars declined by 34% (King et al., 2019). The ability of households to live easily without cars has declined at the same time. A recent study shows that by 2010 only five percent of Census tracts saw solo driving as less than half of total trips (Voulgaris et al., 2017). Suburban sprawl has been the norm in the United States for the post-World War Two era and, over the past 30 years, specialisation within the real estate industry has contributed to most new construction now comprised of a single use—such as detached housing, office parks or shopping malls. Construction of real estate for a single use contributes to the need for people to drive to places that once were an easy walk within their neighbourhoods.

The roots of auto dependence go back further than post-war suburbanisation and the Interstates. Figure 1 shows US household transport expenditures and vehicle ownership dating to 1918. While the trend to ubiquitous automobility accelerated after 1960, the trend for more cars had already started decades prior. Since the mid-1980s, the share of households without cars and the number of cars per capita have remained fairly constant, which suggests that the automobility system has reached saturation. Despite billions spent on mass transit over the past 30 years, there has not been much of a mode shift at all, with transit ridership per capita roughly where it was in the 1970s (King, Smart and Manville, 2019). This is less an indictment of transit planning and operations and more of one against cheap driving. As transit systems have expanded, free roads and parking have expanded more as they remain politically popular.

Figure 1. Household Transport Expenditures and Vehicle Ownership



Source: King, Manville and Smart (2019).

The interstate system, which deserves praise and blame for its contribution to the US economy, officially started in 1956. While current era planners think of the Interstates as grievous wounds to US cities, at the time they were constructed they enjoyed widespread support. It was after the destruction of urban neighbourhoods that the public started to turn against new motorways (Mohl, 2004), though the slowdown in Interstate growth was more about fiscal constraints than public outrage (Taylor, 1995). In the intervening years, Americans have maintained their enthusiasm for roadway expansion. Although in recent years some states have looked to road tolls to pay for facilities, most remain free to use.

The American commitment to road expansion, combined with commitments to generous parking requirements (Shoup, 2017), means that American cities are dominated by driving and auto infrastructure. In the Phoenix, Arizona region, 36% of land is either road or parking space (Hoehne et al., 2019). This amount of infrastructure not only aids driving, but makes all other mode more difficult. Wide roads and expansive lots create more space between buildings, which limits walking. More driving contributes to global climate emissions. Asphalt also increases urban heat effects, which is something Phoenix can scarcely afford. Phoenix is a good example of the conundrum of driving reductions, however, as despite the harm caused by autos both globally and locally, Phoenix has developed with automobiles as the primary mode of transit. In 1950, the region has about 375 000 people, and the city of Phoenix had just over 100 000. In 2019, the region had 4.3 million and Phoenix had about 1.5 million. Of the areas that developed prior to ubiquitous automobility, they are a small fraction of the overall region. As infrastructure and the built environment is durable, the large majority of the region will remain auto-oriented into the foreseeable future. A sustainable Phoenix requires a personal vehicle solution, preferably electric. The region is not unique in this regard.

Transport and income

Many transit advocates argue that driving creates a severe burden for low-income people and households. The American Public Transit Association estimates that cars cost an average household close to USD 10 000 (roughly EUR 9 300) annually. While this figure is dramatically inflated, the point remains that owning and operating a car is expensive. Most of these costs, however, are from the ownership of cars more than their operation as the upfront costs of buying a car are high and rising. Car companies in the United States are de facto finance companies with manufacturing businesses, and auto loans of seven years or more are now common as a way to reduce monthly costs. Yet cars last longer now, as the average age of a car in the United States is now over 11 years.

Beyond monthly finance and insurance payments, driving is quite cheap in the United States: for most people the only marginal cost of driving is gasoline (insurance is a fixed cost). Parking is generally free and, in most places (at least in the United States) road tolls are rare. Once a household has a car, the marginal cost of driving, meaning the daily out of pocket costs, is usually less than round trip transit fares. Obviously, one cannot ignore the costs of buying and insuring vehicles, which increase the average cost of driving trips, but by examining the marginal costs of using a car it is clear why cars are attractive to lower-income households.

Jobs, housing and transport mismatches

Transit systems in the United States are generally oriented around access to central business districts and downtowns. This concentration of service has supported areas near employment centres, where cars are not critical to maintain employment. As such, central cities have had larger shares of lower-income households because of the public transit access provided near city centre cores (Glaeser et al., 2008). These characteristics are changing with the continued suburbanisation of employment. As jobs sprawl, the

United States has seen the concurrent suburbanisation of poverty (Raphael and Stoll, 2010). Moreover, job sprawl has disproportionately affected lower-wage and hourly work, where higher-wage employment that requires more education tends to gravitate while growth in retail, manufacturing and many lower-skill services have dispersed.

These lower-income workers suffer from both spatial mismatches, where jobs and housing are dispersed, and transport mismatches (e.g. Ong and Miller, 2005), where the available transit service do not suit their needs and they are burdened either with very long commutes or the cost of owning and operating a vehicle. The jobs-housing mismatch and transport mismatch are related, but sufficiently different that they should be considered separately. There are different policy implications from each. One aspect of the jobs-housing mismatch that is vexing is that matching households with employment is nearly impossible to get right and all too easy to get wrong.

The jobs-housing balance as a planning concept matches workers to jobs in a constrained area, and sets up short and predictable commutes, which can be served by alternatives to driving. One challenge to this concept in practice is that job tenure and housing tenure are different. Younger workers tend to switch jobs and homes more frequently than older workers, but on average all workers tend to switch employment more frequently than they switch home addresses. This puts the jobs-housing balance out of phase based on expected tenures. Another challenge is that many households have multiple workers.

In the short term, there is little to do to improve the transport mismatch beyond improved auto access. New transit services take years to develop, whether bus services or new rail systems. Reordering the spatial distribution of employment is even more precarious. Cities compete using economic development subsidies to attract businesses to specific places and jurisdictions, but this competition is often inefficient and subverts regional co-operation (Feiock et al., 2009; Johnson and Neiman, 2004). Economic development policy is critical for developing regions that support car-free living, by developing new markets for walkable and transit-oriented communities.

In the long term, building more walkable and transit-oriented communities is expected to reduce driving and the need for cars. Yet when transit-oriented development (TOD) is built, the results are mixed at best (Chatman, 2013; Joh et al., 2008). The fact that transit-oriented developments continue to require parking spaces, which leads to TODs being over-parked, explains these results (Cervero et al., 2010). In consequence, many people continue to drive. The walkable aspects of TOD promote walking, but the transit aspects are not obviously a central draw to these developments. It is possible that the relatively poor performance of American TODs is related to their scarcity, however. Transit-oriented developments are nodes on a transit network, and the success of drawing people from their cars may rest on being able to develop a sufficient number of links so that the network offers enough variety of employment opportunities and daily destinations to satisfy consumer preferences.

For low-income workers, network designs concentrated on central business districts offer poor service to lower-wage employment that is more regionally dispersed (see Raphael and Stoll (2010) for a discussion of job sprawl). Suburban transit systems do not necessarily serve suburban shopping centres very well. This is either because the bus route has to divert through a parking lot to the shopping centre's doors, which takes time from route service, or because the route does not deviate and riders are left on an arterial intersection and have to cross high-speed roads to access where they need to go. Beyond suburban routing problems, transit service is oriented to morning and evening rush hour commutes which does not well serve workers who work evenings and weekends (Clifton and Lucas, 2004). Suburban retail and service employment has such characteristics.

Overall, US regions are mostly suburban in character and, despite some well-publicised increases in central city living, continue to sprawl for employment and residential growth. Even if all new growth were

captured in compact development, the existing stock of infrastructure and built environment suggests that spatial and transport mismatches that exist today will extend through the next few decades, at a minimum.

Welfare programmes, employment and transport

Public subsidy programs in the United States do not prioritise transport in ways that promote transport access to opportunities (Wachs, 2010). Access to a vehicle is one part of these programs. Studies of welfare recipients have shown that auto access improves employment outcomes (Ong and Blumenberg, 1999; Ong, 2002). In Ong's 2002 study, he used data from female heads of households who received welfare benefits to examine employment outcomes. The study was timely in that the US government in 1996 introduced new work requirements for welfare recipients and set a cap on the total benefits one could receive over time. The intent was to incentivize employment. Ong showed that within the sample, those who owned cars had a 12-percentage point increase in the odds of being employed than those who did not have a private auto. Despite this and other evidence that auto-access improves outcomes for recipients of public assistance, programs do not allow for auto subsidies, and car access is largely viewed as a luxury rather than a necessary utility like heat or water. As this paper was being prepared, the US Administration introduced new rules for food stamp eligibility, and tightened asset value requirements. Previously, households would be eligible for assistance if they met certain requirements including not having a vehicle valued more than USD 4 650 (Zedlewski and Rader, 2005). The new rules reduce allowable vehicle value to under USD 2 500. The result is many families will lose assistance.

Another study shows that lack of car access in childhood carries harm through adulthood and contributes to intergenerational inequities (Ralph, 2018). What she examined is not just whether a family had a car at all times, but how access to reliable transport varied throughout time. When households build their lives based on access to cars, then lose that access due to repairs or other conditions, they may not have alternatives. A study of carless households in California found that, overall, carless households tended to have lower incomes, less education (which is correlated with income) and live in denser places with more land use diversity (Mitra and Saphores, 2017). However, the voluntary and involuntary carless had divergent living conditions, where the involuntary carless lived in less walkable and less diverse places with worse transit coverage. This latter group—the involuntary carless—end up living in places where the rents are cheaper because access is worse. This is one explanation for the suburbanisation of poverty seen in the United States.

What do the transport vulnerable do when they lose a car?

Many studies have examined what happens to people once they lose car access. Lower income households in particular transition in and out of car access more frequently than households with higher incomes (Klein and Smart, 2017; Smart and Klein, 2018). Limited reasonable options beyond driving is a cause of transport vulnerability. If options were available, people of all incomes would use them, yet this is not what the evidence shows for US households.

Many households are transport vulnerable in that they usually have access to a car, but occasionally lose it due to unexpected circumstance. When households orient their lives around auto-access, they are often in a poor position to find reasonable substitutes when that access is lost. In the United States, people often turn to the online platform GoFundMe.com to ask friends, family and strangers to contribute money to help with personal troubles. The most common use of GoFundMe is to raise money for medical expenses (even for the insured, unexpected medical care in the United States can be expensive). Transport is a growing area of requests. A recent study of why GoFundMe requesters needed support queried 325 requests for transport assistance. Most common requests were for money to help with car access because of crash damage or unexpected repairs (Klein et al., 2020). The people who needed assistance wanted to replace their car rather than gain a substitute such as transit passes. Obviously, these requests may only come from people who do not have alternatives, so households who are able to use transit or friends' help when their car breaks down may never ask for help. However, the fact is that many people who rely on cars are transport vulnerable, as they do not have good options if their cars break or are taken away for whatever reason. The Klein et al. (2020) study found that as people asked for help with financing automobiles or repairs, they highlighted that they deserved a car in order to get to work and school and to take care of their families. This borrows from the deservedness line of argument used in welfare programs, and treats auto access as something other than required, even for those who are asking for help from anyone who might give it.

Just as important is the reliability of the vehicle, as it is for transport options overall (Klein, 2020). Buying used vehicles for families just to have the cars break down does little to help economically. Transport reliability leads to concerns about transport resilience and vulnerability. Looking ahead at threats due to a changing climate, transport access is a key component to community resilience. The gravest examples of transport vulnerability are during catastrophic events that require evacuation. New Orleans, Louisiana was struck by Hurricane Katrina in 2005, which flooded the poorest parts of the city. Many of the people affected did not have cars, either due to cost or because they were not fit for driving, and were stuck in dangerous conditions. Hurricanes and flooding have affected many other areas in the years since. With a changing climate, evacuation planning and resilience will become bigger concerns. At the same time, officials will have to make difficult decisions about infrastructure preservation and repair as seas rise, flooding worsens and other effects of climate change damages roads, bridges and tunnels.

Conclusions

If one accepts that the built environment is deterministic in affecting travel choices, then transitions away from automobility will be difficult, and for many they will be economically harmful. This paper described employment and income effects associated with auto access in the United States. Overall, while auto reductions are socially desirable for environmental reasons among others, there are many people and households which would be made economically better off through expanded auto access and ownership. The spatial structure of US regions favour auto access for employment, and decades of the suburbanising of jobs and housing continues. Certainly, decision-makers should consider policies to stem such trends, but even if a turn to infill development is successful, the existing built environment will continue to be deterministic with regard to travel choices.

The evidence from transit-oriented development does not offer a clear picture that such an approach will be widely successful at reducing car use and this paper does not discuss the affordability and equity concerns with such development. There have been subtle changes in travel trends in the United States, but overall little has changed in terms of household transport budgets, mode share and auto-dominance since the 1980s. It is easy to underestimate the size of the task ahead. Automobile dependence is a common condition. The dependence aspect is the critical part. A transition to sustainable transport systems will not be truly sustainable if such a transition either produces economic harm or exacerbates existing harm caused by lack of reliable transport access.

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Zero Car Growth

A Challenge for Transport Justice

This paper discusses the challenges to transport justice in the context of zero-car-growth policies. It analyses the car-dependence created by sprawling cities that necessitate access to automobiles if citizens want to fully participate in the economy, maintain social connections and achieve a desirable quality of life. It specifically highlights the complications this presents for cities in their efforts towards environmental, equity and economic goals largely achieved through reduced car use.

All resources from the Roundtable on Zero Car Growth? Managing Urban Traffic are available at: www.itf-oecd.org/zero-car-growth-managing-urban-traffic-roundtable.