

The Conceptual Mismatch: A Qualitative Analysis of Transportation Costs and Stressors for Low-Income Adults

Abstract

Research on transportation and low-income groups has often focused on job accessibility and modeled travel times. Such models disconnect transportation from the more comprehensive social goal of enhancing well-being and fail to account for the full stress and time costs that low-income populations may face. To examine the actual, lived experiences of low-income adults, we conducted 52 interviews in two medium-sized metropolitan areas. Results show that low-income travelers have time costs beyond what is modeled, that low-income populations face stressors, like uncertain and unstable transportation, and that the dynamics of ride giving may strain social relations. In conclusion, we argue that placing transportation within the life experiences of low-income adults is critical for understanding how transportation could support or undermine health and well-being.

Key words

Accessibility, low-income, well-being, health

Introduction

Research on transportation and low-income populations has often focused on job accessibility and modeled travel times. Such studies have responded to the supposed spatial mismatch between urban low-income residents and suburban entry-level jobs (Kain, 1968). More recently, researchers have identified an automobile-ownership/modal mismatch for reaching jobs (e.g., Grengs, 2010). Meanwhile, policy-makers and researchers looking at the affordable housing and transportation nexus have typically considered access to opportunity, relying on quantitative measures and secondary data.

Awash in the metrics made possible through Big Data and building on narrowly focused models of travel time, transportation research on low-income populations could fail to uncover the complex role of transportation stressors and costs for low-income adults, costs that may have impacts for health and well-being. Thus, temporal models of access may suffer at least a partial conceptual mismatch. Instead of considering access to opportunity sites—be they employment, education, or healthy food stores—as the goal of transportation, we conceive of transportation playing a role in overall health and well-being, drawing on recent work in well-being and transportation. With this broader notion of how transportation fits into health and well-being, we examine the actual, lived experiences of adults in two medium-sized metropolitan areas to understand how transportation can levy additional time costs and function as a stressor in the lives of low-income adults. Results show that low-income travelers may face time costs beyond what is modeled, that low-income populations face challenges due to uncertain and unstable transportation, and that the dynamics of ride giving may strain social relations. We propose how these transportation challenges could have health and well-being implications and argue that placing

transportation within the life experience of low-income households is critical for understanding when and how transportation supports or stresses well-being.

Moving beyond the Spatial Mismatch to Well-being

Much of the knowledge about low-income individuals and transportation has focused on access to employment. Decades ago, Kain (1968) coined the term spatial mismatch to describe the distance between the central city residential location of black urbanities and the growing number of entry-level suburban jobs. Contemporary studies typically consider not simply linear distance, but estimated travel times between concentrations of low-income populations and entry-level employment (e.g., Hess, 2005), and some research has shown that job accessibility is actually higher for central city locations (Hess, 2005; Hu, 2015). Transportation agencies sometimes model the number of jobs accessible, via automobile or mass transit, using regional travel models (e.g., CTPS, 2009; MTC, 2009). Web-based interactive mapping tools (e.g., the Environmental Protection Agency's Smart Location Database) now provide internet users with similar job access data by geographic units.

More recently, researchers have pointed to a modal, not merely spatial, mismatch for low-income individuals trying to reach job sites. Studies show that access to a personal vehicle, typically more than location within a metropolitan area, greatly expands the number of jobs sites reachable within a specified travel time window (Grengs, 2010; Kawabata & Shen, 2007). Still, these studies treat accessibility as something primarily determined by mode availability and travel time, but not tied to workplace scheduling demands or the life circumstances of low-income populations.

These studies may face several conceptual mismatches with the social ends of transportation; they may not accurately capture travel time costs nor connect transportation to higher order social goals like well-being. First, standard models likely underestimate travel time costs, as they indicate

one abstracted travel cost—time—under ideal conditions without uncovering the other costs and stressors experienced by low-income individuals who may face challenges along multiple dimensions—in housing, employment, public safety, physical health, built environment, social engagement, and economic self-sufficiency. Standard models fail to reflect coupling constraints, work schedule requirements, and personal and family obligations. There also may be extensive coordination time required for *planning* travel for low-income populations, as Clifton (2004) found in a study on grocery shopping and transportation among low-income populations. Some disaggregated models of individualized potential path areas do demonstrate that given individual constraints, spatial accessibility as lived is more complex than travel-time-based counts of potential jobs from a particular geographic unit (see Kwan & Weber, 2008; Weber & Kwan, 2002).

While transportation's relationship to access to employment or other activities remains an important subject of study, a nascent body of literature places transportation in a larger context by examining transportation and transportation disadvantage as related to social exclusion and well-being. Such studies illuminate a second conceptual mismatch of travel time accessibility studies—they can remain disconnected from ultimate social goals like social inclusion and well-being, even as access to employment can be a *means* to addressing social goals.

Over the last decade, several studies have focused on the relationship between transportation and social exclusion. While transportation studies do not reflect a consensus definition (Delbosc & Currie, 2011; Lucas, 2012b; Preston & Rajé, 2007), social exclusion generally refers to deprivation and a decreased ability to participate in society, across multiple spheres from the economic to the social and political. Lucas (2012b, 106) describes social exclusion as "a more multidimensional, multilayered and dynamic concept of deprivation" than poverty, even as living in relative poverty can be one type of social exclusion. Conceptualizations of social exclusion

identify how factors related to individuals, institutions, and broader structures can all contribute to an individual's experience of exclusion and also that exclusion is defined relative to normal social inclusion. Based on a United Kingdom Department of Transportation's Social Exclusion Unit study, transport is linked to social exclusion, with negative impacts on health, education, employment, and neighborhood conditions (Lucas, 2012b, p. 105). Indeed, travel that would support social inclusion may be suppressed due to transportation challenges. For example, Rajé (2007) studied the lived experiences of transit use and identified multiple barrier types that result in suppression of travel or that make travel difficult. Even as transportation accessibility thus shows a link to social exclusion, it is only one piece of the puzzle that leads to the exclusion of groups and individuals from social activities (Lucas, 2012a).

Potentially even more comprehensive than social exclusion, some transportation researchers have identified well-being as the higher order goal for transportation systems. Not surprisingly, measurements and definitions of well-being are contested across researchers and disciplines. For example, economists would typically define well-being as maximizing preference satisfaction, while the World Health Organization would turn to its concept "of health as a state of complete physical, mental and social well-being" (Nordbakke & Schwanen, 2014, 114). Thus, Nordbakke and Schwanen (2014) classify well-being concepts along three dimensions: subjective or objective, hedonic or eudaimonic, and universalist or contextualist.

First, "The subjective stance holds that an individual's perceptions and experiences are the foundation for how well s/he lives. In contrast, in the objective perspective, well-being is established from the evaluation of the 'objective' circumstances in which people live, given (inherently normative) criteria based on values, goals or objectives" (Nordbakke & Schwanen, 107). Individual reporting of one's subjective experiences and perceptions are thus the basis of subjective evaluation

of well-being, while empirically based indicators—e.g., living above the poverty level, adequate housing, access to health care, etc.—are used to evaluate objective well-being. Second, hedonic notions of well-being focus on preference satisfaction and positive (e.g., happiness) and negative affect in the short and long-term. On the other hand, eudaimonic notions of well-being are more tied to meaning, purpose, and human flourishing. Third, universalist notions of well-being would assume that the same criteria (the same self-reported measurements even if for subjectively reported perceptions) would apply across time and cultural milieus, whereas contextualist notions posit “that well-being cannot be understood as independent of geographical context and culture” (Nordbakke & Schwanen, 2014, 108). For example, describing a contextualist notion of well-being, Raerino (2013) argues that standard measures may not capture all of the interplay between well-being and transportation for indigenous population:

While the evidence about social, health and environmental inequities for indigenous populations suggest that generic concepts of transport disadvantage or exclusion have relevance for indigenous well-being, such concepts may be inadequate for describing the relationship between transport at and indigenous well-being. Disenfranchisement from traditional lands, language and culture through colonization is likely to add a particular dimension to transport and well-being (Raerino, 2013, 54).

While Nordbakke and Schwanen (2014) discuss at least 10 conceptualizations of well-being that differ along these three dimensions, Reardon and Abdallah (2013) focus on four main concepts of well-being: preference satisfaction, an objective list, subjective well-being, and eudaimonic well-being. They propose a synthetic framework “with the psychological experience of well-being at its heart” (Reardon & Abdallah, 2013, 637). Their framework combines subjective elements from the hedonic approach—feeling good—and the eudaimonic approach—flourishing—and shows interactions with “external conditions such as employment, family life, and physical health” (637). Using their framework, they identify how transportation could have positive or negative well-being impacts via the economy, environment, social relationships and individual responses to travel—

considering the journey of travel, not just travel as a derived demand that gets the traveler to her activity site. For example, transportation may impact well-being directly by fostering subjective flourishing—a sense of autonomy and freedom to travel—or indirectly by facilitating access to key activities that in turn are critical for enhancing subjective well-being.

Several empirical transportation studies on transportation have adopted subjective conceptualizations of well-being, based on individual perceptions of one's well-being. Vella-Brodrick and Stanley (2013) utilize self-reported measures but differentiate and link subjective feeling good (hedonic well-being in Nordbakke and Schwanen's schema) from psychological well-being, a (subjective) eudaimonic concept. Their concept of psychological well-being identifies three psychological needs for well-being: relatedness to others, autonomy, and environmental mastery or competence. They find transportation can support some psychological well-being needs, including environmental mastery and positive relations with others, which in turn are correlated with what they call subjective well-being (feeling good). They do not identify a direct relationship between transportation and hedonic, subjective experiences of good feeling. Regardless, they suggest the public goods role of transportation is in part to support access to activities but also to support psychological needs for fulfillment:

Transport is recognized as a derived demand which enables essential activities to be achieved (e.g., purchasing of goods, travel to employment, leisure pursuits). However, these findings suggest the ability to be transport mobile provides additional value in terms of assisting individuals to broaden and build on essential life dimensions which give life meaning and purpose and enable psychological needs to be met. Thus, transport mobility should be viewed as a vital public good along with shelter, health, education and safety, the provision of which facilitates a well-functioning and cohesive society. (Vella-Brodrick & Stanley, 2013, 242)

Because these social benefits are not included in transportation evaluations, they suggest these benefits are undercounted.

Instead of a mediated relationship, Delbosc and Currie (2011) show some direct relationship between well-being and transportation. They also utilize a subjective approach to well-being and focus on life satisfaction across realms from health and standard of living to personal relationships and safety. Their aim is to understand how social exclusion and transportation disadvantage impact well-being. The categories of social exclusion used are: level of income, political engagement, participation, social support and employment. The self-rated metrics of transport disadvantage are transit disadvantage, general transport disadvantage (inability to get places easily), vulnerability, and relying on others. Generally, they found social exclusion had a more significant impact on subjective well-being than transport disadvantage, but those who were transport disadvantaged had lower well-being than those who were neither socially excluded nor transportation disadvantaged. Those who were both unemployed and experienced transport disadvantage reported the lowest well-being scores. Among the different aspects of transport disadvantage, they found the strongest (negative) relationship between well-being and relying on others for transport. Interestingly, this aspect of transport disadvantage would mean limited autonomy, an aspect of psychological well-being discussed by Vella-Broderick and Stanley (2013).

We see a role both for objective and subjective conceptualizations of well-being, despite the focus on subjective well-being in empirical transportation studies. We follow Nordbakke and Schwanen's (2014) assertion of a continued value to incorporating objective measures in part because objective measures can identify populations that need policy invention. Furthermore, some common objective well-being elements (which Delbosc (2012) argues are quality of life measurements) are critical for subjectively experienced well-being, specifically "unemployment/poverty, meaningful social relationships and health" (Delbosc, 2012, 27). Reardon and Abdullah's (2013) diagram of a synthesis concept further reflects these "external" factors.

Health is relevant for both subjective and objective concepts of well-being, as it either is a component of well-being (in most objective well-being definitions) or a factor substantially impacting subjective experiences of well-being. Extensive literature documents health disparities by race and income (e.g., Adler & Newman, 2002; Adler & Rehkopf, 2008; Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010). While the pathways and intermediate variables tying stress to health disparities are still objects of study, extensive literature posits that chronic stress significantly contributes to health disparities through cumulative physiological wear and tear as individuals cope with stress and change (e.g., Beckie, 2012; Carlson & Chamberlain, 2005; Seeman, Epel, Gruenewald, Karlamangia, & McEwen, 2010).

Given the importance of health for well-being, coupled with the reality of health disparities, we reconceptualize the study of transportation and low-income populations in terms of how transportation could create unaccounted for stress and challenges for psychological well-being among low-income populations. We examine the lived circumstances for low-income adults, following Rajé's (2007, 68) call for "methodologies [that] better reflect the lived experience of difficult and suppressed journeys". Our qualitative analysis uncovers transportation stressors beyond abstracted travel time and thereby provides insight into a more complex, nuanced role—beyond simply precluding or enabling access—that transportation plays in the lives of low-income adults. We identify time costs, discuss stressors from unreliable or unstable transportation, and show that ride giving and receiving can cause social strains. Given the value of different well-being frameworks, we adopt an inductive qualitative analytic approach and use the findings to identify elements of well-being that are particularly salient for understanding the experiences of low-income populations.

Methods and Participants

To examine the lived context for transportation, we collected data through interviews with low-income adults (n=52). Our goal was to identify elements that could have possible well-being implications rather than prove the causal chain. Five pilot interviews were conducted in 2013 to test the interview instrument, and the remainder were conducted in 2014. Interviews were structured, but the process was not standardized to allow for follow up questions. The interview instrument included closed and open-ended questions that solicited respondent perspectives on the advantages and disadvantages of car ownership, how respondents traveled to work, grocery shopping, social visits, and other locations, how stressful such travel was, whether interviewees had been late to work because of transportation and related implications, whether respondents gave or received rides from others, and ideas for improving interviewee travel as well as travel for low-income households more broadly.

To be eligible, participants had to be over 18, live in one of the two selected metropolitan areas, and have an annual household income under \$25,000 (approximately 50% of area median household income). We selected two metropolitan areas with populations between 250,000 and 1 million residents (Lafayette and Baton Rouge, Louisiana) (See Table 1 for metropolitan and city demographic data). Transit service in both metropolitan areas is not robust. Baton Rouge ranks 82nd among the largest 100 US metropolitan areas in terms of transit access to jobs (Tomer, Kneebone, Puentes, & Berube, 2011). In 2013, the transit agency provided 184,511 vehicle revenue hours (Federal Transit Administration, 2014). The service area for the Baton Rouge transit provider is smaller than the metropolitan statistical area as a whole; it covers 273 square miles with a population of 388,542 (Federal Transit Administration, 2014). Revenue hours per (service area) resident are similar in the two metropolitan areas (.47 hours per resident in Baton Rouge and .46 hours per resident in Lafayette), although there are many more hours of service in Baton Rouge.

	Baton Rouge, LA	Lafayette, LA	BR MSA	Lafayette MSA
Population	229,405	124,282	820,159	479,116
Black (not Latino)	55.3%	32.0%	35.6%	24.8%
White (not Latino)	35.7%	59.2%	57.4%	68.4%
Asian (not Latino)	4.7%	3.3%	2.2%	1.6%
Latino (any race)	2.7%	4.5%	3.6%	3.5%
Poverty (individuals)	28.0%	17.7%	18.7%	16.4%
Under 18	37.0%	24.4%	24.4%	22.3%
Total workers	99,043	62,061	369,367	217,364
Drove alone	77.3%	81.7%	84.5%	83.7%
Carpooled	10.8%	8.8%	9.4%	9.6%
Public transportation	3.8%	0.8%	1.2%	0.4%
Walked	3.0%	2.3%	1.3%	1.8%
Other means	1.8%	3.3%	1.0%	2.2%
Households	88,748	48,569	301,385	178,778
No vehicle	10,015	4,417	19,845	14,708
Percent no vehicle	11%	9%	7%	8%

Table 1: Selected demographic and commuting characteristics for selected cities and metropolitan statistical areas (MSAs) (2013 ACS 1-yr estimates)

Interviewees were selected on a first come, first serve basis, and each participant received a \$25 cash stipend. To recruit participants, we contacted community development organizations, food banks, mass transit systems, affordable housing organizations, homeless shelters, and community centers in both metros and asked them to post a flyer containing information about the study. In Lafayette, the interviews were conducted in a conference room at the main bus terminal, which also houses an office for the Department of Transportation and a post office branch. Of the 25 post-pilot interviews in Lafayette, three were scheduled (one from craigslist.com), and the rest were walk-ins. In Baton Rouge, interviews were conducted in a library, a community center, and a homeless

one-stop service center. Many of Baton Rouge interviews were scheduled in advance, but four walk-ins occurred at a library branch, and eight interviews were conducted at the one-stop homeless shelter.

Participants were evenly split between male and female respondents. We had a high share of very low-income and minority respondents (see Tables 2 and 3), as well as individuals residing in households with no available vehicle (58%). Given our target group of low-income individuals, we had an appropriate sample and some diversity within the interviewee pool. The interviews were audio recorded and transcribed modified verbatim. To analyze the transcript data, we used Nvivo, a qualitative data analysis software program. The authors reviewed transcripts and created an inductive code list, a common approach for qualitative data analysis (Merriam, 2009). After the authors coded the same three interviews and compared for consistency and for emergent codes, the coding was divided between the authors. In the following sections, interviewee numbers are indicated, as the numbers reflect the interviewee’s metropolitan area (“L” indicates a Lafayette metropolitan area respondent and “B” indicates a Baton Rouge area respondent).

Race	Count
Unidentified	1
African-American/Black	36
Biracial	2
Latino	3
White	10

Table 2: Participants by race

Income	Count
Under \$4,999	13
\$5,000-\$9,999	12
\$10,000-\$15,000	9
\$15,000-\$19,999	5
\$20,000-\$25,000	3
More than \$25,000	1

Table 3: Participants by income

Findings

Time Costs

One missing factor in modeled travel times is the challenges of coordinating workplace schedules, especially in metropolitan areas where transit service is infrequent. The interviewees gave insight into how bus and work scheduling affects the feasibility of job opportunities and overall stress. In Lafayette, where bus service is relatively minimal, interviewees reported excessive amounts of travel time or time spent waiting for a work shift to begin.

Well, it depends. On no problems it takes an hour [to get to work]. They got a problem it takes longer, about 2 hours, 3 hours. (53BK)

I'd catch the 5 o'clock bus be home. If I got off at 4 sometimes I'd be home at 5. If I missed the bus I had to wait so catch the 5 o'clock bus and be home by 6. (68LK)

I used to have to get up at 3:30 in the morning, to walk for an hour and then catch the bus for [at] 5:15, it would have me to my job for 6 o'clock. (13BP)

One interviewee explained how his travel time and mode depended on his variable schedule. When scheduled to start at a fast-food job at 11 am, this part-time worker would leave at 9 am, take the bus, and arrive at work about an hour early to ensure he was on time for his shift. When expected to start work at 7 am instead, he had to walk for nearly an hour to catch an early bus to arrive at work on time or a minute or two late:

I would usually leave my house early in the morning and walk and get to downtown right here and catch the bus to work...I'd leave my house at 5 o'clock in the morning...it took me about 45 minutes. [Walking] I'd be there [main bus terminal] between almost 6 o'clock...and the bus leaves here [main bus terminal] at 6:30 and I'd be there before 7 or a minute after 7. (68LK)

Some participants arrive at work 30 to 60 minutes early to ensure they can clock in on time without feeling rushed.

Because there are two buses I can catch. The five [5 am] one I get there and I have a little time to relax before I clock in. The other one I'm pushing it just to get there within ten minutes to clock in. (18BP)

Getting off work late can make one miss a bus and have to wait around an hour for the next bus.

Not only are taxis expensive, they often have an associated wait and onerous travel time, especially in Lafayette where taxi drivers sometimes carry multiple passengers headed to multiple destinations (like a paratransit van).

I just recently got a job offered...all the way across the city from me; and last week I missed my orientation because I didn't have an on-time ride to get there, and by the grace of God [they called] me for tomorrow, so I have to get on the bus an hour earlier to get there. But that's going to be a hard thing to do, getting back-and-forth, to go back and forth all the way to...I would be leaving around three [to get to work for 6 or 7 pm]...Because it takes me forever to get there...I'll probably arrive about 30 minutes before work...[I'll get off] anywhere between 11 and midnight... [To get home] I'll probably be taking a taxi, which will make me arrive around one or two [in the morning]. (22LP)

Stress and Uncertainty with Changing Transportation Availability

A major stressor and issue of concern for many interviewees was the need to adapt for limited reliability and schedule gaps in bus transit service. Interviewees expressed concerns about depending on buses because of their unreliability. More specifically, relying on the bus can mean that it is difficult for workers to be on time to punch in at work. One interviewee from Lafayette explained, "So I can't really say I'm going to be to work at a certain time, because the buses run crazy" (26LP). When explaining how transportation had made him late for work, another Lafayette respondent commented, "The bus...Being late and not reliable...And also living so far away, I couldn't walk" (22LP). When identifying desirable improvements for transportation in the city, one Baton Rouge interviewee asserted, "Just make sure they're [buses] on time. Get the time factor now, get their time factor now...Because we people need to get to work on time. They need to make sure they are home for when their kids get out of school. That's about it" (59BK).

Being late for work can have disciplinary or other implications, causing problems in the lives of low-earners. For example, this worker was taken off the schedule after being late:

So far, I only been late one time. And actually, they had signed me out from work for the day; I wasn't going to be working that day and I showed up, and he said "Well I already took your name off the list, you not supposed be working today." So... Somewhere in there, there is some kind of ramifications. You can either forget that day of work, or get called in the office. (13BP)

Relying on public transit makes riders subject to schedule deviations and uncertainties, and with low frequency, the stress of needing to catch a bus is heightened, especially in Lafayette. One Lafayette respondent observed, "Hour on the hour. You better not miss that one. You sit there for a long time" (75LK). In Baton Rouge, several interviewees noted frustration about schedule deviations and the unavailability of information:

You can hope for the best. They [buses] have gotten better than they were, but still, sometimes they have a bus and it don't never show up. And you call them and ask them what happened to the bus "Well, we're not showing the bus on our GPS." I say, "Man, what am I supposed to do!?" (13BP)

You won't know when the bus didn't broke down, nobody come to tell you, you call to the terminal, they can't tell you none, and they just track in the GPS system on ... That ain't no crap, with you standing out there in the rain. (15BP)

For Baton Rouge interviewees, one challenge was adapting to a new bus route system with less centralized transfers between routes. While the increased frequency that came along with these changes was noted as a positive shift, the changes in bus service required more coordination, transfers, and the ability to navigate the new system.

They done made some changes, made it a little better; but they still got a ways to go. Because you can't- used to be you could go to the main terminal and catch pretty much any bus; but now, you have to catch these certain buses at certain places...it's always the same thing: trying to catch the bus that you need to catch. And as soon as you pull up, the bus that you need to catch done pulled off. (13BP)

They changed the route so it runs a little bit more than it used to...the new system, you have to study it. The old system was a little more understandable. Now you need a study guide to understand the new bus system. They run more frequently, I think

they're down to 30 minutes in between bus [es]. (17BP)

I have to get on the internet to find out what time the bus gonna come, what time it's going to be at this place so I know what time I need to be at the bus stop and this that cause sometimes the internet just takes so long and that just irks my nerves. (50BK)

Needing to adapt to uncertainty and change in transportation, however, was not limited to transit users. Interviewees noted that unstable automobile functionality could make them slow down or be late for work.

My car runs hot because my block is cracked...So sometimes they [customers] have to be waiting on me...I have to stop for a little while and let my car cool off, then try to be there. (26LP)

I wouldn't say engine failure but ya know sometimes it [car] just misbehaving and causing you know delay actually starting up your car, so that's what caused me sometimes to be ya know longer taking me longer to get to work than it normally would. (55BK)

Car broke down, called a friend...I called in but they [employers] didn't like it. (31LP)

Social Relationships, Automobiles, and Rides

Owning a car both provided benefits and could be a source of stress. Respondents were fairly direct in explaining the benefits of having a car. For example, according to one interviewee, “I know it’s good [owning a car]. ‘Cuz you can get around like you want...you can get up, jump in your own vehicle, go look for a job like you want...There’s a lot of benefits to having a vehicle.” (11BP). One of the benefits was lessened dependency on others—the transport disadvantage factor that Delbosc and Currie (2011) found most negatively associated with well-being. Some interviewees noted the interpersonal independence possible through automobile ownership:

You don’t have to depend on nobody, especially with the baby... I don’t have to depend on nobody else, I can just go ahead on. (26LP)

You don’t have to wait on nobody or beg nobody to take you anywhere. (50LP)

Don’t have to wait on a ride. (72LK)

It's much better to have a vehicle than not have one. Independence and freedom and all that good stuff. (57BK)

Managing social relationships emerged as one stressor from car ownership. Participants noted they had to balance their desire to help others with the costs associated with giving rides and apprehension about being taken advantage of.

I love to do things for people, but it also comes to a point where it's offensive. ... 'Cuz people get to the point where they take advantage of you. ... So it's not really good all the time... It still creates animosities. ... You might be receiving what you be receiving, but you even get to the point where, "I don't want you riding with me no more. You can keep your money. Go ahead on with your business. Just stay out of my ride." (11BP)

I've given rides to family and friends and ya know it's not a money thing it's because I know the idea of when you don't have transportation how hard it is to get to where you need to go. Now some of them do offer me ya know a few dollars for gas but it's like a lot of times I don't even request gas money because I know it's hard. It's real hard to get to where they need to like doctor's appointments and all that all the time. (50BK)

Rides were sometimes given as a part of an informal bartering system. Many participants stated they didn't ask for gas money when they gave their friends or family rides, unless they were traveling long distances.

It wasn't an arrangement. I just decided I wanted to help a friend. A friend of mine was moving, and he needed somebody to help him move, so he asked me, and I assisted him in moving. And my daughter she needed a ride to work, so I assisted her in getting her to work. (50BK)

The majority of it [giving rides] was doing it out of the goodness of my heart, but some of them did offer me gas money. (22LP)

Like my best friend, I live on one side of town and she lives all the way on the other side but she calls me sometimes because I'm there to take her to and from the work and to school and stuff. ... We have the kind of relationship to where I don't ask her to put gas in my car, but like she just randomly does stuff for me without me having to ask and vice versa. If she needs me, I'm there. If I need her, she's there. (54BK)

Yes. I usually wouldn't ask for anything, but people would offer a couple bucks for gas or "I'll do this for you later" or "I really need to go here, I'll buy you lunch", stuff like that. (57BK)

When giving a ride to a co-worker or neighborhood acquaintance, interviewees were more likely to ask for gas money or some other form of compensation than when giving rides to intimates. Sometimes interviewees set limitations on providing rides, such as only during emergencies or only if the destination was not out of the way.

I very seldom do it [give rides], because I let people know that if they need the car it's for emergencies only. ...Because otherwise they take advantage. ...Every little bit that they need they would do that [take advantage of ride giver] ...“Oh, can you bring me to go get some chicken?” (20LP)

Yes, they give me gas money. Sometimes, some of them even buy me groceries, like if they have food stamps, because I don't get food stamps. They'll buy me some groceries, but that helps me, especially the way I'm struggling, you know? (81LC)

This interviewee discussed one co-worker who she felt was taking advantage of her ride giving.

Now one girl, she done got it [asking for a ride] to be a habit now. A coworker. She want me bring her home every day, and she stopped giving gas [money]. I don't want to be ugly and tell her, "You've got to help on the gas." I'd say every week, I'm giving her a ride. ...Now if she riding with me, I don't get home till something to 4, when she riding with me because I've got to drop her on the other end of town... when you see a person start taking your kindness for weakness...She don't even say thank you. (81LC)

Being able to give rides thus can be a benefit and a stressor of car ownership. In the following exchange, the participant observes the dual aspects of giving rides.

Interviewer: What are the benefits to having a car?

Participant: Well, you can leave whenever you want to. You need some ice cream; you can go to the store. You can help people out if they need help. Personally, I'm fine without a car, but it'd be cool to have one, I guess.

Interviewer: Are there any stresses or downsides to having a car?

Participant: Gas prices. Other than that not really, besides the fact people always calling you for rides. (69LK)

Ride receivers noted tension between needing transportation assistance and the desire to be independent. The spatial mismatch between where low-income individuals live and where some good paying jobs are can place low-income individuals without automobiles in a dependent role because the bus systems do not connect them to some desirable job sites.

[The bus improvements needed are] further lines and earlier times, especially on Sundays. Some of them [bus routes] don't start till after 8:00, some close to 9:00. Thank God I have a co-worker, she picks me up from the gas station around from my house. (18BP)

So if you ain't got dat, or you not in bus route to work at these jobsites, then you have to depend on other people that have a ride, to take you there. You might get lucky every now and then, that these people going to take you on the job in their vehicle, and then because pay them so much money for them to take you there. (25LP)

Rides were not always reliable. There may be negative consequences for carless individuals if a ride does not come through, including missed job opportunities or being late to work, "Well, this person say they will come pick me up. We had a job interview, and he never showed up. I lost that job" (61BK).

Discussion

Across the interviews, we observe several ways that transportation can affect lives of low-income individuals, other than ideal, abstract travel time. Based on the interview data, we propose a reconceptualized transportation time tax, identify stressors from unstable transportation, and discuss social tensions around ride sharing. While our goal is not to document the causal change to well-being impacts, we propose a framework that asserts the significance of our findings by linking them to conceptualizations of health and well-being.

Interviewees reported excessive amounts of time travelling to and waiting at work and other locations, showing how compounding life factors, such as mismatched, infrequent transit schedules and workplace schedules, can create a regressive transportation time tax. We propose this as an alternative to the travel time tax identified by the data firm Inrix that is based on congestion-related delay for drivers (Bruner, 2010). With entry-level employment, employees often have relatively little discretion over their schedules (Young, 1990). For low-income respondents, travel time and time required to make transportation fit a schedule—waiting at work before or after a shift—combine to levy a sometimes substantial time burden. Connecting to the main hub for early morning buses could mean very early, long walks. Given the infrequent levels of transit service—especially in Lafayette—interviewees spent significant amounts of time traveling and arriving early for (or waiting after) work. Some avoided being late by arriving an hour early, a method of mitigating transit service reliability issues and infrequency. As a result, transportation and waits could account for four hours of transportation time tax daily. We expect that in metropolitan areas with higher levels of transit service that there may be less time lost due to waiting for transit or arriving early, but that there is still likely additional transportation time tax for those with constrained schedules, multiple responsibilities, limited housing choice due to cost, and entry-level jobs. Furthermore, bus riders are disproportionately low-income.

Transit users, ride receivers, and automobile owners all faced unexpected delays and challenges. Such need for constant adaptation represents a stress burden from transportation challenges. Transit may be late and automobiles may be unreliable. Automobile ownership also came with the difficulty of navigating how to manage ride-giving relationships. In other words, giving and receiving rides—an important mobility adaptation—came with social stressors. Interviewees noted the appeal of independence possible with car ownership. Car owners had to delicately manage giving

rides—balancing a desire to help with self-protection. Those receiving rides also suffered when ride givers had scheduling constraints or proved to be unreliable.

Uncertainty of transportation, excessive time demands, and strained social relationships matter for the higher order goal of enhancing well-being. As the literature noted above discusses, stress from constant adaption has physiological health dimensions and cumulative effects of stress may account for reduced physiological health among vulnerable populations and in turn health disparities (Beckie, 2012; Carlson & Chamberlain, 2005; Seeman, Epel, Gruenewald, Karlamangia, & McEwen, 2010). Adequate health underlies some objective concepts of well-being (see Nordbakke & Schwanen, 2014) and is positively associated with well-being in different conceptualizations that focus on a subjective sense of well-being (Delbosc, 2012).

Potential well-being effects, however, are not just based on stress and physiological health. Based on our inductive qualitative analysis, we suggest eudaimonic concepts are useful for understanding the lived experiences of travel for low-income populations. Specifically, we draw on Vella-Brodrick and Stanley's (2013) use of psychological (eudaimonic) well-being needs of relatedness, autonomy and environmental mastery. Under existing transportation conditions, respondents often reported transportation uncertainty and sometimes a lack of agency and choice. In this way, transportation challenges can negatively affect autonomy. Young (1990) argues marginalized and oppressed communities often lack the same levels of autonomy that privileged groups of society possess. In addition, because ride giving and receiving dynamics can cause tensions, transportation can undermine the psychological well-being need of relatedness. In Figure 1, we present a conceptual model of how the challenges we found could have implications for well-being.

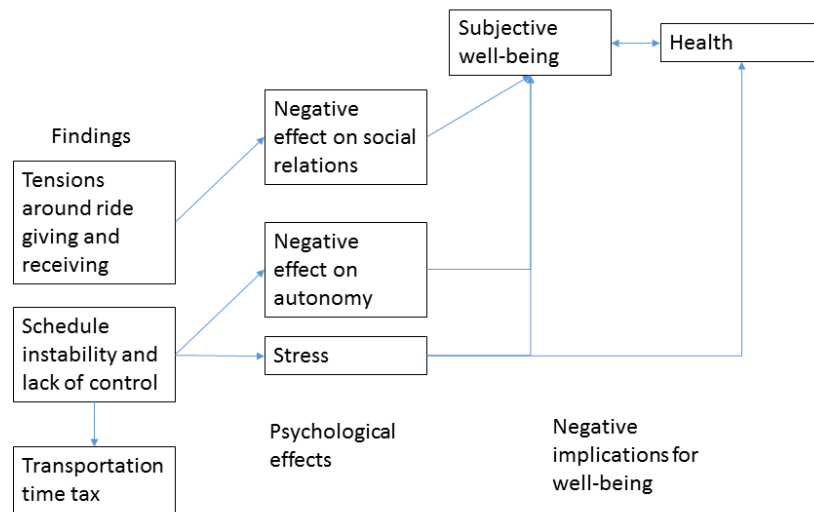


Figure 1: Transportation challenges for low-income populations and potential impacts

Due to all these factors, and given the limits and constraints beyond modeled travel time, we argue for caution when using travel time accessibility studies that focus on low-income populations. Such studies divorce travelers from their life circumstances and work schedules, which both have time and possible downstream well-being implications. Instead, we argue for more holistic study of how transportation is experienced by low-income individuals. Certainly, across income groups, life changes can bring hardship, but for low-asset households, health disparities are well-documented. Furthermore, challenges can bring transportation limitations that compound difficult situations for financially vulnerable populations, as for this interviewee:

I got laid off, then I got divorced, and my wife got the car, and I wound up letting her stay in the house, so the only jobs I could get were jobs that were close to the bus line. And it just so happened that this Lofton company got me a job, and the concrete company is on the bus line, sort of, but to get there on time, I have to walk so far because they just changed the bus route; it doesn't start- it used to start at the bus terminal; not anymore, now it starts way out at the mall. And you have to make your way, get there and be there for 5:15. (13BP)

Conclusion and Future Directions

Conceptualizing transportation as a support or challenge to well-being allows researchers to use a multi-dimensional analysis of transportation as one factor that compounds with other vulnerabilities that low-income adults are likely to experience. By considering well-being as an end—affected by but going beyond social exclusion or job access—researchers and policy makers can adopt a more holistic approach to study the experience of transportation and refocus transportation policies to aid the ultimate aim of supporting well-being of people, not simply their physical access to activities like employment.

Through qualitative analysis, we identified critical transportation challenges for low-income residents in two medium-sized metropolitan areas. Respondents reported adaptations to work and transit schedules through devoting substantial time to the journey to work or time buffers around it. We label this a regressive transportation time tax paid often by low-income travelers with limited resources. Other stressors include the need to adapt to dynamic and sometimes uncertain transportation, as well as social relation stressors tied to ride giving and receiving. Given well-established findings on health disparities, as well as the cumulative impacts of stress on health, the need for constant coordination and adaptations related to transportation merits attention, especially for low-income populations. Findings also show how the experience of travel could impact subjective, eudaimonic elements of well-being, like autonomy and social connectedness.

Findings illuminate potential mismatches between how policy makers and researchers abstractly model transportation accessibility versus what getting around can feel like—including interwoven social, health, and well-being factors. Given this transportation time tax, we suggest that models likely underestimate transportation costs and overestimate accessibility. The interaction between work schedules and transportation indicates the need to better integrate work force and transportation policies. We also assert the importance of including low-income residents in

programming and planning to ensure their specific perspectives and the local context are considered (Young, 1990). Just as local context matters for solutions, findings may differ by metropolitan context, and of course as qualitative work there are limits to the generalizability of our findings. Future research could consider variance by metropolitan size and transit service quality or more extensively delve into the shared rides economy and social costs—all have important implications for understanding transportation and low-income populations and formulating appropriate policy interventions for enhanced well-being.

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