



Are long commutes short on benefits? Commute duration and various manifestations of well-being

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ABSTRACT

Commuting comes with costs, in terms of money, the opportunity cost of time, emotional burdens, and danger. Yet Americans take on considerably longer commutes than are strictly necessary. This suggests that longer commutes must have benefits, or that many people who take on long commutes are not maximizing their utility. This research seeks evidence for compensation for longer-duration commuting. It finds four possible sources. First, longer commutes are associated with higher wages. Second, longer commutes are associated with higher rates of homeownership, possibly in part because they facilitate suburban living. Third, long commutes may benefit spouses, since marriage is associated with longer commutes, although there is no association between commute duration and the presence of children in the household. Fourth, spouses of those with longer commutes are less likely to work, which appears to be due in part to higher wages for the worker. However, there is no evidence that a longer commute is associated with higher wages for the commuter's spouse when the spouse works. Longer commute trips are not associated with poorer mood during the trip, but also are not associated with more emotionally fulfilling work. Finally, commute duration is not associated with life satisfaction, perhaps because the net benefits and costs of commutes are roughly equal across varying commute durations, or because the burdens and benefits of the commute are not strong enough to impact as broad a construct as life satisfaction. The absence of an association between well-being and commute duration suggests that people are doing a reasonable job of maximizing their utility when selecting home and work locations.

1. Introduction

Although trips to and from work (“commute” trips) comprise only about 15 percent of our trips, they have elevated importance because they are the trip purpose associated with the longest distances and durations, and because they tend to take place during peak travel periods in places of high demand so that they contribute disproportionately to traffic congestion (Santos et al., 2011). Moreover, because there may be a very constrained number of jobs that are both suitable and attainable for many individuals, one's work location may be relatively fixed and thus commute duration may be a major factor in selecting the location of one's home, or, conversely, what job one holds if the home location is fixed.

Commutes impose considerable costs on the traveler in terms of money (fuel, vehicle maintenance, and depreciation); the opportunity cost of time which could be put to other uses; possible emotional costs such as stress, frustration, and boredom during and even after the trip; and danger, for example due to the chance of a car crash. Commutes also impose costs on society such as pollution, congestion, and damage

from crashes. Hence a number of public policies have been proposed to reduce commute distances and durations, including increasing the densities of both housing and jobs and fostering their geographic balance. For a discussion of these policies, see Downs (2004).

However, one problem potentially limiting the efficacy of such policies is that American workers have consistently shown considerably less willingness to live as close to work as standard urban location models suggest they could (Giuliano and Agarwal, 2017). This may be due to mismatches where suitable housing is not available near jobs and vice versa (particularly for lower-income workers); to two-worker households attempting to economize on travel for both workers simultaneously; to high levels of job mobility, meaning it may not make sense to relocate for any given job; and to the high cost of moving.

Workers may also take on long commutes because they are compensated for them. Classical economic theory, stretching back to thinkers such as William Henry Jevons (1871), among many others, assumes that humans are “rational utility maximizers,” or roughly so. It is assumed we are capable judges of what will bring us the greatest happiness, or utility. When faced with choices, it has been assumed that

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consumers address the “utility maximization problem” by collecting relatively complete information about potential outcomes, calculating accurate probabilities of various outcomes occurring, weighing the costs and benefits of each possible outcome, and then consistently selecting the decision that will maximize those benefits and minimize those costs. It is perhaps no exaggeration to say that the field of economics is based on the principle of rational utility maximization.

Were this how decisions were made with respect to selecting a commute duration, it would be assumed that individuals accurately calculate the costs of commuting. These would lead to the minimization of commute time, for example by encouraging the selection of proximate home and work locations.

However, given the relatively long commutes that many workers undertake, if consumers optimize utility it must be assumed that there must be benefits from longer-distance commuting that offset these costs. In fact, classic urban location theory, articulated in the Alonso-Muth-Mills model (Alonso, 1964; Mills, 1967; Muth, 1969), suggests that people trade off transportation costs for other types of benefits (e.g., in the Alonso-Muth-Mills model, lower land rents). For those accepting long commutes, foremost among these benefits would be an expanded choice set in terms of residential and work locations. Being willing to travel farther to work opens up the possibility of living in a wider range of homes and neighborhoods, which in turn may bring benefits such as more affordable, more spacious, and/or higher-quality housing, and more aesthetically pleasing, safer neighborhoods with better schools and access to amenities like friends and relatives, shopping, or cultural opportunities. Conversely, a longer commute may allow the selection of a more desirable job, which may pay higher wages, have better hours, or be more emotionally and psychologically satisfying. Assuming a rational and well-informed decision making process, consumers would then select locations for home and work that minimize these costs and maximize these benefits, arriving at a choice which maximizes net utility.

However, an entire field, “behavioral economics,” challenges the notion that human beings make rational, informed, and utility-maximizing choices. As pioneered by thinkers such as Herbert Simon, Daniel Kahneman, and Amos Tversky, behavioral economists propose a model of “bounded rationality” due to several limitations faced by choice makers. First, information may be difficult and costly to collect, imperfect, or even absent. Second, cognitive limitations may prevent accurate calculation of probabilities, with, for example, people systematically overestimating the chance of events they consider “certain” but underestimating the chance of those that are probable but not certain (Kahneman and Tversky, 1979). Third, individuals often exhibit inaccurate judgment when it comes to evaluating the utility associated with outcomes; for example, they seek to avoid losses more than they seek to achieve gains even when these are identical in magnitude (Tversky and Kahneman, 1992).

To cope with the fact that we cannot or will not gather all requisite information about all decisions large and small, and further cannot assign values to, weight, and sum all the expected costs and benefits of potential courses of action, we adopt rules-of-thumb or “heuristics” that enable us to make decisions. For example, Simon (1956) developed the concept of the “satisficing” in decision making. This involves setting minimum standards for each cost and benefit, searching for a choice which will meet all of these minimum standards, then stopping the search when the first alternative appears which meets these minimum thresholds, without optimizing further.

A large body of experimental evidence confirms that rationality in decision making is indeed bounded. Most economists would not dispute this, but many would argue that the rational utility maximization paradigm is a good enough approximation of decision making to render it a sound lens through which to model consumer choice.

This paper weighs in on this question as applied to commute duration. Were people fully informed, capable, and rational judges of what maximizes their utility, one would expect workers should select

commute durations with the bundles of costs and benefits that maximize their utility. Given that American workers as a group take on longer commutes than are strictly necessary, we would expect benefits from longer-duration commuting to offset the costs. Workers can be expected to have varying preferences (for example, some may find the stress of commuting a greater detriment to utility than others, and some may value living in a good school district more than others), so we would expect to find an assortment of commute durations, but in all cases those durations would maximize well-being for each worker. In this case we would expect to reach an equilibrium where well-being is roughly equal across all commute durations. Were, say, those with longer commutes unhappier on the whole than those with shorter commutes, we would expect “spatial arbitrage” where those who find the costs of a long commute the most onerous and/or the benefits most inconsequential would move to home and work locations which are closer together until equilibrium is reached. This is what the Alonso-Mills-Muth model suggests should take place.

On the other hand, behavioral economics suggests that individuals may fail to optimize. For example, rather than weighting each commute minute equally, which should be the case since each minute has the same costs, commuters may satisfice, selecting a fairly arbitrary commute duration threshold, such as 30 min. In this case the difference between a 31-min commute and a 29-min commute would loom large in decision making, while the difference between a 21-min commute and a 19-min commute would be ignored. If this were the case, individuals would settle for commutes that would not maximize their utility.

Another possible heuristic, identified by Simonsohn (2006), may involve “contrast” effects. He demonstrates that people moving from cities with unusually high (or low) commute times, such as New York, select unusually high (or low) commute times when they move to a city with different overall commute times. In other words, people have a preexisting reference level which guides them in selecting a commute time.

Further, people may not be entirely able to accurately weight and sum the costs and benefits of their choices. Put more simply, they may not be accurate judges of what makes them happy. For example, research has shown that people overweight the contributions possessions make to their well-being and underweight the positive contribution of experiences (Carter and Gilovich, 2010; Howell and Hill, 2009; van Boven and Gilovich, 2003). If this is the case, people may take on a longer commute that permits owning a larger or newer home, not realizing the utility to be reaped from the home is lower than the disutility from the experiences negatively affected by the commute (e.g., foregoing desirable activities due to the opportunity cost of commute time).

If, indeed, bounded rationality governs the thought process in selecting a commute duration, and if similar heuristics are commonly used by many people (as the evidence suggests tends to be the case), we may find that the net costs and benefits of commutes may not balance across commute durations. If this is the case we may find that, in the aggregate, shorter, or longer, commutes are associated with higher welfare.

This paper tests whether rational utility maximization reasonably describes home and work location decisions, by 1) examining whether there is compensation for taking on a longer journey to work, and 2) examining whether people as a group are taking on longer or shorter commutes than would be optimal for their welfare. First, it explores whether long commutes are compensated for in the form of higher wages. Second, it tests whether long commute trips impose an emotional burden during the travel. Third, it examines workers’ emotions on the job to investigate whether long commutes are associated with work that is more psychologically satisfying. Fourth, it examines whether those with long commutes are rewarded with superior housing, specifically living in owned as opposed to rented dwellings.

This raises the observation that longer commutes may be expected

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