DAILY TRAVEL TIME VARIABILITY IN THE TWIN CITIES, 1990-2001

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ABSTRACT

This paper describes a study of daily personal travel time in the Minneapolis-St. Paul, Minnesota metropolitan area and how and why it changed between 1990 and 2001. This has two major components. The first is the relationship between commute and non-commute travel time. The second is the relationship between mode choice, total daily travel time, and automobile travel time. Both of these are analyzed in terms of how they vary geographically within the region as well as how they changed during the decade.

The study is based on the Twin Cities Travel Behavior Inventory (TBI), which included about 10,000 households in 1990 and about 5,000 in 2001. These large samples make it possible to study geographic variations within the region. This is supplemented with information on commute durations from the Census Transportation Planning Package.

Average Twin Cities one-way commute durations increased by about two minutes during the 1990s, while total daily travel time increased by about five minutes for workers and two minutes for non-workers. This supports an earlier finding that variations in total daily travel time within the region were primarily due to differences in average commute durations rather than non-work travel. The findings here also support the theory that time spent in non-auto modes reduces the amount of time spent in auto travel, although the reduction is not one-for-one.

INTRODUCTION

Understanding the likely sizes of, and reasons for, variations in total daily travel time is important for formulating effective transportation and land use policy. If increased speeds from highway improvements, or reduced distances from mixed-development land use policies, simply free time for people to make more or longer trips, then the efficacy of these policies at reducing congestion might be limited. A similar limitation would arise if trips that are shifted to non-auto modes by transit- or pedestrian-friendly development were replaced by additional auto trips. Being able to make these kinds of predictions is a matter of distinguishing between two competing views of how people make travel decisions.

While popular discussion tends to view individual trips in isolation, so that eliminating or reducing the length of a trip will always lead to a reduction in total travel, it is not clear that travelers actually constrain themselves in this way. Zahavi (1979, 1980a, 1980b) was among the first to promote the idea of a daily travel time budget; that is, the notion that travelers in the aggregate will tend to spend a certain amount of time traveling each day regardless of conditions. This is a very different way of thinking about travel, since it implies that eliminating or reducing the time needed for a trip will usually just induce the traveler to make additional trips, or travel to more distant destinations.

Zahavi initially made this point in the context of the Minneapolis-St. Paul, Minnesota (Twin Cities) and Washington, D.C. metropolitan areas, for the years roughly between 1955 and 1970. He noted that both of these regions experienced considerable population growth during this time, and more significantly, the construction of freeways that led to a very substantial increase in average travel speeds. However, in both cities the response to this increase in speeds was not to spend less time traveling, but rather to build new housing on the previously less accessible edge of the region, so that overall average daily travel times remained basically unchanged while vehicle miles traveled increased dramatically.

Barnes and Davis (2001) replicated Zahavi's analysis using 1990 data, and found that average daily travel times were still basically unchanged, despite the continuing increase in the built-up area of the Twin Cities and significant decreases in residential and employment density. Their focus was on the effect of land use on travel behavior, and they found that the travel time budget was also useful for understanding this relationship. Residents of areas with better access to destinations tended to travel to a larger range of destinations rather than reducing their total daily travel time; while residents of access-poor outlying suburbs reduced their destination set.

This paper describes a study of daily personal travel time in the Twin Cities metropolitan area and how and why it changed between 1990 and 2001. This is essentially an update of the Barnes and Davis study, but focused specifically on two major components. The first is the relationship between commute and non-commute travel time. The second is the relationship between mode choice, total daily travel time, and automobile travel time. Both of these are analyzed in terms of how they vary geographically within the region as well as how they changed during the decade.

Following Zahavi, there have been a number of studies of travel time over the last 25 years; many of these are summarized in Mohktarian and Chen (2003). Some of this literature focuses on establishing the characteristics of travel time patterns in different places or situations. The notion of a psychological budget for travel implies that there should be a fairly limited range of behaviors across different locations, and establishing the size of this range is important for the credibility of the concept. Another approach to the issue is studying the reasons why daily travel times vary across locations. One aspect of this is socio-economic considerations. Another, and the more interesting possibility, is policy decisions related to travel, such as land use and transportation infrastructure investments.

This paper uses elements of both approaches, aimed specifically at better understanding the impact of land use and mode choice on daily travel time. The two approaches between them address three main questions. First, how much does total daily travel time vary across locations and time? Second, are differences in total daily travel time due primarily to the commute trip, to personal travel, or to a combination of the two? Finally, to what degree does alternate mode use shift travel time away from auto travel?

These three questions are derived in large part from claims made by the “smart growth” movement (Calthorpe, 1993); which promotes the development of dense, mixed-use, alternate-mode-friendly neighborhoods. The argument behind this from a transportation perspective parallels the three questions of this paper: that people will not have to spend as much time traveling because destinations will be closer; that in particular they will be able to minimize personal travel since it will be possible to meet most of these needs in the neighborhood, and finally that the focus on non-auto modes will reduce the amount of auto travel even more than total travel.

METHODOLOGY

This study is based on the Twin Cities Travel Behavior Inventory (TBI), which is a large travel-diary-based survey conducted roughly every ten years by the metropolitan planning organization. It included about 10,000 households in 1990 and about 4,000 in 2001. These large samples make it possible to study geographic variations within the region. This is supplemented with information on commute durations from the Census Transportation Planning Package.

In order to use an equivalent methodology with Barnes and Davis’ 1990 analysis, the 2001 TBI was filtered in a number of ways. The first was to exclude any traveler who did not travel entirely within the seven-county metropolitan area. The primary reason for this is because a few very long vacation trips can seriously compromise the effort to understand ordinary metropolitan travel. Another adjustment was the exclusion of within-metro trips of greater than 120 minutes; there were a small number of these in both years. Because of the physical size of the metropolitan area, it seemed probable that these implausibly long trip durations were due to diary or coding errors.

Finally, travelers under the age of 18 were excluded. Barnes and Davis argue that children do not make their own travel decisions in most cases, therefore from a theoretical standpoint it is inappropriate to include them in an attempt to understand travel preferences. Additionally, they found that children’s travel behavior is quite different empirically from that of adults, thus average travel times in areas with greater numbers of children may differ substantially from those with less children, even if travel behavior of adults in these areas is similar.

For purposes of comparing average daily travel times to 1990, we further restrict the data to include only those adults who traveled exclusively by automobile, either as driver or passenger. This was not much of a restriction, as it included about 90% of the adult travelers in each data set. The purpose was to keep the underlying sample as similar as possible between the two years. We also examine the set of all travelers by all modes in 2001 and how mode choice behavior varies within the region. However, we do not compare non-auto travel directly to 1990, because the sample is too small and because the data sets are not completely comparable in this regard.

After creating equivalent data sets, there were about 14,500 adult travelers in 1990 and about 5,500 in 2001. The much smaller sample in 2001 unfortunately makes it difficult to do the kind of detailed geographic analyses that Barnes and Davis did. To understand geographic variations within the region, we use a simple set of nine rings, based on the distance of a traffic analysis zone (TAZ) from the nearest downtown (Minneapolis or St. Paul). Empirically, this is a reasonable if somewhat coarse proxy for population density and access to job opportunities, which are the land use features that are most often thought to impact travel behavior.

Having created equivalent sets of travelers for the two data sets, we calculated a number of travel time descriptors. For those that traveled only by auto, we simply added their total daily travel time, and averaged these by ring for workers and non-workers. For workers, we divided their total time into commute travel and personal travel by using the mean drive-alone auto commute time from the census for the TAZ where they were residents. This number, multiplied by two, was the daily commute time, and the remainder of total daily travel was non-commute.

We used the census commute times rather than the respondents' own reported commute times because trip chaining and possibly careless reporting of trip purposes made it hard (in both years) to determine the actual time spent driving to work. If someone drives 15 minutes toward work, stops to get coffee, then drives three more minutes to their job, only the last three minutes would show up as a "to work" trip in the TBI. The census, by contrast, asks specifically about the entire trip from home to work as a unit, so we felt that this was a more reliable indicator of the time needed for this activity. The fact that some people may use their commute as an opportunity to complete personal errands is part of the phenomenon of travel time management that we are trying to study here.

For those that traveled by non-auto modes, we just calculated total daily travel times and split these out by mode, and by ring. We did not divide the times into commute and personal in this case because it was not clear what the appropriate commute time would be. As noted above, it was generally not viable to use the respondents' own reported commute times, and there was no mode-specific time from the census data that corresponded in the same clear way that drive-alone did for auto-only travelers.

RESULTS

From a perspective of how land use policy might influence travel choices, there are three major questions whose answers would inform the debate. First, how much does total daily travel time vary either across locations or time? This addresses whether improved accessibility in general is likely to have much influence over how much time people spend traveling. Second, are differences in total daily travel time due primarily to the commute trip, to personal travel, or to a combination of the two? This can help to focus on what aspects of land use development might have the most impact (Levinson and Kumar, 1994, Boarnet and Sarmiento, 1990). Finally, to what degree does alternate mode use shift travel time away from auto travel? This addresses the question of the likely magnitude of the benefits that can be gained by this tactic (Pivo, 1994, Boarnet and Crane, 2001).

The first and second of these questions are addressed here by an analysis of total daily travel time for auto-only travelers in 1990 and 2001, and how these times vary geographically within the region. The first is addressed again, along with the third, in the subsequent analysis of geographic variations in mode choice and daily travel time in 2001.

Travel Time and Commuting, 1990-2001

Between 1990 and 2001, the average total daily travel time for auto-only travelers went from 74.1 to 79.2 for workers and from 70.6 to 72.7 for non-workers. From the census, the regional mean drive alone commute time, weighted by the home locations of the TBI sample distribution, increased from 20.1 to 22.3. Multiplied by a two-way trip, this would account for 80% or more of the total travel time increase for workers.

Breaking the sample down into rings of varying distances from the nearest downtown makes it possible to observe, at least at a crude level, relationships between commute and personal travel. Barnes and Davis (2001) had found that there was no systematic intra-regional variation in personal travel time, that is, travel by non-workers or non-commute travel by workers. To the extent that there was non-random variation across the region in total daily travel times, it was due almost entirely to variations in average commute durations. Barnes (2001) came to a similar conclusion in a study of the 31 largest U.S. cities.

Generally speaking, commute durations increase fairly steadily with increasing (home) distance from the center of the region. For non-workers, there is little relationship between home location and total daily travel time, and for workers there is an inverse relationship between commute durations and non-commute travel time. While 1990 and 2001 show similar trends, the substitution between commute and personal travel for workers seemed to be amplified during the 1990s (Figures 1 and 2).

Figure 1: Total Daily Travel Times, 1990

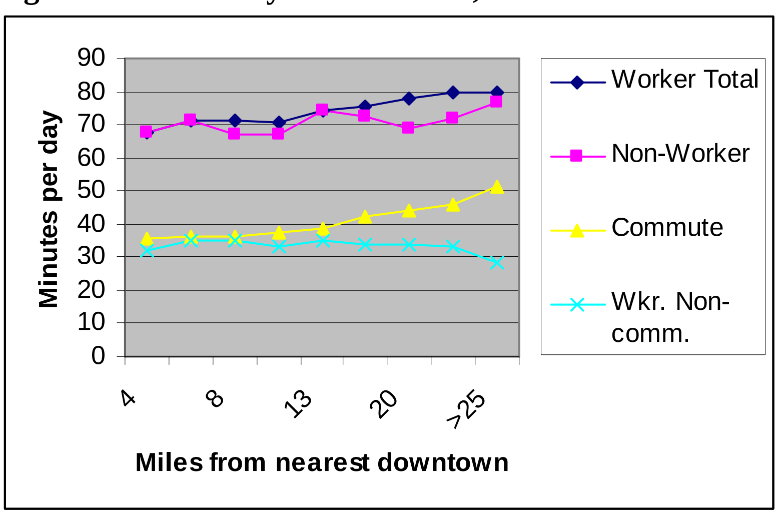
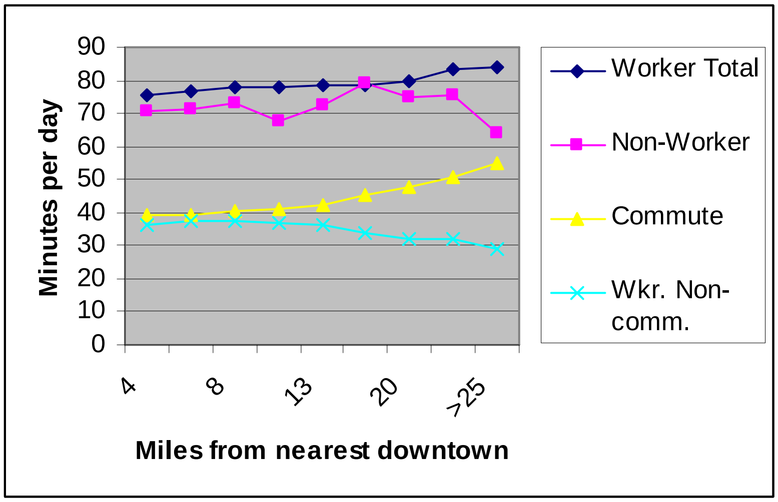


Figure 2: Total Daily Travel Times, 2001



The fluctuations in the non-worker travel times are probably due in large part to the relatively small samples of this type of traveler. The very last ring, in particular, seems sensitive to sampling aberrations, as it was much higher than any other ring in 1990 and much lower in 2001.

While the lines in general retained similar shapes between the two surveys, they did shift upward somewhat. A comparison of the percentage increase by ring and travel type between 1990 and 2001 helps to bring the changes into focus (Table 1). The averages in the last row are weighted by the distribution of the 2001 sample.

Table 1: Percent Increase in Total Daily Travel Time, 1990-2001

Ring distance from nearest downtown	Worker total	Non-worker total	Worker commute	Worker non-commute
0-4 miles	12%	4%	10%	14%
4-6 miles	8%	0%	9%	7%
6-8 miles	9%	9%	11%	8%
8-10 miles	11%	1%	11%	11%
10-13 miles	6%	-3%	9%	3%
13-16 miles	4%	9%	7%	1%
16-20 miles	2%	9%	8%	-5%
20-25 miles	4%	5%	10%	-4%
More than 25 miles	5%	-17%	7%	3%
Weighted average	6.5%	3.0%	9.0%	3.3%

The increases for non-workers and for non-commute travel by workers both were about 3%. Commute times showed a much larger increase. An interesting point is that while commute times rose by about the same amount across the region, in the outer areas workers on average held their non-work travel at or below 1990 levels, while in the more central parts workers had an increase in non-work travel that was similar to their commute increase. Overall this had the effect of achieving some degree of equalization in total daily travel times across the region. In 1990 the range between the inner- and outermost rings for workers was from about 68 to 80 minutes; in 2001 it was about 76 to 84.

In terms of land use policy, it does not appear, at least for auto travelers, that there is much advantage in terms of time savings to being in a denser, more central location. The innermost ring has a job density that is three times higher than the second ring, and population density that is 50% higher, with even larger differences for outer rings. But total daily travel time for residents of this ring is not much lower, and in fact the differences seem to be getting smaller rather than larger over time. This is not due to residents traveling elsewhere due to economic decline in the central part of the region; the two central cities actually gained population during this period for the first time in several decades.

Another point of interest is that the primary source of differences, both geographically and temporally, is commute durations. Travel by non-workers shows hardly any systematic variation either geographically or temporally. Workers even appear to actually reduce their personal travel as their commutes get longer. This to some extent refutes the argument that dense, mixed-use development is needed so that people can complete their personal errands in a reasonable amount of time. Instead, people appear to figure out how to do this on their own when the occasion demands. In low-density suburbs personal destinations are typically much farther from the home, but people apparently change their travel patterns to compensate for this; by combining trips, by doing errands on the trip to or from work when little marginal driving is required, or simply by making trips less often.

It is worth noting for background purposes that average commute times rose substantially throughout the state of Minnesota, and throughout the entire U.S., during the 1990s. The increase in the Twin Cities was actually less than in the rest of the state; of 87 Minnesota counties, the seven metro-area counties were all in the bottom 12 in the percentage increase in commute durations. Thus, while increased sprawl and substantially increased congestion levels would seem to be the obvious explanations for the increases in commute times, it is hard to accept this at face value given the even larger increases in the rest of the state, where neither of these factors were issues.

The congestion studies issued annually by the Texas Transportation Institute (2005) have been used to argue the economic benefits of policies and investments to reduce the level of congestion in the Twin Cities. They indicate that extra driving time due to congestion increased from about 22 hours a year per driver in 1990 to about 42 in 2001, nearly a doubling in the congestion level. This extra 20 hours would equate to about 24 minutes per week, or about five minutes per day. This is in fact almost exactly the size of the increase in total daily travel for workers in the 1990s.

However, the universal nature of the increasing commute times during the 1990s points to a more general cause; possibly a so-far-unidentified change in the underlying benefit-cost structure for commute travel. While Twin Cities commuters may in fact be spending an extra five minutes a day sitting in congestion, it seems very likely that in the absence of congestion they would still be spending that extra five minutes anyway, given that commuters everywhere else in the state are doing this.

It is important to eventually establish the reasons for the observed increases in Twin Cities commute durations because the policy implications depend on this. If they are due to congestion, then reducing congestion might reduce travel times and fuel consumption, as the TTI studies imply. If, however, they are due to some underlying shift in preferences or benefit-cost calculations, then the time and fuel saved by reducing congestion would just be spent traveling to more distant jobs rather than sitting in traffic.

Travel Time and Mode Choice

Although the much higher density of the central part of the Twin Cities region does not lead to much reduced daily travel times for those that travel exclusively by auto, one of the primary selling points of higher density is its facilitation of the use of non-auto modes. A case could be made that restricting the analysis to those that travel exclusively by auto is biasing the results in that these may be the highest-travel residents of dense areas. Those that work and shop locally as in the “smart growth” model would be left out and their beneficial effects on the transportation system overlooked by this method.

A competing, and also plausible theory, asserts that exactly the opposite effect would be expected. People may view walking and biking primarily as recreation rather than transportation. So they may just make all the car trips they would have made anyway, leading to an increase in their total daily travel, and a minimal if any reduction in their auto travel.

This section addresses this concern by examining total travel time by all modes as it varies by geographic location within the region. There are two issues here. One is the effect on total daily travel. This is a function of the prevalence of alternate mode use among the population and the amount of it that is done. The second issue is the degree to which alternate mode use substitutes for auto use.

This section uses just the 2001 data. The 1990 data did not include walking and biking, which are at least half of the alternate mode use, making comparisons difficult. Comparisons are also problematic because of the small sample sizes of people who used alternate modes. The census indicates that mode shares for commuting remained fairly constant during the 1990s, and this combined with the relative rarity of alternate mode use hints that changes in total travel time were probably primarily driven by changes in auto travel time.

The sample of non-workers who used non-auto modes was quite small, especially at the level of individual rings, so the tables in this section just give information about workers. Non-workers are discussed in the text in cases where reasonable conclusions can be drawn. Throughout this section, we refer to travelers who use modes other than auto by the shorthand descriptor “mixed-mode,” even though some of them may in fact use only a single mode.

The first question of interest is how the total daily travel time of mixed-mode travelers compares with those who use autos exclusively (Table 2).

Table 2: Total Daily Travel Time by Mode Type, 2001

Ring distance from nearest downtown	Total, all travelers	Car-only	Mixed mode	Mixed mode %
0-4 miles	79.7	75.7	85.9	39%
4-6 miles	82.1	77.0	99.9	22%
6-8 miles	80.0	77.8	92.0	16%
8-10 miles	79.5	78.1	107.1	12%
10-13 miles	80.1	78.7	93.6	13%
13-16 miles	80.1	78.8	91.7	11%
16-20 miles	82.3	79.7	107.4	9%
20-25 miles	85.4	83.1	108.3	9%
More than 25 miles	87.3	83.9	103.7	6%

Across the region, those that use non-auto modes spend more total time traveling each day. Including the additional, mixed-mode travelers brings the overall average travel time up, not down, and this is true even in the dense central parts of the region. Access to non-auto modes does not, on average at least, have the effect of allowing people to reduce the amount of time they spend traveling.

The fraction who used mixed modes by ring was almost identical for workers and non-workers. That is, the use of alternate modes is not solely a matter of workers using transit to get to their jobs, but does seem to reflect a broader system of opportunity or preferences in a given location, which both workers and non-workers utilize to much the same degree. There was a difference in the specific modes used; non-workers were relatively more likely to use transit in the inner rings, and to walk or bike in the outer rings.

Although total average travel goes up when non-auto modes are included, this could still be associated with a net reduction in auto travel, since much of the additional time is in other modes. Examining specifically the subset of mixed-mode travelers shows that they do have considerably reduced auto use on average (Table 3). The times in the last three columns do not add to the total because of the presence of a few other minor modes.

Table 3: Mixed-mode Travelers' Time by Mode

Ring distance from nearest downtown	Total daily travel time	Auto time	Walk and bike time	Transit time
0-4 miles	85.9	36.0	29.0	19.3
4-6 miles	99.9	52.4	26.6	19.6
6-8 miles	92.0	42.2	23.3	25.6
8-10 miles	107.1	63.4	18.6	16.5
10-13 miles	93.6	58.5	16.4	16.8
13-16 miles	91.7	60.5	14.4	10.9
16-20 miles	107.4	63.6	15.7	26.2
20-25 miles	108.3	57.2	16.3	29.1
More than 25 miles	103.7	74.3	17.0	10.9

A follow-on question is the size of the reduction in auto travel implied by the auto time for mixed-mode travelers compared to that for auto-only travelers, and how this compares to the amount of non-auto time (Table 4).

Table 4: Alternate Mode Use and Reduction in Auto Time

Ring distance from nearest downtown	Auto-only travelers	Mixed-mode auto time	Implied reduction for mixed-mode	Non-auto time for mixed-mode
0-4 miles	75.7	36.0	39.6	49.9
4-6 miles	77.0	52.4	24.6	47.5
6-8 miles	77.8	42.2	35.6	49.8
8-10 miles	78.1	63.4	14.7	43.6
10-13 miles	78.7	58.5	20.2	35.1
13-16 miles	78.8	60.5	18.3	31.2
16-20 miles	79.7	63.6	16.1	43.8
20-25 miles	83.1	57.2	25.9	51.2
More than 25 miles	83.9	74.3	9.6	29.4

There appears from this table to be a general relationship in that those rings with larger non-auto times tend to have larger implied reductions in auto travel. However, the relationship is not perfect, and in every ring the amount of non-auto time is larger than the implied reduction in auto time, implying that there is not a one-for-one tradeoff. Overall, calculating averages weighted by the number of non-auto travelers in each ring indicates an average reduction of 28 minutes in auto travel time, and an increase of 45 minutes in non-auto time. This is a little better than 2 to 1, or that every two minutes in non-auto reduces auto time by one minute.

Another way of looking at this is to run a simple linear regression on this small data set, regressing the implied auto time reduction on the amount of non-auto time. The results of this indicate that the average mixed mode user spends 13 minutes more per day as a baseline (although this is not statistically significant) and spends 0.84 minutes less driving for every minute spent in non-auto modes. The adjusted R-squared of this regression is 0.45. This implies nearly a one-for-one reduction, but some of the "extra" 13 minutes will be auto time as well, so the net reduction is smaller than this.

The final calculation in this analysis is the total amount of auto and non-auto travel time for all travelers, including both auto-only and mixed-mode. This is the ultimate measure of how much difference mode choice makes to overall travel reduction (Table 5).

Table 5: Average Time by Mode for All Travelers

Ring distance from nearest downtown	Total time per traveler	Total auto time per traveler	Non-auto time per traveler
0-4 miles	79.7	60.1	19.6
4-6 miles	82.1	71.5	10.6
6-8 miles	80.0	72.2	7.8
8-10 miles	79.5	74.3	5.2
10-13 miles	80.1	75.6	4.5
13-16 miles	80.1	76.7	3.4
16-20 miles	82.3	78.3	4.0
20-25 miles	85.4	81.0	4.4
More than 25 miles	87.3	85.5	1.8

While the difference between the inner- and outermost rings is only about eight minutes in total daily travel time, it is nearly 25 minutes for auto travel time per traveler. This is due to the large fraction of mixed-mode travelers in the inner ring (nearly 40%) and the substantial reduction in auto travel that they generate (nearly 40 minutes in this ring). While the effect of alternate mode use appears to be much greater in this table, this is in part because different influences are being combined here; the differences include both mode-induced variations, and variations across the ring in the time spent by auto-only travelers.

While the relative constancy of total daily travel time across the region does lend some support for the notion that implicit travel time budgets might limit the impact of land use policies on travel in general, this table does support to some degree the idea that mode shifts can have a significant impact on the amount of auto travel, even if not on travel in general. A 25-minute per day difference in auto travel is certainly significant enough to merit further attention, and while recreating inner-city land uses in the exurbs may not be viable, even the difference between the inner two rings is ten minutes per day. The possibility exists that people may have chosen their home location in order to facilitate their mode preferences, and thus that the same land uses somewhere else may not have the same impact; further study to establish the extent of this would be useful. Overall, though, these results indicate that mode-shifting may represent an effective strategy for reducing regional auto travel, at least within a limited range.

CONCLUSIONS

These results provide support for a flexible version of a travel time budget hypothesis, as well as mixed support for the claimed travel benefits of smart growth. Clearly total daily travel times increased between 1990 and 2001, so a strict travel time budget in which preferences are fixed and people respond completely to changes in travel conditions cannot apply. However, such a strict interpretation seems implausible anyway; a more interesting approach lies in understanding the underlying factors that influence the degree of elasticity in daily travel times.

A finding that supports the travel time budget concept, as it did in 1990, is that total daily travel time varies only about 10% across the Twin Cities region, despite very significant differences in both local and regional accessibility to work and personal destinations. This indicates that geographically at least, people adjust their behaviors to reflect the benefits and costs of the available opportunities. This to some extent refutes the smart growth notion that having more opportunities close to home should lead to a noticeable reduction in total travel.

Geographical analysis in 1990 indicated that intra-regional variations in total daily travel time were mostly due to differences in commute durations. This seems to be the case temporally as well. There was a small (3%) increase in total travel time by non-workers, and a similar increase in non-commute time by workers. Commute times increased about 10% across the region and this was responsible for about 80% of the total increase in travel times for workers.

While the increase in commute times is roughly the same as the regional increase in congestion delays as reported by TTI, similar commute time increases occurred throughout the state during the 1990s. Thus it is not clear whether the increase in the Twin Cities represented a failure to adjust to increasing congestion levels, or from a shift in underlying preferences that happened universally. Travel time budget theory would not rule out the possibility of changing preferences, but it would generally imply that people should respond to congestion by reducing travel time in some other way, in the same sense that they adjusted to freeway-induced speed increases in the 1960s by increasing trip distances.

Finally, the presence of meaningful choices in terms of non-auto travel modes does appear to have a clear if somewhat limited impact on the amount of auto travel that people engage in. People who use other modes tend to spend more total time traveling than those that just use autos; every two minutes of another mode tends to reduce auto travel by about one minute. In the aggregate this can amount to a reduction of ten minutes a day or more when comparing adjacent areas with differing degrees of alternate-mode facilitation. This is not insignificant, but does point to the need to be cautious in predicting the benefits of mode-substitution policies. They will likely be half of what would be indicated by a simple assumption that trips are fixed and that any auto trip that disappears will not be replaced.

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