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Observations on the Causes of Nonwork Travel Growth

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ABSTRACT

Nonwork activities comprise the dominant general purpose for travel in the United States. Three-fourths of all person trips are made for nonwork purposes. Travel for nonwork purposes has grown as a share of all private vehicle travel over the last three decades, and now accounts for approximately four of five vehicle trips. Nonwork is the major reason for travel even in peak travel periods. It may also be linked to the rapidly increasing numbers of commercial vehicles in service.

Earlier research has suggested various reasons for the growth of nonwork travel, including the decentralization of housing and jobs. Significantly missing from previous analyses is the recognition that activities generating nonwork trips have also changed remarkably in the past few decades. There are considerably more opportunities and choices to shop, purchase services, and engage in recreation and other leisure activities.

An explanation of the growth of nonwork travel requires a knowledge of the increased variety now available in the marketplace, and the spatial organization of venues. A schematic model for nonwork travel is advanced. It hypothesizes that growing income, expanding consumer preferences, and technological innovation are shaping retail structure that in turn increases nonwork travel.

Understanding nonwork travel is important beyond normal academic curiosity. Widespread governmental efforts assume that nonwork activities, if supported by major public transit investments, can be reorganized into more compact, mixed-use forms, resulting in reduced auto dependency. Thus a better comprehension of nonwork travel patterns should aid regional transportation and land use planning.

KEY WORDS: Nationwide Personal Transportation Survey; nonwork travel; nonwork activities; retail marketplace.

INTRODUCTION

Travel for the purpose of engaging in nonwork activities has grown steadily in significance over the last three decades. It now accounts for about three-fourths of all person trips and four of five household vehicle trips. Nonwork is the major travel purpose even in weekday peak periods, both AM and PM. And, increasingly, nonwork trips are linked to work trips as well as to other nonwork trips in complex chains.

Yet, in spite of its overwhelming dominance in trip volume, nonwork travel has received little attention in travel research compared to the work trip. The daily commute and its association with peak demand and congestion is a more tractable and compelling target for research. In contrast, nonwork covers a broad variety of purposes, destinations, and starting times. Nonwork activity patterns for one traveler change from day-to-day, so nonwork trips are often considered by analysts to be discretionary.

Nonwork travel is inherently complex and therefore more difficult to address analytically -- to measure and to model -- than is work travel. Analyses of nonwork travel have neglected the probable impact of the large changes in the consumer marketplace that have occurred in recent years. Although transportation planners and project engineers often estimate the impact of nonwork trips through standardized trip generation rates for different land uses, covering the spectrum from fast food restaurants to major shopping malls, the effect of multiple generators on aggregate travel demand has not been fully explored.

In this paper we summarize national trends for nonwork activities and travel patterns derived from the National Personal Transportation Survey (NPTS).¹ We review previous studies that speculated on the causation of growth of nonwork trips, and we offer some additional reasons for nonwork travel growth. In particular, we summarize recent, ongoing changes in the retail environment that partially explain the observed growth of the several categories of nonwork trips.

NONWORK TRAVEL DEMAND AND PATTERNS

Table 1 disaggregates by tour type and trip purpose the 379 billion person trips by all modes in the United States in 1995, as estimated by the NPTS (1). We use here the typology employed by McGuckin and Murakami (2). A tour, defined as a sequence of trips for separate purposes, is categorized by the anchors of home, work, and other location. The five possible types of tours are: Home to Work, Work to Home, Work to Work, Home to Home, and Other to Other.

The totals show that shopping (13.8%) generates more individual trips than going to work (8.6%), even if work-related business (2.8%) is added to commuting. The three next largest purposes are also nonwork categories: Other Family and Personal Business (9.8%), Other Social and Recreational (6.6%), and Eating Out (4.8%). Other Family and Personal Business includes the purchase of consumer services such dry cleaning, auto repair, personal care, banking, and legal services. Other Social and Recreational includes socializing with friends, engaging in recreation, and attending cultural events.

¹Some of 1995 NPTS data presented here has been extracted from the survey database and calculated using the online analysis tool provided at the NPTS web site (www.ct.ornl/npts/1995).

TABLE 1 Percentage of All Person Trips By Tour Type and Trip Purpose, 1995

Trip Purpose	Home-to-Home	Home-to-Work	Work-to-Home	Work-to-Work	Other *	Total
All purposes	63.8	10.5	12.1	6.4	8.3	99.8
To work	-	7.5	-	1.0	0.2	8.6
Work-related business	-	0.7	-	2.0	0.1	2.8
Return to work	-	0.3	-	1.4	0.0	1.8
Shopping	10.8	0.4	1.1	0.5	1.2	13.8
School	2.9	0.1	0.1	0.0	0.3	3.2
Religious activity	1.5	0.0	0.0	0.0	0.1	1.6
Medical/dental	0.7	0.0	0.1	0.0	0.0	0.9
Other family/personal business	7.2	0.4	0.8	0.4	1.3	9.8
Take someone somewhere	2.5	0.7	0.2	0.1	0.2	3.6
Pick up someone	2.1	0.1	0.6	0.1	0.2	3.0
Vacation	0.0	0.0	0.0	0.0	0.3	0.2
Visit friends/relatives	4.0	0.1	0.2	0.0	1.1	5.3
Out to eat	3.1	0.1	0.3	0.8	0.7	4.8
Other social/recreational	5.2	0.1	0.2	0.1	1.2	6.6
Other	0.0	0.0	0.0	0.0	0.2	0.2
Home	23.8	-	8.5	-	1.3	33.6

* Tours that start or end at places other than home or work.

Source: 1995 NPTS

If we ignore the return trips (to home, work, and other), the four nonwork categories mentioned accounted for about 54 percent of all person trips in 1995. Our focus is on these categories because they involve locations that comprise what we define as the "retail" marketplace: stores offering consumer goods and services, restaurants and drinking establishments, and venues for a wide range of recreation, social, and cultural activities. These activities tend to have flexible locations -- a traveler has more than one possible choice of destination for each activity. The "other" category includes some nonwork activities that are more likely to be carried out at locations that are fixed by circumstances, such as visiting friends, seeing a doctor or dentist, and trips to school or church.

Nonwork travel can now be tracked across the historical record of the NPTS as shown in Tables 2 and 3. The adjusted data have been divided into two periods to reflect changes in the survey methodology that were made in the 1995 NPTS (3). Table 2 indicates the distribution of person and vehicle trips by trip purpose. Although nonwork person trips have grown moderately (3%) as a share of all trips, nonwork vehicle trips have increased substantially in relative significance (9%). The largest part of this growth over the 26-year period has been for purposes of shopping and other family and personal business.

TABLE 2 Distribution of Person Trips and Vehicle Trips By Purpose (Percent), 1969-1995

Trip Purpose	Person Trips					Vehicle Trips					
	1977	1983	1990	1990 Adj.	1995	1969	1977	1983	1990	1990 Adj.	1995
Shopping	17.1	18.0	18.9	19.3	20.2	15.2	17.0	20.0	20.3	20.8	21.6
Other family & personal business	14.0	17.4	22.7	26.2	25.6	14.0	14.0	18.3	24.1	27.9	27.0
Social and recreational	24.4	27.7	24.8	26.8	24.9	22.4	19.3	22.6	20.5	22.0	18.4
Other*	21.4	14.1	12.1	10.0	9.0	12.2	16.8	8.4	7.0	5.0	5.8
All nonwork	76.9	77.2	78.4	82.4	79.7	63.8	67.1	69.3	71.9	75.7	72.8
Work & related	23.1	22.8	21.6	17.6	20.3	36.2	32.9	30.7	28.1	24.3	27.2

*Includes trips to school, church, doctor/dentist, and to drop off or pick up.

Source: NPTS

Table 3 displays the percentage growth in average per person vehicle trips, miles of travel, and trip length. Per capita figures, rather than per household, have been used to give appropriate weight to declining household size. The numbers reveal the large growth in personal trip frequency and VMT, particularly for Shopping and Other Family and Personal Business, that occurred 1969-95. VMT per capita more than doubled for these two nonwork categories.

TABLE 3 Percentage Change in Vehicle Travel and Trip Length by Trip Purpose, Per Person, 1969-90, and (1990-95)

Trip Purpose	Period Growth in Average Annual Vehicle Trips Per Capita	Period Growth in Average Annual VMT Per Capita	Period Growth in Average Vehicle Trip Length Per Capita
All purposes	+27 (+12)	+27 (+15)	+1 (+2)
To or from work	+1 (+22)	+20 (+33)	+17 (+8)
Shopping	+76 (+16)	+108 (+28)	+16 (+16)
Other family and personal business	+137 (+8)	+169 (+1)	+14 (-5)
Social and recreational	+15 (+7)	-1 (+11)	-10 (-5)
Other*	+27 (+36)	-32 (+68)	+1 (+23)

* Includes trips to school, church, doctor/dentist, and to drop off/pick up.

Source: 1995 NPTS

In the 1990-95 period, employment expanded under a strong economy, and work trips grew as a share of all trips and on a per capita basis.

The average length of trips -- the far right-hand column of Table 3 -- show interesting differences. Work, Shopping, and Other Family and Personal Business trips all increased in

length to about the same degree in the 1969-90 period. In contrast, Social and Recreational trip lengths decreased.

The timing and linkage of nonwork trips is also of interest. Nonwork trips are a major portion of all trips at all times of the day, and more than 80 percent of trips that start in the 4-7 PM peak are for nonwork purposes (4). More than 60 percent of women and 46 percent of men make at least one stop on work-to-home tours. The location of stops in these tours is important because it reflects the spatial distribution of nonwork activities. Since the NPTS asks for trip length but not the geographical location of stops, we do not know the spatial patterns of tours. However, a study in the Seattle metropolitan area based on household surveys did probe this issue and found that a majority of stops fell outside the neighborhood commercial district most proximate to the traveler's residence (5).

Concomitant with the increase in personal nonwork travel has been a significant growth in commercial vehicle travel (6). The number of trucks in commercial service grew at a pace that far exceeded the growth in population in the period 1987-97 (Table 4).

TABLE 4 Growth of Selected Categories of Commercial Vehicles in Service, 1987-1997

Major Use	1987 Trucks (1000s)	1992 Trucks (1000s)	1997 Trucks (1000s)	Percent Increase 1987-97
Wholesale trade	969.5	1,136.1	1,264.6	30.4
Retail trade	1,537.1	1,950.9	2,243.8	44.9
Services	1,980.8	3,123.3	4,233.5	113.7
Daily rental	147.6	307.6	508.0	244.2
<i>US Population</i>	<i>242,231</i>	<i>255,039</i>	<i>267,636</i>	<i>10.5</i>

Source: 1992 Truck Inventory and Use Survey & 1997 Vehicle Inventory and Use Survey, U.S. Census Bureau.

PREVIOUS ANALYSES OF NONWORK TRAVEL

Although the NPTS and regional surveys have documented the large and continuing increases in several categories of nonwork trips since the late 1960's, there have been surprisingly few investigations into root causes. We review these studies and suggest why they provide an incomplete causal understanding of nonwork travel. In particular, we propose that a more comprehensive explanation for the growth in nonwork travel must take into account the change that has occurred in the consumer marketplace over the same period.

A decade ago, Gordon, Kumar, and Richardson (7, 8), here after referred to as GKR, used the results of the 1977 and the 1983 NPTS to spotlight the rapid growth of nonwork trips and the importance of this phenomenon for metropolitan transportation and land use policy. While suggesting that life style changes had contributed to more nonwork travel, and after rejecting several other possibilities, these researchers speculated that the vigorous growth of nonwork

travel was primarily the result of urban decentralization. Suburbanization of both households and jobs, they asserted, had made possible shorter work trips. This, and the ubiquity of a wide range of commercial and service facilities in the modern suburb, had reduced travel time and distance and thus generated increased opportunity for leisure pursuits.

Decentralization still stands today as one plausible contributor to the growth of nonwork travel. But we would expand the list of contributing causes for the large growth in per person trip frequency for several sub categories of non work travel. We reach this conclusion after a closer look at GKR's work, in particular the older NPTS data and the concept of a personal travel time budget, and the dynamic changes that have occurred in the consumer marketplace in the period that NPTS data have been collected. We also review other possible causes that were discussed previously by GKR and others, and we suggest additional causes that must be considered speculative until more research is completed.

The Decentralization Hypothesis

By comparing NPTS trip volume data, GKR observed that nonwork trips had apparently grown to a much greater degree in suburbs than in central cities between 1977 and 1983, across a range of Standard Metropolitan Statistical Area (SMSA) sizes. This evidence lead them to speculate that the cause of nonwork trip growth was the maturing suburban land use pattern, i.e., workplace and commercial areas being located in proximity to residential areas. As the suburbanization of jobs and retail and consumer services increased, GKR reasoned, residents of these areas reduced their time of commuting and applied it to nonwork activities.

GKR's hypothesis was based on total person trip volumes and a calculation of percentage changes in volume over the six year period. However, no attempt was made to control for differentially changing population in areas inside and outside central cities of an SMSA. Indeed, many central cities were losing population relative to their suburbs in the 1970's and early 1980's. This phenomenon was actually reflected in the NPTS data presented by GKR (their Table 2, p.420) that showed dramatic declines for work trip volumes inside central cities.

The differences between central cities and suburbs are much less dramatic when daily person trip frequencies (GKR, Table 6, p.423) are employed to calculate percentage changes. As shown in Table 5, growth in nonwork trips for the period 1977-83 was only slightly greater for residents of suburbs compared to central cities in SMSAs of the same size, and then only for SMSAs with a population greater than one million. For example, using the group of SMSAs having populations between 500,000-999,000, the average per capita trip rate increased by 49 percent both inside and outside the central city. In comparison, the total volume of trips decreased by 15 percent inside and increased by 36 percent outside.

TABLE 5 Geographic Variations in Daily Nonwork Trips Per Person, 1977 and 1983

SMSA-Size Groups	1977 Daily Per Capita Trips	1983 Daily Per Capita Trips	% Change in Per Capita Trip Volume 1977-83	% Change in Total Trip Volume 1973-83 (GKR)
Living inside the central city				
<250,000	1.50	2.25	+50	+42
250,000-499,999	1.41	2.14	+52	-12
500,000-999,999	1.39	2.07	+49	-15
1-3 million	1.38	1.71	+24	+9
>3 million	1.04	1.37	+32	+23
Living outside the central city				
<250,000	1.29	2.00	+55	+155
250,000-499,999	1.23	1.91	+55	+65
500,000-999,999	1.43	2.13	+49	+36
1-3 million	1.45	1.89	+30	+11
>3 million	1.40	1.96	+40	+30

Sources: 1997 and 1983 NPTS, and Gordon, Kumar, and Richardson (1988).

A direct test of GKR's hypothesis could be made by tracking residential, employment, and commercial growth in the suburban areas of one or more metro regions over the span of time represented by the NPTS data. This measurement might show that workplace and commercial development initially lagged residential development but eventually closed the gap to create functionally complete suburbs.

Although GKR did not test their own hypothesis in this manner, other researchers have mapped development following the construction of a new highway corridor (9, 10). These studies do substantiate that development occurs in stages, with workplace and commercial development generally following residential development. However, different areas reach a specific stage of development at different times, and this pattern has been operative in the U.S. since suburban development exploded following World War II. Thus decentralization is not a uniform phenomenon as GKR imply.

Travel Time Budget

GKR implicitly invoke the concept of a travel time budget when they suggest that the more efficient spatial patterns in developing suburbs reduce trip costs (time and distance) and thereby free up time for more nonwork travel to engage in leisure pursuits. The existence of a relatively constant travel time budget has been proposed by Zahavi (11). Other evidence indicates that people treat travel time as a part of their personal or household daily activity time budget, and that they trade off travel time with both in-home and out-of-home activity time (12). More time will be expended in traveling to engage in more nonwork activities if there is utility inherent in those activities.

Changing Lifestyles

GKR acknowledged that many “lifestyle” changes may have contributed to more frequent and more regular nonwork trips. They cited more meals eaten outside the home, frequent visits to health clubs, and increased utilization of outpatient clinics as examples. Although these are clear reflections of a changing marketplace, they are only the tip of an iceberg of fundamental changes that had begun before 1977 and continue today. Rather than expanding their inquiry to include the evolving consumer demand for new products and services and the market’s response, GKR instead choose to offer what they called a more “systemic” reason, “spatial organization,” to explain the trend to more nonwork travel.

Increasing Income

To investigate whether the propensity to make more nonwork trips was a function of income, GKR stratified trip frequencies by purpose and household income for each SMSA size and residential location. They found that higher income households tended to make more trips of all kinds, but that the increase in nonwork travel from 1977 to 1983 was common to all income groups, whether they lived inside or outside central cities and despite SMSA size. GKR concluded that income effects were not responsible for the growth in nonwork travel.

But what if increasing income itself allows people to take more trips, especially to shop, eat out, and engage in leisure activities? Intuitively, the answer is that it should. Then the question is whether income was increasing across all income levels in the measurement period? In the six-year period from 1977 to 1983, real (constant dollar) disposable income (including both earnings and transfer payments) increased 8 percent and real personal consumption expenditures increased 7 percent (13). These were sizable gains that may, in part, account for the observed increases in nonwork travel. More study would be required to establish the exact relationship between increasing income and nonwork trip frequency.

Other Factors

Several other factors are potentially at work in the rise of nonwork travel, some of which were touched upon by GKR, and others that have arisen more recently:

Growth of Employed Women

GKR considered the possibility that the increase in female employment was responsible for some growth in nonwork travel. Woman with child-rearing responsibilities who enter the work force may make more trips to daycare facilities. However this possibility could not be tested because the trip purpose data were not separated to this level. GKR found that, generally, women in different categories, whether or not heads of families with young children, exhibited little variation in nonwork travel behavior.

Decreasing Household Size

Another idea explored by GKR is that demographic changes, in particular decreasing household size, could explain the growth in nonwork travel. They suggested that larger households make fewer trips that might, for example, combine shopping with giving a ride to a family member. They discounted this reason since their analysis of nonwork travel growth was based on individual trip data. However, the significant decrease in average household size that began in the mid 1960's and only began to slow in the mid 1980's might contribute to the observed growth in some categories of nonwork travel. (In the period 1969 to 1995 average household size dropped 17 percent, from 3.16 to 2.63.) For example, industry data indicate that while grocery shopping is a shared responsibility, men and women who head the same household shop together in only about 9 percent of all trips made to the store (14). Most grocery shopping trips are made singly by the female head.

Demand Responding to Supply

GKR also explored the possibility that the observed increase in nonwork travel was a response to increased supply, i.e., more highway capacity. They point out, however, that highway mileage increased by 12 percent from 1977 to 1984, much less than the observed increase in nonwork trips. Yet it also seems apparent that added roadway capacity, whether highway miles or lane miles, will increase accessibility to a wider range of nonwork activities that are available within a metropolitan region. Increased supply, then, cannot be easily discounted as a factor that explains nonwork travel growth.

More Vehicles and Drivers Per Capita

Household vehicles and licensed drivers grew substantially in the period 1969-1995, by 143 percent and 71 percent, respectively. This compares to a 32 percent increase in population. These additional cars and drivers may have contributed to the disproportionate growth of nonwork travel. If more cars are available to a household, it is possible that they will be used for nonwork trips that might not otherwise have been taken because no household vehicle was available at the time the person desired to travel. Going from one to 2 to 3 cars is a big jump in available household mobility that is likely to get used on trips that are more discretionary than not. This may be more true for teenagers than others.

Mobile Communications Technology

The growth of cellular telephones in cars may also be factor in recent travel behavior. Clearly, the ability to receive and make calls could unleash additional trip making. Someone so equipped may be more willing to leave the proximity of a home or office telephone knowing that she will not be out of touch. This could mean running errands during off peak that may have previously been saved for peak and perhaps combined with other activities in a chained trip.

More Efficient Vehicles

Berkowitz, et al (15), cited by GKR, suggested on the basis of Canadian data that more fuel-efficient vehicles had stimulated the growth of nonwork trips. Average new car fuel economy was increasing rapidly (by 39%) in the 1977-1983 period. However, GKR found that the increased number of nonwork trips was associated with a decline in total VMT, which is a contrary to the expectation that lower fuel costs would increase distance traveled. The hypothesis is also complicated by the fact that gasoline prices at the pump (and in constant dollars) were increasing rapidly in the same period. However, the cost of fuel, being both a highly visible and variable cost of travel, could be expected to have some impact on the most discretionary nonwork trips.

RETAIL AND CONSUMER SERVICES DYNAMICS--EFFECT ON TRAVEL

Our hypothesis for the dominant influence over nonwork travel is the changing commercial marketplace -- for consumer goods and services, for eating out, and for other leisure activities. The changes have been major over the 26 year span of NPTS data, and are ongoing as the retail marketplace continues to reinvent itself.

TABLE 6 Major Retail Trip Generators in the New American Economy

Shopping Venues	Leisure Activities
Regional malls	Eating and drinking establishments
Planned shopping centers	Cabarets and clubs
-Power centers	Live performances
-Outlet centers	Video arcades
Discount department stores	Health clubs
Home improvement centers	Participant sports
Club warehouses	Spectator sports
Superstores	Casual outdoor recreation
Convenience stores	
	Specialty Services That Come To Us
Specialty Services We Travel To	Package delivery
ATMs	Home systems repair
Auto servicing and repair	Landscaping
Copy centers	Housecleaning
Day care	Use goods charity pickup
Health clinics	Municipal recycling pickup
Personal beauty care	Home security

The new marketplace is characterized by ever more variety and opportunity for consumers, and consequently more trip generators (Table 6). Retail structure has transformed to larger and fewer

retail store formats in any one category, while the number of individual categories has greatly increased. Some retailers, such as home improvement centers, have taken advantage of consumer demand for more choice and good values by scaling up in floor area and offering a wide scope of products. Others, such as the many varieties of "superstores," have carved niches from the traditional department store format.

The spatial organization of the new retail marketplace is equally varied. Some retailers prefer to stand alone at locations providing greater visibility, access, and control over hours of operation, which tend to be around the clock. Others prefer to cluster, even with their competitors. The result in the latter case can be very large retail concentrations.

Retail Market Trends

The authors have reviewed major trends in the retail marketplace in a separate paper (16). We offer here three examples that represent the increased variety and spatial reorganization in the retail environment: the upsurge in mass retailing, including the entrance of superstores; the decreasing number and increasing size of grocery stores; and the continuing trend toward more meals eaten away from home.

Mass Retailers

In the past two decades, many niche retail formats have been invented. These new types of stores include warehouse clubs, home centers, and other specialty retailers, the so-called discount department stores and superstores. They have shown extraordinary growth in the last two decades (Table 7). Superstores alone come in numerous kinds (Table 8). These stores, also known as "category killers," specialize in one product group and are able to offer good values because of high sales volumes. Superstores typically have floor areas in the range 20,000 - 100,000 square feet and a large trade area equivalent to that of a regional mall. In fact, many tend to cluster near malls creating major retail concentrations. Not just a suburban phenomenon, superstores are distributed widely across the urban landscape, including inside central cities. A recent inventory by the authors in the Seattle metropolitan region, an area with a population of 3.2 million, yielded 250 superstores. Most did not exist 15 years ago.

TABLE 7 Selected Examples Indicating the Rapid Growth of Mass Retailers

Chain	Category	Units		
		1979	1989	1999
Wal-Mart	Discount Department Store	229	1,378	2,433
Home Depot	Home Center	3	118	761
Toys "R" US	Toy Superstore	84	522	700
Costco	Wholesale Club	--	43	217
Circuit City	Home Electronics Superstore	--	125	585
Staples	Office Supplies Superstore	--	50	745
Walgreen's	Combination Drugstore	926	1,416	2,800

Source: Discount Merchandiser; Chain Store Age

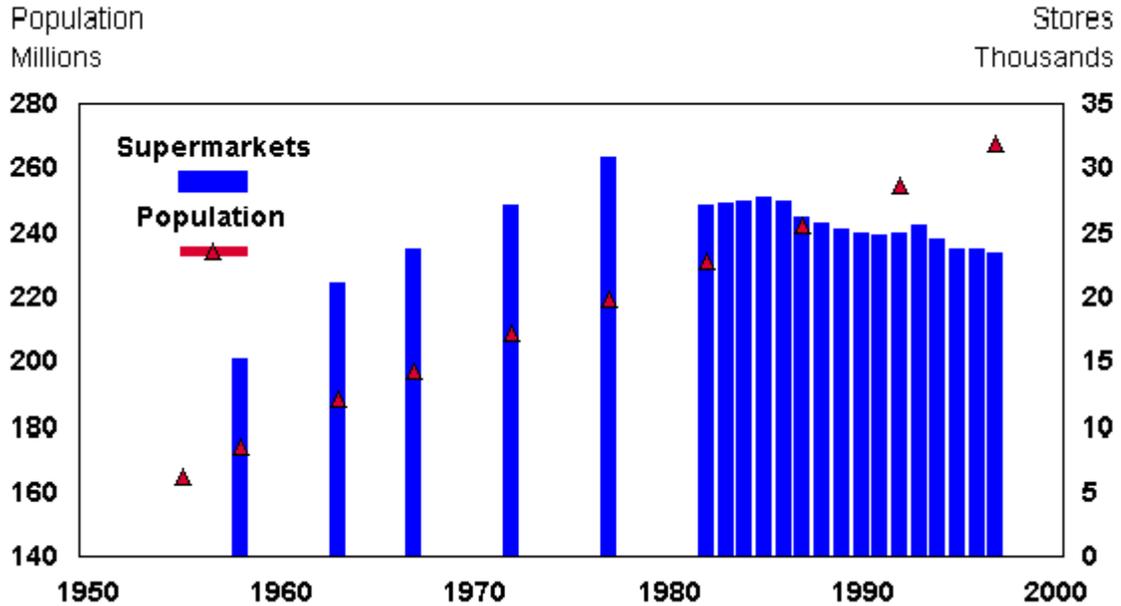
TABLE 8 Superstore Categories

Arts and crafts	Groceries and prepared foods
Books	Home electronics
Car electronics	Home furnishings
Computers	Music recordings
Drugs and misc. goods	Office supplies
Electronic games	Pet supplies
Fabrics	Sporting goods
Garden supplies	Thrift (second hand)

Grocery Stores

Grocery stores are growing in size and decreasing in number, even as population increases (Figure 1). The number of stores peaked in about 1978 and over the last two decades has been steadily decreasing. Between 1990 and 1995, conventional supermarkets decreased 20 percent while the number of grocery “superstores”, which typically have a delicatessen, bakery, and nonfood goods and services, increased 17 percent. As a result, food shopping trips are growing in distance and probably in time expended.

FIGURE 1 Relative Growth of "Supermarkets" and Population, 1958-1997



Source: U.S. Department of Agriculture, Economic Research Service

Eating Out

People are now eating and drinking in many more, different places. While per capita food expenditures remained essentially constant, food consumed away from home grew from 37 percent of food expenditures in 1969 to 46 percent in 1995 (17). The number and variety of eating and drinking establishments increased even faster. In the period 1963 to 1992, the total of these venues rose 89 percent, compared to a 35 percent increase in population (17). Although national counts that would reveal fine structure are lacking, the changes appear to involve much more than fast-food establishments. For example, foreign and specialty cuisines have shown phenomenal growth in the Seattle metro area (Table 9).

Retail’s Effect on Travel

Ongoing changes in the American retail structure appear to us to be a more pivotal explanation of the trends in NPTS data than the decentralization hypothesis proposed by GKR. The increasing variety of shopping, eating out, and other nonwork activities almost certainly causes more trips per capita. An information-rich environment lets people know about their many choices. Advertising and other marketing activity entices them to go. And the generally increasing scale of the new retail structure -- bigger and fewer specialized stores -- would tend to produce trips that are longer on average. However, more efficiency is possible if trips are chained. Clustering of stores facilitates chaining, and travel for nonwork purposes is likely to involve multiple stops and stops for multiple purposes during the same tour. The growth in commercial vehicles reflects the need to service a consumer marketplace that is increasingly varied and dispersed.

TABLE 9 Growth of Cuisine Restaurants in Seattle Metropolitan Area, 1980 -1998

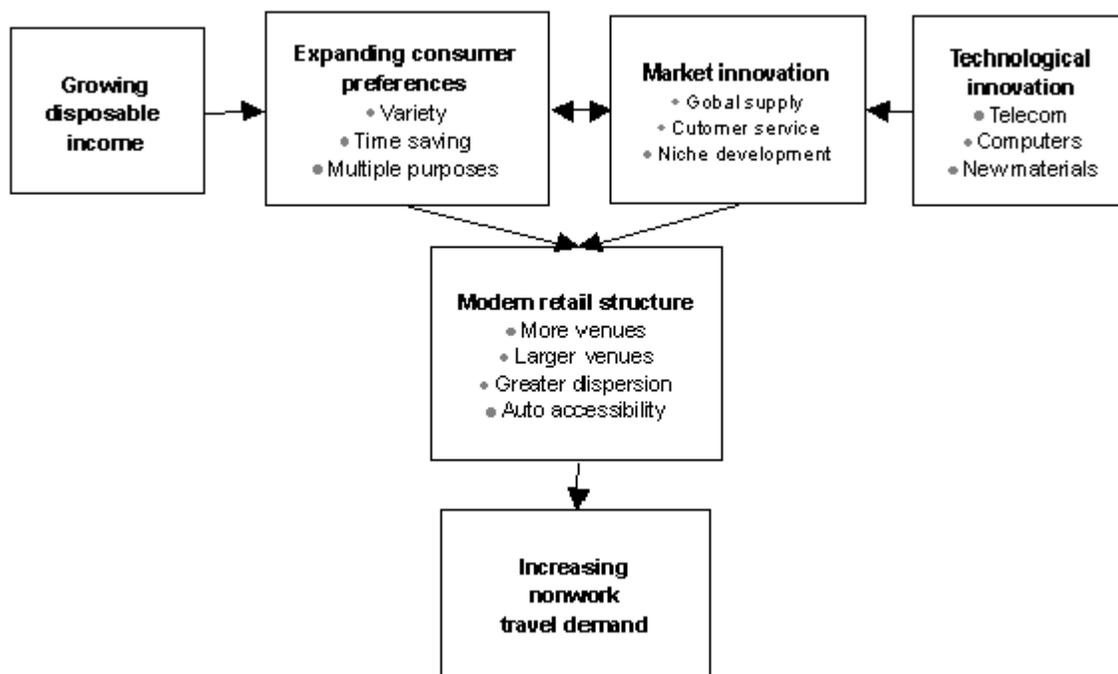
Restaurant cuisine	Number of establishments - 1980	Number of establishments - 1998
American	14	30
Barbecue	5	23
Chinese	27	81
Indian	1	27
Italian	13	101
Japanese	10	77
Mexican	19	67
Pizza	13	26
Seafood	13	36
Thai	1	67
Vietnamese	1	24
Other (46 cuisines)	73	188
TOTALS	190	747

Source: US West “Yellow” pages

SUMMARY AND CONCLUSIONS

Urban decentralization appears to have played only a modest role in the growth of nonwork travel. Changing lifestyles provide a more plausible explanation for nonwork trip growth, but it is not a simple cause and effect relationship. Lifestyle changes, or consumer preferences, have to be understood as both dependent and independent variables in a dynamic process that involves consumer demand, technological change, and market innovations as depicted in Figure 2. Feedback linking consumer preferences and business-driven innovation serves to expand those preferences and is an inherent aspect of the modern market system. Opportunities generated by expanding wealth and technological innovation stimulate the market to offer even more variety and choice.

FIGURE 2. A Schematic Model of Consumer Behavior, Retail Structure, and Nonwork Travel



All of this plays out in the spatial realm of a metropolitan region, whether inside or outside the central city. New trip attractors are continually being added that change personal and aggregate travel patterns, increasing both the number of nonwork trips and VMT. People organize their trips into complex tours that allow efficient access to the increasing numbers of destinations, while minimizing trip time and distance within their activity budgets.

Commercial vehicle travel increases in proportion to the expanding niche markets for goods and specialty services, and for the more frequent, just-in-time schedules required by the new

economy. More retail locations, more kinds of goods, more market competition, tighter inventory control, higher service levels, and more home services all stimulate a growth in trucking along the lines observed. Home delivery of goods ordered through the Internet is now on a high growth path as well. Commercial vehicle trips may increase even more in the future as online markets grow and diversify.

Where the saturation point for nonwork travel lies is hard to predict. Certainly a broader distribution of wealth will tend to increase nonwork person trips, as will retail market innovations that provide even more consumer choice. But there are other factors, including online marketing, that may tend to play in the other direction and reduce personal nonwork travel. These and other uncertainties, the result of a complex activity and travel environment, require new approaches to nonwork data collection, trip forecasting, and related planning (18, 19).

The complexity and change in the new retail marketplace has significant practical importance. How amenable the retail industry is to policy-driven geographic restructuring will be a key factor in efforts to manage growing travel demand through strategies that link land use and transit.

There is a clear need for further investigation of the growth in nonwork travel and its relationship to retail structure, personal income, vehicle availability, mobile communications, and other factors affecting mobility and travel costs. One important task is exploring how the NPTS and other surveys might be modified and integrated to provide additional data and useful insights into nonwork travel.

NOTE

Some of the data in this report are drawn with permission from research conducted by the authors for the Norman Y. Mineta International Institute for Surface Transportation Policy Studies at San Jose State University.

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