Title

The Effects of Land Use on the Mobility of Elderly and Disabled and Their Homecare Workers, and the Effects of Care on Client Mobility: Findings from Contra Costa, California

Author

Decker, Annie

Publication Date

2005-06-01

The Effects of Land Use on the Mobility of Elderly and Disabled and Their Homecare Workers, and the Effects of Care on Client Mobility: Findings from Contra Costa, California

by

Anne Orelind Decker

B.A. (Harvard University) 1996

A thesis submitted in partial satisfaction of the

requirements for the degree of

Master
in

City and Regional Planning

in the

GRADUATE DIVISION

of the

UNIVERSITY OF CALIFORNIA, BERKELEY

Committee in charge:

Professor Martin Wachs
Professor Elizabeth Deakin
Professor Paola Timeras

Summer 2005[1]

[1] Note that a few typographical errors were corrected in December 2005, so this version differs slightly from the one submitted as a master's thesis.

Abstract

The Effects of Land Use on the Mobility of Elderly and Disabled and Their Homecare Workers, and the Effects of Care on Client Mobility: Findings from Contra Costa, California

This study looks at the relationships among land use; the mobility of disabled and elderly recipients of public home healthcare; the mobility of their homecare workers; and how much care those homecare workers provide. The findings are based on nearly 1,300 survey responses from clients and homecare workers in the In-Home Supportive Services (IHSS) program in Contra Costa County, California, a publicly funded program for individuals with disabilities who have low incomes. The homecare workers I surveyed belong to the Service Employees International Union (SEIU). The qualitative data and descriptive statistics paint a portrait of both populations' transportation habits and challenges. Regression analyses, controlling for variables such as car ownership, disability level, gender, age, and race, tested the interactions between the variables of interest in six hypotheses.

The results are complex and occasionally conflicting, yet patterns appear. For example, the IHSS clients have car-use rates far lower than average, with only 10% driving themselves when they leave home, and almost half live alone; these facts, combined with their low incomes and disabilities, mean that IHSS clients are sensitive to how much transportation assistance they receive in terms of how often they leave home and what destinations they are able to reach. They also respond to land use characteristics, especially when measured at the neighborhood scale, with those living in higher density and accessibility areas generally experiencing greater mobility. The homecare workers similarly have low incomes and use alternative modes of

transportation more often than do Contra Costa commuters on average. Unlike their clients, homecare workers living in higher density and accessibility areas generally experienced increased travel challenges. But living closer to their clients was associated with being able to provide more effective care, as was having an easier commute measured by other variables. The more care provided, the greater mobility their clients experienced.

The populations of care recipients and professional homecare workers are growing as, among other trends, the proportion of senior citizens increases and families disperse across the country or world. Understanding mobility barriers as well as ways to facilitate efficient and effective care provision becomes all the more important. This study describes transportation problems that IHSS clients and caregivers encounter and points to certain possible responses, in particular expanding the transportation assistance that caregivers are able to provide.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Table

ACKNOWLEDGMENTS

I would like to express my gratitude to my committee, in particular the chair, Professor Martin Wachs, Department of Civil Engineering/Civil & Environmental Engineering Transportation, University of California, Berkeley, for his advice and encouragement at every step of the way; Professor Elizabeth Deakin, Department of City & Regional Planning, Director of the University of California Transportation Center, for, among other things, her help with survey design and thinking about the interaction of land use and transportation variables; Professor Paola Timiras, Department of Molecular & Cell Biology, University of California, Berkeley, for her input about the health of the aging population; the University of California Transportation Center and the University of California Institute for Transportation Studies for funding and other support; Frances Smith and John Cottrell of the Contra Costa In-Home Supportive Services (IHSS) Public Authority for essential assistance in providing access to the populations; Dustin White for developing the geographic information systems (GIS) portion of this work along with other critical assistance; Shiela Staska of the Contra Costa IHSS program for sharing the Contra Costa Caseload Management, Information and Payroll System (CMIPS) data; S. Brian Huey for data entry and analysis assistance; Ran Li, Ying Lo Tsui, Eunice Park, and Adam Cohen for data entry help; UC–Berkeley City and Regional Planning professors Karen Chapple, Robert Cervero, John Radke, and John Landis for advice at crucial moments; Richard Weiner of Nelson/Nygaard; Paul Branson, the Transportation Coordinator/Senior Mobility Manager of Contra Costa's Employment & Human Services Department; representatives of SEIU Local 250; Professor Candace Howes for advice about setting up the project; Kevin Bundy for critical help at every stage; Nadya Chinoy

Dabby for survey advice; and Sarah Treuhaft and Heather Lord for statistics assistance. Christopher Griffin's statistics guidance, patience, good humor, and access to Stata were essential to the production of the statistical portion of this thesis after I moved to the East. Carli Cutchin of UC–Berkeley's Institute of Transportation Studies also was very helpful with getting the document into stylistic conformity. My parents were supportive, as ever, from the data entry stage to the finish.

Literature Review

Overview

Researchers have documented the travel patterns of comparatively disadvantaged groups, such as the disabled and elderly, with particular interest in those who have low incomes and are female and of color. They have examined the relationship between land use and transportation. They have begun to take seriously the contributions of and problems faced by those who care for the disabled and elderly. Yet the research so far has not considered these issues simultaneously. In contrast, transportation, land use, and caregiving issues merge in the daily lives of many disabled and elderly individuals. This study brings these issues together, describing, in a land use context, the transportation patterns and challenges of caregivers and care recipients.

The following findings result from a survey of homecare workers and clients in the In-Home Supportive Services (IHSS) program. The State of California funds the program, with contributions by the federal government and counties, and individual counties administer it. IHSS is the country's largest publicly funded homecare program. Its caregivers provide in-home and transportation assistance to disabled or fragile elderly individuals with low incomes.[2] IHSS caregivers and clients were chosen as the study populations for several reasons.

- IHSS is a major program, serving more clients (more than 270,000) than any other program of its kind.[3] Yet the program is understudied.

---

[2] The transportation needs of disabled and elderly populations are distinguished where useful, but they share many similar needs, such as sidewalks designed and maintained for wheelchairs, housing located close to services, comfortable public transit, and enough signal time to cross streets.

[3] In the following text, "consumer" and "client" are used interchangeably for those receiving care through IHSS. "Seniors" and "the elderly" denote individuals who are 65 years old or older. "Caregiver" typically indicates all types of caregivers. "Provider" means IHSS caregivers. "Informal caregiver" describes an unpaid caregiver.

- The IHSS client and caregiver populations have important characteristics from a public policy perspective. Disability and/or fragility are criteria for receiving IHSS services. The IHSS client population therefore is significantly older and more disabled than the Contra Costa population as a whole.[4] The disabilities result from aging, disease, accidents, and other causes.[5] Both the clients and caregivers have low incomes and above-average percentages of female and of color participants.
- The approximately 360,000 IHSS homecare workers in the state are organized by two unions, the Service Employees International Union (SEIU) and United Domestic Workers of America, which formed the California Homecare Council to provide a unified front. The unionization of these homecare workers means that one can generalize about their working conditions and their relationships with clients more than if they were negotiating independently with individual clients about issues such as wages, hours, and responsibilities.
- Finally, the relationships between IHSS workers and their clients are complex, rewarding closer attention. Some providers are family members of their clients, some acquaintances, and some strangers (Stacey, 2004). Some only work for their paid hours and others work many more unpaid hours. Most providers offer both in-home and transportation assistance.

[4] Mobility can be defined as "being able to travel where and when a person wants, being informed about travel options, knowing how to use them, being able to use them, and having the means to pay for them" (Suen & Sen, 2004).

[5] The increasing pressures on public funds and private resources posed by the aging of the U.S. population—with both proportional and absolute growth—are well-publicized and need not be repeated here.

This study focuses on the more than 6,000 IHSS clients living in Contra Costa, a county across the bay from San Francisco, California, and their care providers, who mostly live in Contra Costa as well. Several factors make Contra Costa a useful research area. The county has diverse land uses and transportation options (see Figures 1 through 6). Its residents are also actively involved in tackling issues such as rapid population growth, the desired extension of heavy rail lines, and increasing highway congestion in the eastern part of the county. The county has cities such as Richmond and Martinez, with industrial histories; it also has suburban areas and agricultural zones. The density of the transportation network, including bus lines and heavy rail and highways, varies by place in county. Contra Costa expects its senior population to double between 2000 and 2020, with the 65 to 74 and 85 and older groups each nearly tripling (Metropolitan Transportation Commission (MTC), 2002), growth that will entail both subtle and not-so-subtle effects on the transportation needs of the population.[6]

Transportation

Researchers have paid increasing attention to the transportation patterns and challenges of the elderly and disabled. Ensuring adequate transportation is especially important in preventing premature decisions to move to assisted living facilities or nursing homes (Yanochko, 1999). Those who manage to stay at home still face major challenges, which can include social isolation, decreased quality of life, and increased burdens on both formal and informal caregivers. Those concerns are particularly relevant for IHSS consumers, because in order to receive IHSS services consumers must live at home.

[6] California's senior population is expected to grow from 3.5 million in 2000 to 6.4 million by 2025.

Among the range of available transportation alternatives, driving is the first choice for every adult age group in the United States. About 60% of the elderly disabled and 90% of the elderly non-disabled drive (Rosenbloom, 2004; Sweeney, 2004). Most want to continue driving as long as possible and choose not to think about having to stop, for a range of reasons (Institute of Transportation Studies, 2001; Wachs, 2001). After what is called "driving cessation," individuals do not tend to increase their use of alternatives such as mass transit or walking significantly (Burkhardt & Berger, 1997). Their trips outside the home can decrease: from six to two trips per week, according to one study (Burkhardt, Berger, Creedon, & McGavock, 1998). In general, while 90% of the disabled elderly still leave their homes at least once a week, they encounter more difficulties than younger groups and leave less frequently (U.S. Department of Transportation (U.S. D.O.T., 2003), in part because they can no longer drive themselves.

The private vehicle remains the preferred mode after driving cessation. People value the convenience, comfort, and door-to-door service offered by automobiles, especially when provided by family or friends. Disabled seniors use this option more often than non-disabled seniors, indicating their increased needs and decreased ability to use other modes (Ritter, Straight & Evans, 2002; AARP Public Policy Institute, 2003; Sweeney, 2004). When surveyed about which characteristics of paid caregivers were "extremely important" to them, 42% of California respondents cited "having a car" (Gray & Feinberg, 2003). The Bureau of Transportation Statistics (BTS) studied the travel patterns of people with disabilities, impairments limiting one or more major life activities, and found that being driven by others in personal vehicles topped the list of transportation supports desired (Sweeney 2004).

But the elderly and disabled seeking rides run into a number of well-documented barriers. They are generally reluctant to burden others. They might not have spouses who can drive. They might live far from family and friends. Studies have found differences by race in terms of expectations about whether the elderly can expect rides from family and friends (Rosenbloom, 2004)**.** Those who need rides tend to hesitate most when asking caregivers for transport to social and recreational as opposed to medical and food-related destinations (Rosenbloom, 2004; Taylor & Tripodes, 2001). According to a Surface Transportation Policy Project report (2004), those who depend on others for rides give up social, family, and religious trips first, staying at home at far greater rates than drivers (citing National Household Travel Survey, or NHTS, 2001). A January 2003 focus group in Contra Costa concluded that working family members do not have the time to take seniors to all the destinations they want to reach, especially in suburban areas (Nelson/Nygaard, 2003b). Yet personal well-being depends on meeting not only, for example, nutritional needs, but also non-material needs (Carp, 1988).

Many factors determine whether viable alternatives to driving oneself exist. Cost, mass transit station locations, users' health, and residential location all matter. According to Suen and Sen (2004), the options available to seniors and those with disabilities include: 1) public transportation (fixed-route rail, paratransit, community transportation, demand-responsive transit, taxicabs, and flexible routing transit services); 2) private services (primarily taxicabs); 3) hybrid transportation options (mobility counseling and training, mobility management, and coordination and brokerage services); 4) volunteer efforts (private automobiles, independent transportation networks, mobility counseling and training, carpools, and mobility clubs); and 5) personal transportation (friends' and

relatives' automobiles, private automobiles, motorcycles, scooters, powered wheelchairs, bicycles, tricycles, and walking). IHSS clients currently use the public and personal options most frequently.

Other factors accentuate the transportation needs of disabled and elderly individuals. Having a low income can mean not being able to afford wheelchair-accessible taxis, paratransit, and other important modes providing efficient and comfortable service (MTC, 2003; Rosenbloom, 2003; Sweeney, 2004). For the elderly in particular, having a low income, being female, and living alone are correlated. Elderly women outnumber elderly men 20.6 million to 14.4 million. The proportion of people living alone increases with age, with half of women aged 75 and over, for example, living alone (U.S. Administration on Aging, 2002). Older women are less likely to have spouses providing care for them in their later years and are more likely to live alone, which in turn is correlated with poverty and inferior housing (Rosenbloom, 2004). The proportion of racial minorities is expanding among older Americans, as is the category of the "old-old" (typically defined as being 85 years old or older). The demographic makeup of IHSS consumers reflects these realities. Compared with the county average, they are older, have a higher minority and female percentage, and live alone at higher rates.

Transportation challenges sometimes increase for those who do not drive yet live in areas designed for cars rather than for mass transit or walking (Southworth & Ben-Joseph, 1996; Ritter, Straight & Evans, 2002; Suen & Sen, 2004; Bailey, 2004). Although seniors in the San Francisco Bay Area, for example, make 12.5% of their trips by walking, this mode is disproportionately dangerous for them and especially so in areas not friendly to pedestrians (MTC, 2003). They need, for example, benches for resting,

adequate time to cross streets, and walkable sidewalks. City residents have greater access to public transportation (Evans, Straight & Ritter, 2002). The Americans with Disabilities Act (ADA) requires public transportation agencies to offer curb-to-curb public transportation to people who cannot take public transit because of a disability. But the ADA only mandates this service for individuals living within three-quarters of a mile of existing transit routes. Therefore, disabled people, including fragile seniors, living in the lowest density areas with the least extensive transit network are triply affected: unable to walk, to take transit, or to use subsidized paratransit.

Another factor affecting the mobility of the disabled and elderly is their degree of disability. They require different levels of personal and mechanical assistance when in transit and when transferring between modes. More disabled seniors, for example, require specialized help and equipment to leave the home than disabled individuals aged 25 to 64 and under 25 (31.9%, 22.4%, and 9%, respectively). They depend more than others do on canes, crutches, and walkers and tend to require personal assistance both inside and outside of the home (Sweeney, 2004). An index based on health and disability status can predict mobility better than age alone, given that some healthy 85-year-olds (able to drive, to go out, to walk regularly) need less assistance than younger yet more disabled individuals (Evans, Straight & Ritter, 2002; see also Cobb and Coughlin, 2004).

Race and ethnicity also play a key role in transportation patterns and care of the disabled and elderly, as well as in the mobility of health care providers themselves. Race and ethnicity interact with income, gender, residential location, and other factors. For example, the relatively more difficult commute experiences of women of color affect their ability to arrive on time, their job performance, and their sense of well being

(Johnston, 1996). Similarly, race and residential location together affect mode choice. Findings from the 1995 Nationwide Personal Transportation Survey (NPTS) show that central-city Black and Asian elderly were much less likely to travel by private vehicle for all trips than White elderly but more likely than White elderly to travel by private vehicle in rural areas (Rosenbloom, 2004). Blacks are also less likely than Whites, American Indians, and Latinos to own a car. The most dramatic differences appear for central city dwellers (Pisarski, 1996).

Ownership differences in part stem from income differences by race. Car purchase and maintenance prices require a higher proportion of income than public transportation and can be out of reach for the poor (Blumenberg, 2003; Glaeser & Kahn, 2003; Murakami & Young, 1997; U.S. D.O.T., 2003). People with low incomes might be at a disadvantage in lower density areas, as well as higher density areas, because they cannot afford cars. Both IHSS homecare workers and clients are poor and have significantly lower car ownership rates than the county average, yet many live in areas designed for cars.

Land use and Transportation

Given the problems faced by the disabled and elderly in low-density areas, one possible solution for them might be moving to higher density areas or mixed-use communities, with greater access to grocery stores, hospitals, social centers, and other desired locations. Higher density areas (whether population or housing, or another density measurement) are not necessarily mixed use, though. For example, Los Angeles has the highest residential density of any city in the U.S., while most people cite it as an example of sprawl. Some might call a city such as LA “dense sprawl” in that land uses

are segregated rather than mixed, even though densities are high. Access to services, therefore, is not automatically associated with density.

Moving the elderly and disabled en mass would require a significant public and private resource commitment as well as the desire of those concerned. Along with the enormous bureaucratic challenge that such a move would require (especially given that enough affordable housing might not yet exist), for many, moving would mean abandoning functional social networks as well as the benefits of having lived in a neighborhood for a long period and "aging in place" (Commission on Affordable Housing, 2002; Giuliano, 2004). Moreover, it is not clear that an "ideal" land use pattern exists for supporting disabled populations.

Even more fundamentally, the relationship between travel and land use characteristics such as density and accessibility remains in dispute (Crane, 2000; Giuliano, 1995, 2004; Holtzclaw, Clear, Dittmar, Goldstein, & Haas, 2002; McNally, 1996). Most agree that land use patterns and transportation have a "chicken-and-egg relationship," though they differ about whether and to what extent land use patterns affect behavior (Boarnet & Sarmiento, 1998; Crane, 2000; Fulton, 1999; Ryan, 1999). Crane cautions that simple calculations based on land use and travel characteristics do not help much because so many other factors must be considered in the land use-transportation relationship, such as income, degree of land use mixing, street and circulation patterns, the balance between jobs and housing, trip origin versus destination characteristics, extent of trip chaining, and level of data measurement.

"Density" sounds like an easily quantifiable, scientifically based attribute. Yet the term means different things to different people and can be measured in many different

ways: hectare or acres, number of people or number of buildings, and so on. For some, the term "density" evokes negative associations with factors historically concurrent with high density, such as "overcrowding, noise, dirt, crime, poverty, disease," and high rises (Churchman, 1999). People also can associate "low density" with ease of travel in terms of travel time and travel distance, which empirical research has confirmed (Giuliano & Narayan, 2003; Glaeser & Kahn, 2003). But other studies have identified greater mobility in higher density areas because of accessible transportation options and destinations (Cervero, 1997), although congestion can be higher in higher density areas, which affects mobility negatively.[7] Density is associated with mode choice, such as increased public transportation usage in cities, and increased rates of car use in lower density areas, though usage overall in higher density areas is higher because there are more households.

The term "accessibility" also figures prominently in land use-transportation debates (Cervero, 1997; Commission on Affordable Housing, 2002).[8] Giuliano (2004), among the few researchers providing quantitative data on elderly travel patterns in a land use context, concluded from the 1995 NPTS that few differences exist by age in terms of the land use-transportation relationship. But she did find that the oldest adults might respond more to local accessibility. Other relevant findings about density and accessibility features included that elderly took more trips per day in medium- and high-density areas than in low- or very high-density areas. Daily trips made and distances traveled generally declined with increasing age and increasing metropolitan statistical area (MSA) size. Travel time also declined with increasing age. Access to local services

[7] Although the current study measures density and accessibility with basic tools, these cautions should be kept in mind.

[8] Accessibility here "reflects the ability to efficiently and conveniently reach frequently visited places" (Cervero, 2001c).

was positively correlated with non-work trip probability for all age groups. Living in central cities, in large MSAs, in high population density areas, and within 0.5 and 0.1 miles of a transit stop was positively related with transit usage. Distance to transit stops and living in a high population density area were most strongly correlated with transit usage for those 75 years old or more. These findings suggest that elderly people in higher density areas have greater access to destinations than in low-density areas.

As mentioned, the density of transportation options and accessibility of services vary across Contra Costa. The county's primary heavy rail line—Bay Area Rapid Transit (BART)—stops in nine Contra Costa cities. Amtrak has stations in Richmond and Martinez. The county has three major bus systems: AC Transit, County Connection, and WestCAT. Transportation services for elderly and disabled residents include LINK paratransit, WestCAT and Dial-A-Ride services, supported by county agencies focused on the disabled and aging populations. Yet certain types of residents and residents of certain parts of Contra Costa have better access to transportation facilities and community services than do others. Even though BART, for example, runs through nine cities, it does not necessarily serve the elderly, disabled, and caregiving populations well even in those cities, let alone in the other parts of the county. A recent study identified several of Contra Costa's cities and three of its towns as providing too few transportation options to minority residents with low incomes because of accessibility problems (Hobson, Quiroz-Martinez, & Yee, 2002). Only 20% of residents in the communities studied, for example, had access by mass transit to a hospital. The report found the worst accessibility in Contra Costa's eastern suburbs. In contrast, western regions of the county had higher

accessibility scores, almost on a level with Oakland, Berkeley, and San Jose, because they generally had bus lines connecting to a nearby clinic.

Caregiving

Finally, the mobility of the elderly and disabled depends on how much personal assistance they receive. The trends in the carework industry are striking. In addition to absolute and proportional growth in the senior population, healthcare costs are rising and healthcare consumption is increasing. About 1.5 million seniors in California require ongoing assistance with everyday activities. A projected 2.2 million seniors will need such help by 2020. Almost three-tenths of the California population report needing in-home care either for themselves or for a relative in the previous year, though about half of Californians said that they could not pay for "two hours of in-home help a day for six months or longer if they were to need it" (Gray and Feinberg, 2003).

Informal caregivers

Historic neglect means that not as much is known about the informal caregiver sector as one would expect, given its importance (Scharlach, 2001). But information is increasingly available. Family members, in particular wives, daughters, and daughters-in-law (Taylor & Tripodes, 2001), are central to the informal care sector. When transportation is needed, friends and adult children often provide it (Aranda & Knight, 1997; MTC, 2002; Ruben, 1994). Informal care is essential, especially to those who cannot afford paid help.[9] According to a U.S. Administration on Aging report, almost a third of seniors needing long-term care depend solely on family and friends for

[9] While care provided to elderly parents by children is vitally important, Rosenbloom (2004) notes, generations are now aging which did not have children at the rates of previous generations, and so have fewer family caretakers.

assistance, while the rest generally supplement family care with paid care (U.S. Administration on Aging, 2000). An estimated 22% of people aged 45 to 55 provide assistance, including financial, to older relatives; an estimated quarter of the American workforce gave informal care in 1996 (Evans, Straight & Ritter, 2002; Family Caregiver Alliance, 1999). Nationwide, according to the U.S. Census Bureau, adult children provide $3 billion per year of financial assistance to elderly parents (as cited in Burkhardt, et al., 1998). In 1997, California had an estimated 3 million family caregivers providing approximately 2.8 billion hours of caregiving a year, valued at $22.9 billion (Coleman & Pandya, 2002; Gray and Feinberg, 2003).

The toll on informal caregivers of such investment is substantial: 42% of caregivers for seniors with dementia miss work frequently or occasionally because of their caregiving responsibilities, and 13% stop work entirely (Taylor & Tripodes, 2001). Heavy caregiving duties are associated with increased rates of retirement (Gray and Feinberg, 2003). In one study, 33% percent of working women who were also caregivers decreased their work hours; 29% of caregivers passed up a job promotion, training, or assignment; 22% took a leave of absence; 20% switched from full-time to part-time employment; 16% quit their jobs; and 13% retired early (Metlife, 2003).

The burden on informal caregivers includes providing transportation to and from the care recipient's home as well as taking the care recipient to needed destinations. Most of the research on these burdens has focused on childcare rather on disabled or senior care.[1] Some work has been done on the so-called "sandwich generation," those caring for both their parents and their own children. Rosenbloom found that "caregiving activities affect the transportation patterns of both the caregiver and the older person," affecting the

schedules of caregivers and even perhaps causing pre-retirement age women to quit work in order to care for their elders (1998, 2004). DeRobertis advocates for neotraditional urban design as an aid for the sandwich generation, helping parents to stay in their own homes: "They find themselves having to drive their parents to the doctor, the barber, and the grocery store," while in, for example, a "traditional town" the parents might be more self-sufficient (2000, 5).

Mothers are usually responsible for child-related transportation, meaning that many have complex work and family responsibilities. These responsibilities affect their mode choice: mothers often need to drive, and to drive in single-occupancy vehicles (Rosenbloom, 1994, 1998; Taylor & Mauch, 1996; Wachs, 1987, 1992). Working mothers, whether single or in a dual parent household, make more trips per day than men. Yet they tend to have shorter commute times than do men, in part because of increased home-related duties and in part because of their lower incomes, factors that in turn are correlated with working closer to home (Taylor & Mauch, 1996). In some cases, women choose driving over other transportation modes for safety reasons (Bianco & Lawson, 1998). Yet these patterns vary by race. Travel time and distance, for example, can be longer for women of color than White women, in part because of increased use of public transportation and constrained job access (Johnston, 1996).

Formal caregivers

From 1990 to 1997, spending on formal care grew more than three times as fast as spending for hospital or physician services (Arno, 2002; Arno, Levine, & Memmott, 1999; Howes, 2003). The homecare component of formal care is the focus in the current project, but residential, nursing home, and other institutional facilities are clearly

important paid sectors as well. Policy makers and advocates for the disabled and elderly are recognizing the importance of improving homecare services. They partly want to avoid unnecessary and costly institutionalization. They also want to help long-term care recipients who live at home (the group comprising the majority of long-term care recipients) (Fox-Grage, Coleman, & Blancato, 2001; Gray and Feinberg, 2003; Johnston, 2004). Increasing notice is being given to balancing independence and support for those with disabilities. The emphasis on community-based solutions, rather than institutionalization, was supported by the 1999 U.S. Supreme Court decision in *Olmstead v. L.C.*, which declared unnecessary institutionalization to be a violation of the ADA. Nevertheless, spending for long-term care for the elderly and disabled has not shifted to home- and community-based care, which constituted only about one-fifth of the spending nationwide for long-term care in 1997 (Doty, 2000).

In-Home Supportive Services (IHSS) forms part of this growing formal homecare workforce. The 1973 California law creating the In-Home Supportive Services Program declared its intention to provide in every county "those supportive services . . . to aged, blind, or disabled persons . . . who are unable to perform the services themselves and who cannot safely remain in their homes or abodes of their own choosing unless these services are provided."[10] The program receives three levels of government support: the federal government gives block grants, the state Department of Social Services oversees the program, and county welfare departments administers it. The program provides care to the elderly and disabled through two sub-programs: the Residual Program and the Personal Care Services Program (PCSP). The former receives state and county funds and funds spouse or parent caregivers. The latter receives federal, state, and county funds and

[10] California Welfare and Institutions Code § 12300.

usually provides for greater medical oversight but not domestic services unless part of a personal care plan. IHSS homecare workers give non-medical, in-home, and transportation care. They do light housekeeping, laundry, light ironing, and meal preparation and planning. They also provide transportation outside the home, such as grocery shopping up to one hour per week, errands up to 1/2 hour per week, and accompaniment to medical appointments, though they are not paid for time spent waiting. Providers are not supposed to take consumers on errands if consumers only need the transportation, as opposed to personal assistance. IHSS does not give providers automobile insurance.

The Contra Costa IHSS pamphlet "How to Hire a Care Provider" (n.d.) distributed by the Contra Costa County Aging and Adult Services bureau of the Employment and Human Services Department (EHSD), presents the following information for potential clients looking for a caregiver: "Services *may include* time for grocery shopping and errands as authorized on your 'Notice of Action'. Errands *may include* picking up commodities (brown bag items) paying bills or traveling to the bank. 'Accompaniment' to a medical appointment or alternative resource means assisting you *in getting around while being transported* to a destination. For instance, the Care Provider may go with you to help you get in or out of a car, taxi or bus. Also, they can help you *get into* the doctor's office if you cannot do these things without help. *In other words, IHSS does not pay for chauffeuring*. If that is performed, it is at the Care Provider's or the client's own risk. . . . The Care Provider *must have his or her own automobile insurance*. IHSS does not provide insurance. The Care Provider is *not paid to take you* to do the grocery shopping, pay bills, travel to the bank or to do personal

shopping, even in your own car. If you own a car, the Care Provider does not wash, wax, clean, service or maintain the car in any way." (Emphases added.)

In other words, providers can accompany but not actually *take* clients places, i.e., they cannot drive them or otherwise provide the means of transportation; in reality, workers also do drive or otherwise coordinate their clients' transportation, but they are not paid for their gas costs or wear and tear on their vehicles. They also are not paid to wait at the destinations: for example, at the hospital or doctor's appointment; in reality, providers do wait, but they are not paid to do so; or they have to return once the appointment is over, wasting both travel and waiting time; or they do not wait or return, and the clients have to find other assistance to get home.

Consumers in the Residual Program can receive a maximum monthly allotment of 195 hours of care. Consumers in the PCSP receive a monthly maximum of 283 hours. A needs assessment determines the actual number of hours clients receive. The assessment measures clients' mental functional capacity—memory, orientation, and judgment—and physical functional capacity for housework, errands, meals, indoor movement, personal care, and respiration. Consumers also must meet the Social Security medical eligibility rules for disability and live at home. The Medicaid State Option for Personal Care Services covers 85% of IHSS clients. In Contra Costa, clients receive funding from the following sources, listed from the most to least frequent sources of funding: Supplementary Security Income (SSI)/State Supplementary Payment (SSP) Aid to the Disabled; SSI/SSP Aid to the Aged; Aid to the Aged—IHSS; Aid to the Disabled—IHSS; and other forms of aid.[11]

[11] For more information on the aid types, see 1) California Department of Social Services at http://www.dss.cahwnet.gov/cdssweb/Supplement_176.htm; 2) "Medi-Cal Aid Codes Documentation" at

Consumers also have low incomes. In addition to disability or fragility requirements, to qualify for the IHSS program consumers must demonstrate low incomes, earning no more than $810 a month in unearned and countable earned income to receive no-cost services. A couple must earn no more than $1,410 a month. Consumers also must have no more than $2,000 in liquid assets (including checking and savings accounts, stocks, and more than one car or house), and a couple no more than $3,000.[12] The IHSS homecare worker population also generally has low incomes, though providers' wage and benefit levels vary throughout the state, depending on local contract negotiations. A 1999 survey found that 46% of San Francisco's IHSS providers, whose wages were $7 an hour, earned less than $10,000 a year and 64% earned less than $20,000 (Howes, 2003). The Service Employees International Union (SEIU) Local 250 represents the Contra Costa IHSS workers. In 2004 they earned $9.50 an hour and received pension benefits and health and dental insurance if they worked 35 or more hours per month. In November 2003 Governor Schwarzenegger proposed cutting homecare services for 75,000 consumers and lowering homecare workers' pay to the minimum wage. But this proposal was dropped from the final budget after sustained opposition, primarily due to union organizing efforts.

The IHSS program works under the independent provider (IP)/consumer-directed model, under which consumers "hire" their own providers. Like other direct-care workers, many IHSS providers recently immigrated to the U.S. and face work challenges, from language barriers to low pay. Those working under the IP model tend to be older and to work part-time more than other direct care workers (Gray and Feinberg, 2003;

---

http://www.dhs.ca.gov/mcss/GeneralInfo/Aid%20Codes%20Documentation%20full.pdf; and 3) "California Medicaid and S-Chip Eligibility" at http://www.hrsa.gov/tpr/states/California-Eligibility.htm.

[12] http://www.disabilitybenefits101.org/ca/programs/health_coverage/medi_cal/ihss/program.htm.

Howes, 2003). Clients can hire and train the provider. The client also replaces any provider who quits, both a privilege and a burden given the high provider turnover rate (Howes, 2003). The 2002 survey of Contra Costa IHSS clients (People Focus, 2003) found that about one-fifth had had their providers for a year or less. In the previous year, 89% had gone without providers because they were not able to find one (54%) and/or they did not have enough hours allotted for care (52%). Clients said that during the gaps in care they got by with help from family and friends (79%), did not get things done (63%), and got by on their own (53%).

Merging Transportation, Land Use, and Caregiving

The transportation research literature has paid increasing attention to the importance of caregiving networks for maintaining the mobility of senior citizens and disabled people. Freund noted that assistance to older adults "must be provided as an integral part of the trip, instead of as a special favor, if the transportation system is to deliver the services an aging, traveling population requires" (1999/2004 118). Caregivers, in other words, provide critical services to help seniors and the disabled reach desired and necessary destinations (Burkhardt, et al., 1998). Still, significant gaps exist in the identification of the travel patterns and needs of those who rely on caregivers and, in particular, of those who provide caregiving services. To date, few have focused on the transportation services provided by caregivers in or outside of the workforce (Burkhardt, et al., 1998).

Policy efforts to bring together the transportation and caregiving needs of the elderly and disabled are few and far between, but legislation such as the Americans with Disabilities Act of 1990, the Intermodal Surface Transportation Efficiency Act of 1991

(ISTEA), the Transportation Equity Act for the 21st Century (TEA-21) of 1998, and the Older Americans Act (OAA) reauthorization in 1992 do take steps toward a more integrated approach (Cobb and Coughlin, 2004). This study provides a more comprehensive approach to studying the intersections between transportation, land use planning, and caregiving for the elderly and disabled.

Methods

Overview of Data Gathering and Analysis

In February 2004, an eight-page survey was mailed to 5,725 IHSS consumers in Contra Costa County. A similar survey was mailed to the 5,117 homecare workers for those Contra Costa consumers; most but not all of these homecare workers also lived in Contra Costa.[13] The mailing followed approval from the UC Berkeley Committee for the Protection of Human Subjects. To protect the survey respondents' personal information, the IHSS Public Authority physically mailed the surveys for the UC Berkeley research team. IHSS also received the approval of the Service Employees International Union (SEIU) Local 250 before contacting the homecare workers.[14]

Both Spanish and English versions of the surveys and accompanying cover and consent materials were sent. Legal guardians could fill out surveys for clients if necessary. The enclosed business-reply envelopes used a UC Berkeley return address so that respondents would not worry about whether responding would affect IHSS services.

The research objective was to identify the relationship between residential location, the transportation habits and needs of consumers and providers, and the extent of care consumers received. The six interrelated hypotheses predicted that, given the income constraints of both populations and the disability constraints of the consumer population:

---

[13] In the following analysis, the terms "overall," "entire," and "general" distinguish the 11,000 Contra Costa IHSS consumers and providers from the group that actually responded to the surveys.

[14] The IHSS Public Authority is the public agency formed to assist providers and consumers in recruitment, training, and other support services.

1. Consumer residential location was related to consumer mobility, with consumers in higher density and higher accessibility areas able to reach more desired destinations than those in areas characterized by lower density and accessibility; able to leave home more often; not needing to move to a neighborhood with more people in order to be closer to shopping, medical facilities, and social services, having fewer difficulties with bus stops and BART stations in their communities, and receiving more assistance from their providers in reaching desired destinations.

2. Residential location was related to IHSS providers' travel challenges, with lower density and accessibility areas correlated with increased provider travel challenges, including a "stressful" commute, changing multiple times on transit, taking a long time to get to consumers' homes, having to travel far to consumers' homes, wanting to move to a higher density neighborhood to be closer to services; and spending more time in travel to a series of destinations.

3. Providers with greater travel challenges do not provide the same extent of care as do those with lesser travel challenges, as measured by consumer and provider perception as well as the number of places to which providers accompanied consumers and the number of places to which they thought consumers needed help going.

4. Land use variables affected the care that providers offered their clients, with higher density and accessibility being correlated with increased care as measured by consumer perception and the number of places to which providers accompanied consumers.

5. Provider travel challenges had a negative effect on consumer mobility as measured by how often consumers left home per month, whether they wanted to move to

a neighborhood with more people to be close to services, whether they had difficulties with bus and BART in their communities, and whether they were unable to reach desired destinations in the previous month because of transportation problems.

6. The more time IHSS providers spent with consumers, the more mobile the consumers would be, as measured by being able to get where they wanted to go, not wanting to move to a higher density neighborhood, and having fewer difficulties with bus or BART in their communities.

Appendices C and D (Consumer and Provider Summary Statistics for All Variables Tested in the Regression Analyses) provide detail on all of the following variables that were included in the regression analyses, including the number of observations, means, standard deviations, minimum and maximum values, and categorical labels.

Independent Variables

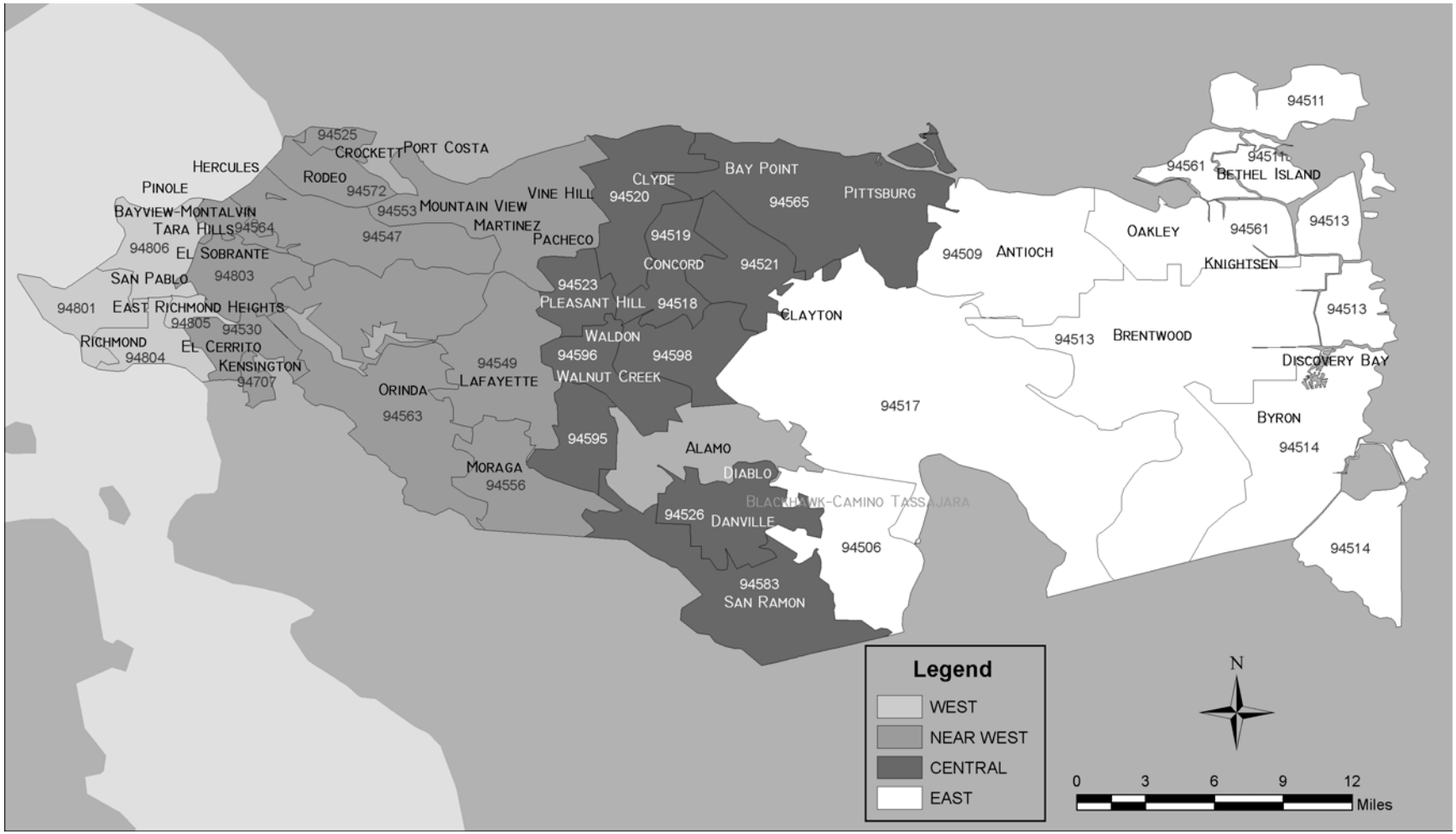
Land use variables (independent variables in hypotheses 1 and 2). This variable was made operational in several ways. The first was through choosing four roughly distinct parts of Contra Costa: west, near west, central, and east (Figure 1).[15] The areas are distinguished by differences in housing and population density; transit and highway accessibility at the zip code and traffic analysis zone (TAZ) levels;[16] and transportation infrastructure (Figures 2 through 6).

---

[15] For geographic information system (GIS) purposes, we adjusted survey respondents' zip codes, merging, for example, P.O. box zip codes into the surrounding zip codes.

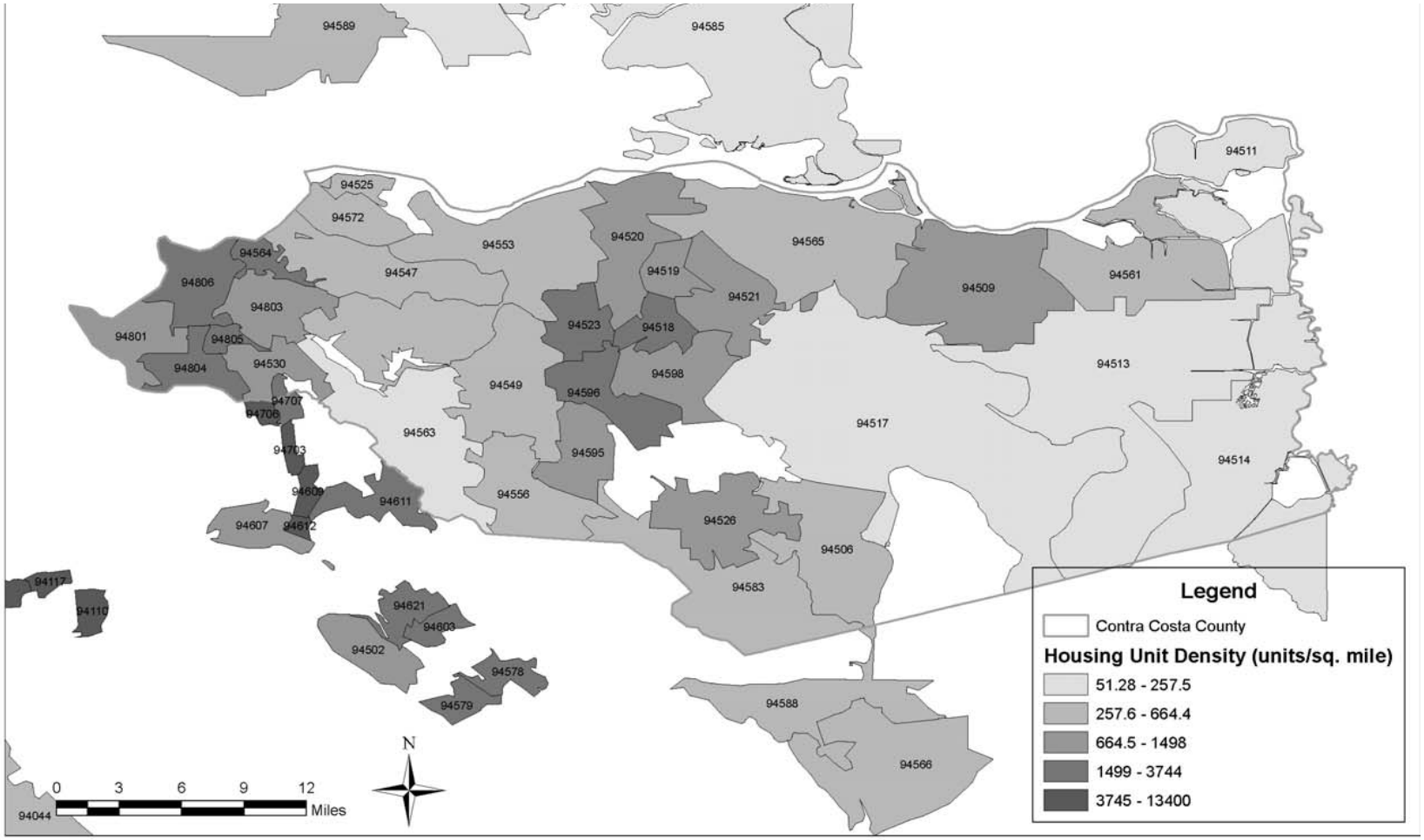
[16] The transit and highway accessibility maps use the Metropolitan Transportation Commission's (MTC) 1,454-zone transit and highway weighted accessibility measures in its auto ownership model for year 2000. The highway portion incorporates door-to-door travel times for drive-alone peak times. For the transit and auto accessibility indicators for each of the 1,454 regional travel analysis zones and for the zip code tabulation areas, see http://www.mtc.ca.gov/maps_and_data/; http//www.mtc.ca.gov/GIS/data.htm; and ftp://ftp.abag.ca.gov/pub/mtc/census2000/TIGER/BayArea_waterclipped/.

Figure 1. Four parts of Contra Costa County, with city names and zip codes.



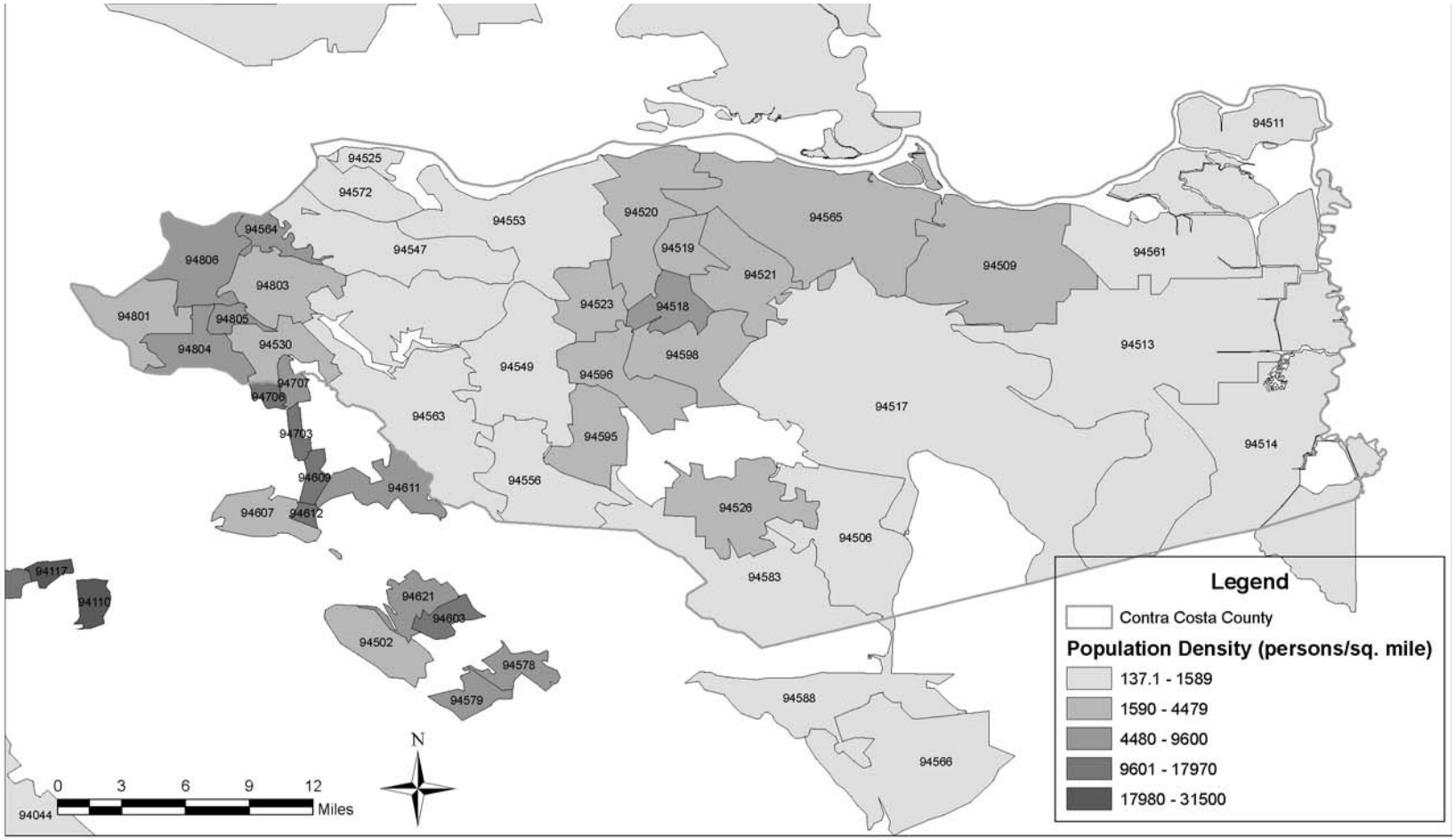
Note. Based on U.S. Census Bureau (2000) data

Figure 2. Housing density in Contra Costa County by zip code.



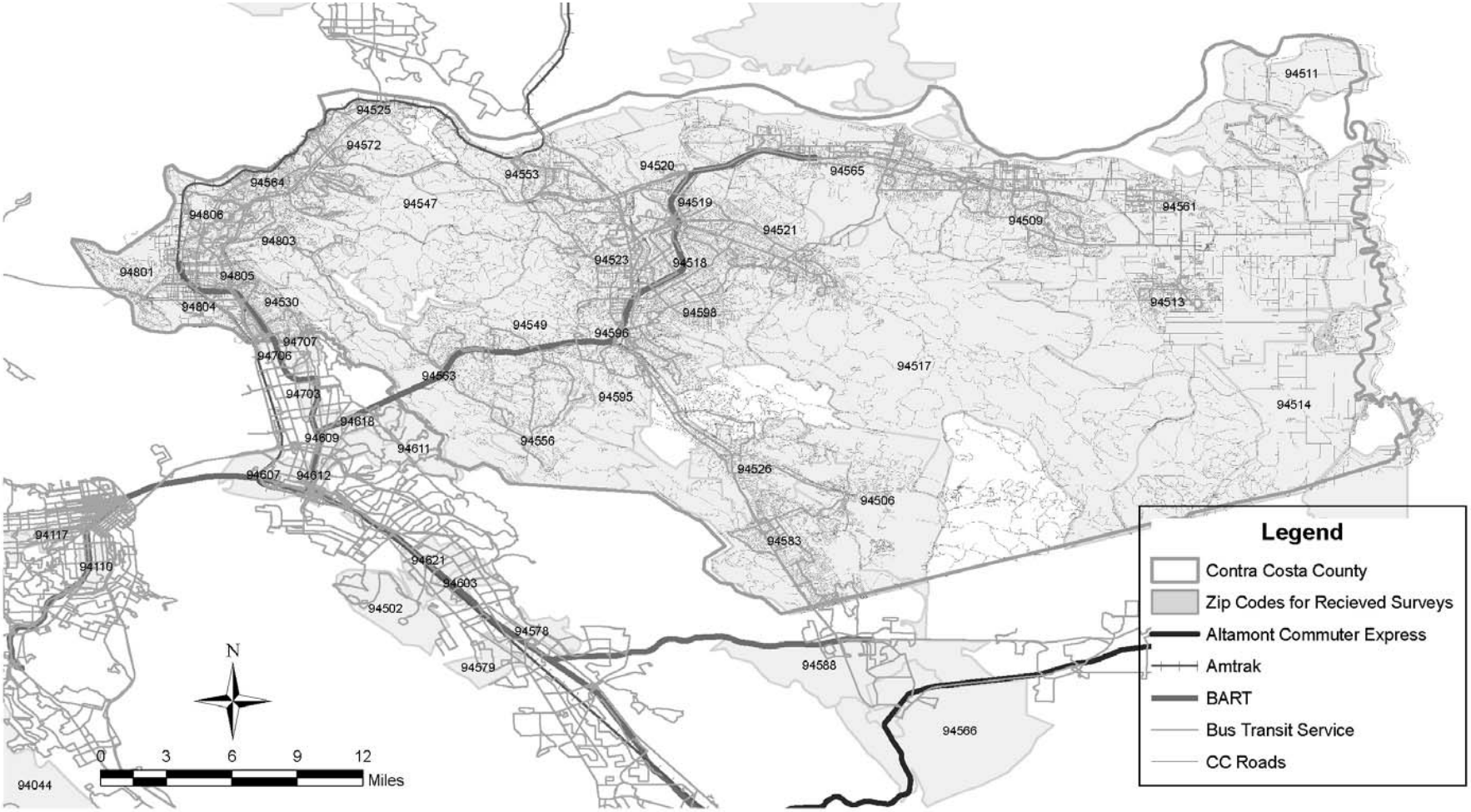
Note. Based on U.S. Census Bureau (2000) data

Figure 3. Population density in Contra Costa County by zip code.



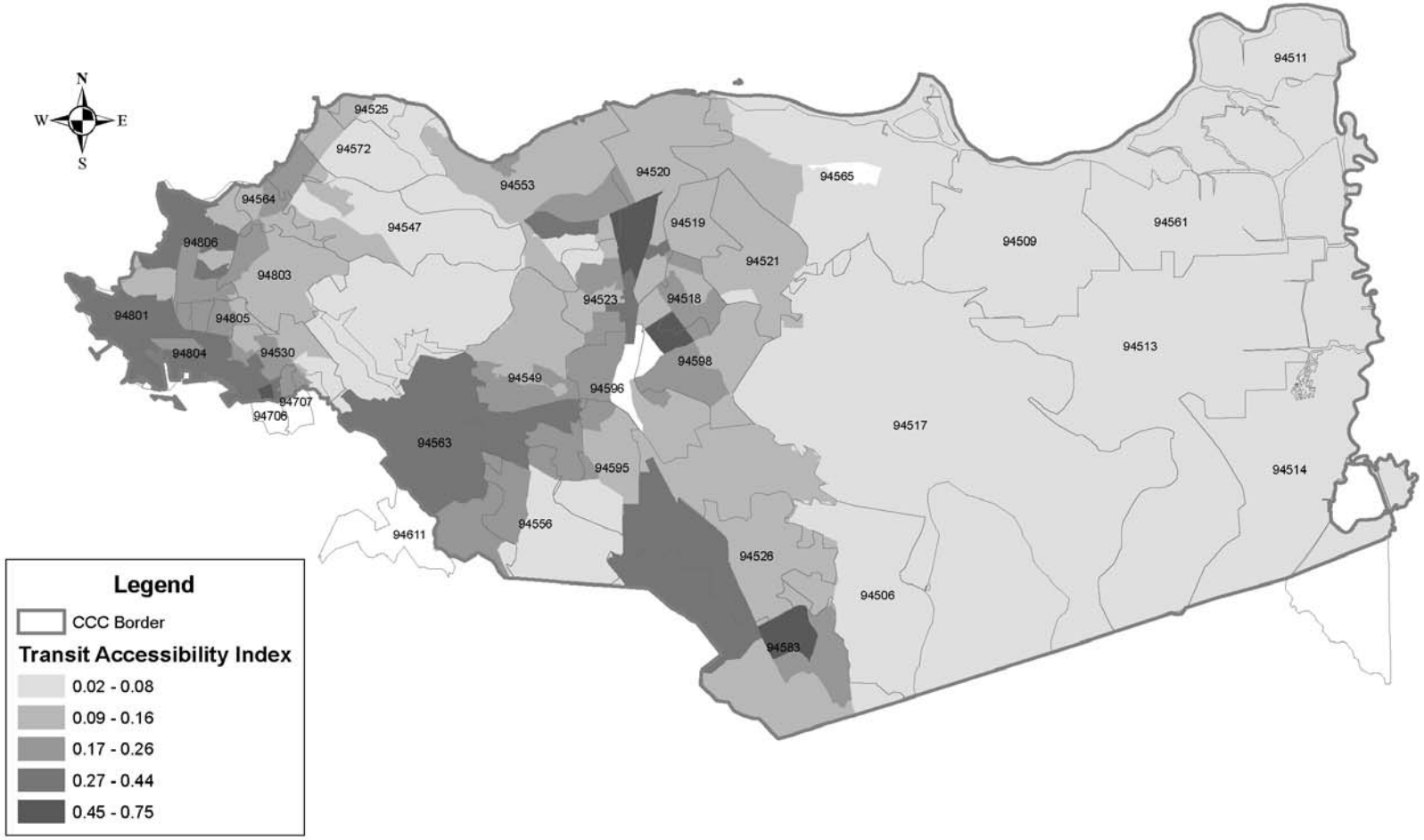
Note. Based on U.S. Census Bureau (2000) data

Figure 4. Transportation infrastructure in Contra Costa.



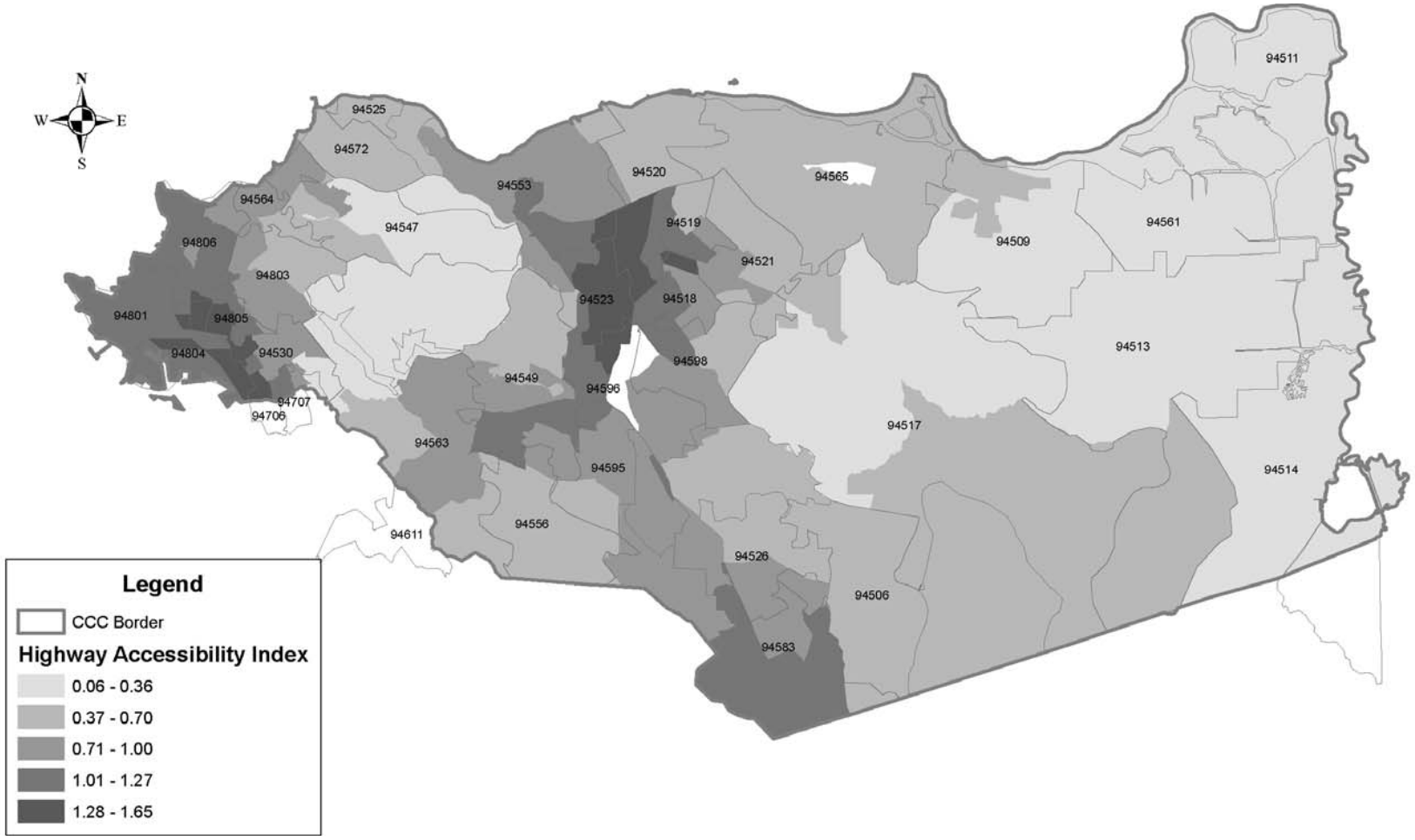
Note. Based on Metropolitan Transportation Commission data

Figure 5. Transit accessibility in Contra Costa County by traffic analysis zone (TAZ) and zip code.



Note. Based on Metropolitan Transportation Commission (MTC) data

Figure 6. Highway accessibility in Contra Costa by traffic analysis zone (TAZ) and zip code.



Note. Based on Metropolitan Transportation Commission data

The differences in housing and population density, measured at the zip code level and then grouped into the four areas (zones), were significant ($p < .001$), especially for population density (Table 1).

Table 1

Summary Statistics for Housing and Population Densities by Region in County (Zone)

	Housing Density (units per square mile)		Population Density (persons per square mile)	
	Mean	St. Dev.	Mean	St. Dev.
Far west ($N = 191$)	1801.6	594.7	5131.0	1374.7
Central ($N = 275$)	998.3	461.4	2646.3	930.8
Near west ($N = 108$)	761.7	526.0	1905.4	1319.3
East ($N = 132$)	679.9	380.8	2048.3	1141.0
Total ($N = 706$)	1119.9	659.2	3093.3	1725.0

Note. All means significantly different ($p < .01$) except for near west and east regions. From U.S. Census Bureau (2000) and consumer surveys.

The four parts of the county were ordered by decreasing density and accessibility: from far west as the highest density and accessibility area to central county, near west county (note that the order is not purely west to east), and, finally, east county as the lowest density area with the least accessibility.[17] An examination of countywide accessibility

[17] Though housing density is only part of the accessibility picture, it is used here in some ways as a proxy for degree of density of other desired destinations, such as stores and doctors' offices, with the assumption that higher residential density is associated with greater numbers of those other types of destinations,

and transportation infrastructure differences as represented in Figures 4 through 6 generally supported the four-part division.

Therefore, measurements of residential location were:

1. part of county in four zones;
2. respondents' housing and population density data at the zip code level;
3. how far respondents had to travel to eight key destinations;
4. the average of those distances to destinations, creating a more fine-grained index of area characteristics than presented by the zip-code level detail (a neighborhood snapshot).

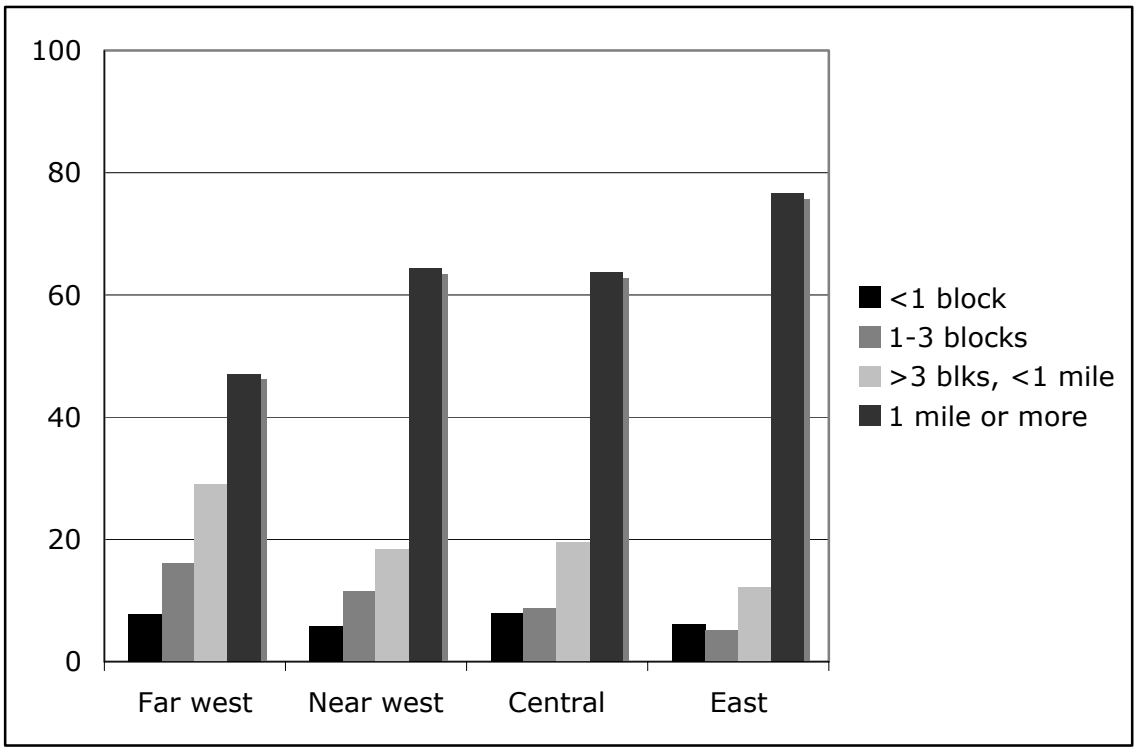
These variables are not entirely distinct. For example, part of county was related to the distance from clients' homes to six key places. Decreasing density was correlated with increasing distance for the following locations (at least at the 10% level, some at the 1% level): doctor's office or hospital, place of worship, social or community center, bus stops, BART stops. As density decreased, so did distance from a drugstore or pharmacy.[18] To pull out one relationship, more than three-fourths of clients in east county lived a mile or more from social or community centers, versus less than half of clients in far west county (Figure 7).

---

although, as discussed above, that assumption does not hold true uniformly, with Los Angeles as a case in point.

[18] But part of county was not related to distance to grocery stores or family/friends' homes,

Figure 7. Consumer distance to social and community centers by part of county.



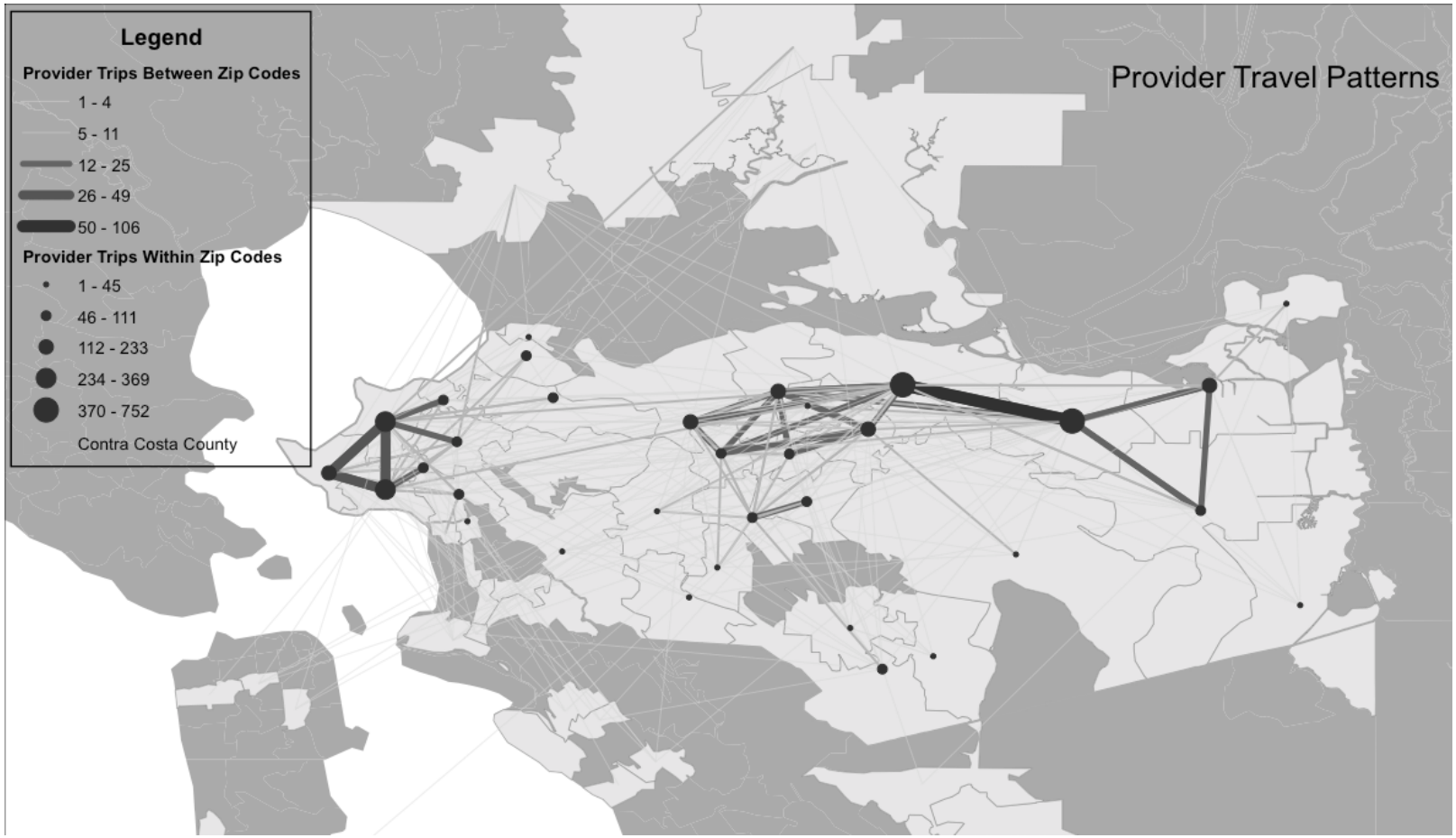
Note. From consumer surveys

IHSS provider travel challenges. This variable was measured by:

1. whether provider perceived their commute to the primary consumer's home as "stressful";
2. how many times providers had to change on transit during that commute;
3. how long it takes to get to consumers' homes;
4. how far it is to consumers' homes;
5. whether the consumer lives near a bus or BART station that the provider can use;
6. whether the provider would want to move to a higher density neighborhood to be closer to services;
7. whether the provider holds another job;
8. the time spent per day going to and from childcare, grocery stores, non-food stores, all IHSS jobs, other jobs, and other locations; and
9. distances providers in that zip code travel to consumers' homes on average (the "centroid" measurement). Note that the centroid findings should not be interpreted as exact measures of distances but rather in a general and comparative manner.[19] Although rough, this centroid analysis was the only method available for representing the approximate lengths and frequencies of Contra Costa IHSS provider commutes (see Figure 8). The individual consumer respondents and providers were not matched together by addresses or zip codes (though they did estimate the distance and time traveled between their homes).

[19] The centroid analysis cancels out all distances for providers traveling within the same zip codes and in other ways is a very approximate measure.

Figure 8. Contra Costa IHSS providers' travel to consumers' homes (center to center of zip codes).



Note. Based on CMIPS (Contra Costa Caseload Management, Information and Payroll System) data from April 2004

Dependent Variables

IHSS consumers' mobility. Consumer mobility was measured by*:*

1. whether in the past month because of transportation problems consumers could not reach a doctor's office/hospital, grocery store, drugstore, family or friend's home, place of worship, social or community center, or other destination;
2. how often consumers left home;
3. if consumers would want to move to a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services;
4. what difficulties consumers had with bus stops and BART stations (if any) in their communities;
5. where providers accompanied consumers (with a variable constructed for the total number of places to which they accompanied clients); and how many places providers thought their consumers needed more help in reaching (with another summary variable constructed). The amount of time IHSS providers spent with their consumers was also examined in this context.

IHSS provider travel challenges. Provider travel challenges was measured by:

1. whether providers perceived their commute to the primary consumer's home as "stressful";
2. how many times providers had to change on transit during that commute;
3. how long it took to get to consumers' homes;
4. how far it was to consumers' homes;
5. whether the consumer lived near a bus or BART station that the provider could use;

6. whether the provider would want to move to a higher density neighborhood to be closer to services;
7. whether the provider held another job;
8. the time the provider spent per day going to and from childcare, a grocery store, non-food stores, all IHSS jobs, other jobs, and other locations;
9. and the distances providers in that zip code traveled to consumers' homes on average (the "centroid" measurement)

Extent of care provided by IHSS providers. Extent of care was measured by:

1. hours of care per week provided by the primary IHSS caregiver (according to consumer);
2. hours of care per week provided by the primary IHSS caregiver (according to provider);
3. whether consumers thought that the distance between their homes and the homes of their providers affected the care that they received from those providers;
4. whether providers thought that the distance between their homes and the homes of their consumers affected the care that they provided
5. where and to how many places providers accompanied consumers; and
6. where and to how many places providers thought their consumers still needed help going.

Control Variables

Included in the models when appropriate were car ownership; race; age (both interval level and grouped into under 65 years old and 65 and over); Hispanic status; gender; how far consumer can walk without assistance; marital status; provider hours per

week with primary consumer; consumer hours per week with primary provider; consumer hours per week with informal caregivers; consumer hours per week with other paid caregivers; the number of informal caregivers the consumer has; provider mode to work; how many people consumer lives with; consumer age (in the provider tests); whether the consumer and provider lived in the same home; and tenure.

Limitations

Land use data. To begin with, in order to protect respondent confidentiality and to encourage honest responses, the survey requested information on respondents' location solely by asking for zip codes. For certain analyses, zip codes are crude geographic measures. While combining the individual zip codes into the four larger areas here (far west, near west, central, and east) had the advantage of capturing general trends, the grouping sacrificed local characteristics even more. A composite variable called "average distance to destinations," based on how far clients and providers said they lived from a set of key destinations, partially compensated for this lack of fine-grained detail through the zip code analyses.

Income data. The absence of data on income could limit the usefulness of certain results. According to the U.S. Census Bureau (2002), households in the far west county earn significantly less than those elsewhere in the county: 23% of the residents of far west county earned less than $19,999 a year, compared with 10% to 12% in the rest of the county; only 10% of far west residents earned $100,000 or more, compared with 23% to 31% of residents of the other parts of the county (total population: 344,422). Yet two factors compensate for the lack of income data. As mentioned, both the client and provider populations generally have low incomes. Also, Contra Costa cities are more

similar in income levels than the broader four-part county comparison might suggest. A report on San Francisco Bay Area "equity analysis target communities"—places with low incomes and a high minority share[20]—found that, in the west, 44.2% of the households in the Richmond target communities had low income, and 34.9% in San Pablo/North Richmond; in the near west, 52.0% in Martinez; in central county, 42.0% in Baypoint/Pittsburgh/Antioch; and, in the east, 39.6% in Brentwood (MTC, 2001). In other words, although income increases from west to east in the county, the regions of the county share important similarities.

Respondent bias. It is possible that there is error in the respondents' reporting given differences in age and disability level (with those who have the most severe disabilities, for example, not filling out the survey at an equal rate). But, as discussed below, the respondent sample was representative of the Contra Costa IHSS population according to most of the demographic categories available for both the sample and the population overall. Moreover, clients were able to ask for assistance in filling out the survey from their caregivers.

Research Population and Sample

Representativeness

The response rate was 12%, with 521 providers and 763 clients responding with usable surveys, for a total of 1,284 surveys. The available demographic data for the respondents conform to the data for the overall Contra Costa IHSS populations, suggesting that the survey respondents represent the overall Contra Costa IHSS population well enough to permit key generalizations (see also Appendix A). Consumer

[20] High minority share meant 70% or more of African American, Asian American, Latino, and Native Americans, while low-income described those at or below the U.S. Department of Health and Human Services' Poverty Guidelines, with 30% or more of the 1990 population below the 200% poverty level.

respondents were not significantly different: 71.4% female (522 individuals), as compared to 69.2% of the Contra Costa IHSS client population. Client respondents were 47.3% Caucasian and 30.4% African American (out of 685); the overall client population, 42.1% Caucasian and 33.4% African American. Note that different race measurements were used; for example, Hispanic was included as a race by Contra Costa.[21] The "other" race was 22.3% (153 out of 685). The "other" category does not include non-responses; 685 answered for either one of the races or several of the races (the latter coded as "other"). Client respondents were 14.8% Hispanic (at least—note that about 75 did not answer the question); the overall client population, 12.1% (Hispanic was significantly different, at 5%).

Provider respondents were 78.6% female (out of 504**)**; the overall provider population, 89.8%. Provider survey respondents ranged in age from 16 to 88 years old with a mean and median age of 49 years old; the overall IHSS provider population ranged from 15 to 96 years old with a mean and median age of 46 years old **(**CMIPS, 2004).[22] (The consumer age for the overall IHSS population was not given, but the age range for respondents was 5 to 101, with a mean of 64.8 and a median of 67.0.) Data on overall IHSS provider race was not given, but the respondent providers were 40.8% Caucasian, 32.3% African American, and 26.9% an "other" race, with 15.6% Hispanic.

---

[21] When asked to identify their race, 41 clients wrote marginal notes describing themselves by place of origin: Armenian, European, Spanish, Creole, Heinz 57, "a Jew from Russia," Greek, Cambodian, Laotian, Vietnamese, Iranian American, Cuban, Central American, and Puerto Rican. Providers wrote similar marginal notes. Note that although individual clients could not be matched with their providers, a study of the San Francisco IHSS population in 1997 found that about 86% of the 7,000 workers and their clients had the same ethnicity (Howes, 2003).

[22] Contra Costa Caseload Management, Information and Payroll System (CMIPS), a database on IHSS consumers and homecare workers maintained for the county and produced every month by the state. Data from April 2004 were provided, with identifying information removed. All calculations by author.

In terms of language, about 5% of consumer and provider respondents used the Spanish version of the survey, while 7.4% of Contra Costa IHSS consumers consider Spanish to be their primary language ($p < .05$). Note that this comparison, though, is almost apples to oranges, because one category compares the language used for writing the survey, and the other the language used by IHSS for communicating with those individuals.[23]

Relationship between IHSS consumers and providers

The surveys found that relationships between consumers and providers often extended beyond the purely instrumental and paid ones. Approximately 55% of consumers and providers say they have a family relationship with each other, as children, parents, spouses, and other relatives (Table 2).

[23] No CMIPS data for providers' languages was provided, so the comparison is limited.

Table 2

The Matching Process Between Consumers and Providers

How consumers found providers		How providers found consumers	
Response	Percent	Response	Percent
CHILD	28.3	PARENT	22.8
OTHER RELATIVE	14.3	OTHER RELATIVE	14.3
WORD OF MOUTH	14.1	WORD OF MOUTH	15.4
FRIEND	13.0	FRIEND	13.5
IHSS/PUBLIC AUTHORITY JOB REGISTRY	11.5	IHSS/PUBLIC AUTHORITY JOB REGISTRY	9.9
PARENT	7.4	CHILD	12.9
OTHER	5.2	OTHER	4.4
SPOUSE/PARTNER	4.9	SPOUSE/PARTNER	5.5
NEWSPAPER AD	1.3	NEWSPAPER AD	1.2
TOTAL	100	TOTAL	100
SUM OF FAMILY CATEGORIES	54.9	SUM OF FAMILY CATEGORIES	55.5
N	676	*N*	495

Note. From consumer and provider surveys.

IHSS data on the relationship between Contra Costa's entire client and provider populations, gathered through provider tax return information, confirmed the survey data within a few percentage points: 25.8% of overall Contra Costa providers say that the consumer is their parent, 9.2% say the client is their child, 3.0% say the client is their spouse, and 62.0% have another kind of relationship.[24] Note, in comparing the two, that the IHSS data does not include a category for "other relatives" (N=6,148). A survey conducted by the Contra Costa IHSS Public Authority in 2002 found slightly higher numbers in the family-member category than the present study, with clients reporting

[24] April 2004 CMIPS; calculations by author.

62% of providers as family members.[25] The Public Authority survey found that clients who had a family member as the provider gave the most positive responses overall, followed by those who had a friend or neighbor as the provider.

About 40% of clients said that they lived with their providers; the provider surveys confirmed that finding.[26] Both the client and provider surveys supported the assumption that many of those living together were relatives; the client results follow (Table 3).

[25] People Focus, 2003, p. 9.
[26] This data came from survey subquestions: for example, clients or providers chose the option on a question of "not applicable; live in same house." The range is about 37% to 42% of clients and providers living together.

Table 3

Whether Consumers and Providers Lived Together, by Relationship (Number)

	Consumers in Same House	Consumers in Different House
Family-Member Providers		
SPOUSE/PARTNER	29	2
CHILD	111	77
PARENT	41	8
OTHER RELATIVE	35	609
Non–Family-Member Providers		
IHSS/PUBLIC AUTHORITY JOB REGISTRY	4	73
NEWSPAPER AD	2	7
WORD OF MOUTH	8	82
FRIEND	14	71

Note. From consumer surveys.

Client respondents were 47.3% Caucasian and 30.4% African American (out of 685).

Demographics of providers and consumers compared with other Contra Costa residents

The IHSS respondents differed from the county's 948,816 residents in several key ways. Consumers and provider respondents were significantly more likely to be African American (30.4% and 32.3%, respectively) than the county population (9.4%) and less likely to be Caucasian (47.3% and 40.8%, respectively) than the county population (65.6%). Note the provider race numbers here represent the percentage in each category divided by the number who responded to this question, while in Appendix A the race figures include the blanks as well. (The consumer and provider survey respondents *resembled* the general countywide population in percentage Hispanic, with Hispanic

individuals comprising 14.8% of client respondents and 15.6% of provider respondents and Contra Costa residents being 17.7% Hispanic.) The data also revealed significant differences in terms of gender. Client and provider respondents were 71.4% (out of 734) and 78.6% (out of 504) female, respectively; Contra Costa residents, 51.8%. For the client population, this gender imbalance most likely reflects the longevity of women. For providers, it reflects the gender imbalance in the caregiver workforce as a whole (i.e., in care programs other than IHSS as well). The client respondents were significantly older than both the provider respondents and the general county population, as measured by senior-citizen status (Table 4). While 99 clients, or 13.8% of respondents, were 85 years old or older, a much lower percentage of provider respondents (only two providers, or 0.4%) and county residents (1.4%) were 85 or older.[27] (Only 14.5% of providers were 65 or older.) Finally, a far greater percentage of client respondents than Contra Costa residents (74.2% vs. 31%) rented instead of owned their housing.[28]

[27] Data was not available for the Contra Costa IHSS consumers overall.

[28] Data on provider tenure was not gathered. Note that only one consumer reported living in a nursing home or other institution (IHSS requires that consumers live at home), and only 13, or 1.8%, reported living in an assisted living facility. It is likely that some of the 315 consumer respondents (42.9%) living in apartment buildings receive some sort of government subsidy for their rent.

Table 4

Age of Consumer and Provider Survey Respondents and Contra Costa Residents (Percentages)

	Consumer Respondents	Provider Respondents	Contra Costa Residents
Age Group			
UNDER 65	44.6	85.5	87.9
65 AND OLDER	55.4	14.5	12.1
TOTAL	100	100	100
N	717	502	883,762

Note. From consumer and provider surveys and U.S. Census Bureau (2000).

Demographics by part of county

Consumer respondents did not differ significantly by part of county (far west, near west, central, or east) in terms of age; marital status; whether they lived in the same house as their provider; language used to fill out the survey; or household size. But age did have a positive relationship with car ownership ($p < .05$). They did differ significantly by part of county in terms of race and Hispanic status (Appendix A). A significance level of $p < .001$ was chosen for these tests. To begin with, a far higher percentage of far west county client respondents than those in the other parts of the county were African American: 62.6% compared with 8.2% in east county ($p < .001$) (near west was 20.2% and central was 7.7%). In the far west, 17.8% of the consumers were White, compared with 83.0% in east county ($p < .001$) (near west was 57.1% and central was 69.2%). In east county, a greater percentage of client respondents were Hispanic: 26.7%, compared with 10.6% to 14.3% in the rest of the county ($p < .01$) (near west was 14.3% and central was 11.2%).

Similarly, 57.4% of provider respondents in far west county were African American and 19.3% in east county ($p < .01$) (15.9% in near west county, 12.7% in central county). In the far west, 15.7% of the providers were Caucasian, compared with 61.4% in east (and 54.8% in near west and 47.3% in central). Provider respondents' Hispanic status broke down in similar ways: 6.7% in far west compared with 29.2% in east county ($p < .01$), with 18.6% in near west and 7.3% in central. Finally, both client and provider survey respondents were more likely than the average county resident to live in the far west (27.1% of the total) and central county (39.0%).

In sum, Contra Costa is a useful study location because of its variations in land use and transportation. Moreover, as compared with the average Contra Costa resident, IHSS consumers and providers are older, poorer, a higher percentage minority and female, and, for clients, less physically able. These facts affect the findings and how we interpret the findings.

Data Analysis Methods Used

Both the quantitative and qualitative data were analyzed in the spring and summer of 2004 using the statistical program SPSS; further regression analyses were conducted in the spring of 2005 using Stata. The results are based on the following three sources of data.

Provider and Consumer Survey Responses to the Mailed Surveys

The closed-ended responses were analyzed with the following modifications.

- In the descriptive statistics, race was kept at a fine-grained level, but for the regression analyses it was reduced to three categories: White, Black, and other race. The "other race" category included all the clients who answered that they

were more than one race as well as those who responded that they were a race other than White or African American. Non-responses to the race question were considered missing.

- "I don't know" responses to questions were dropped and treated as missing.
- A summary variable was created for how many places providers accompanied clients (e.g., if a respondent said she accompanied a consumer to the grocery store and the doctor's office, her summary figure would be "2"). A similar variable was created for the total number of places to which a provider said her consumer needed more help going.
- The last two categories in the question of how long and how far providers traveled to consumers' homes were merged ("30 miles to less than 60 miles" and "60 miles or more" became "30 miles or more," while "more than 30 minutes to 60 minutes" and "more than 60 minutes" became "more than 30 minutes").
- A few questions required consumers to write in the number of hours they spent per week with their IHSS caregiver; their informal caregiver; and any other paid caregiver. When clients answered that they spent more than the number of hours available in a week with a given caregiver (e.g., 180 hours), their answers were reduced to 168 hours. If they left a question about number of hours spent with a caregiver blank, the answer was treated as missing, not as zero hours per week with that caregiver.
- In regression analyses using the variables for how long and how far providers commute to consumers' homes, whether or not providers lived in the same house as consumers was removed as a control variable as already incorporated.

- In addition to the answers to closed-ended questions, all provider and consumer open-ended comments were entered and coded for content analysis, as were marginal notes.

U.S. Census Bureau Data

Most providers and clients included their zip codes as a survey response, allowing for density analysis at the zip code level—as mentioned, a crude yet still useful measure.

Contra Costa IHSS Data

Important background data came from the Contra Costa Caseload Management, Information and Payroll System (CMIPS), a database on IHSS consumers and homecare workers maintained for the county and produced every month by the state. Data from April 2004 were provided, with identifying information removed. The author is responsible for all calculations based on the raw CMIPS data.

The individual client and provider surveys were not matched through identifying numbers or other means, primarily because of confidentiality reasons. Therefore, Contra Costa IHSS data was used to create a rough proxy for the average distances that providers in each zip code were traveling to their client's home. IHSS shared data for providers in relation to consumers by zip code: for each zip code in which a provider lived, data was given on the zip code of his or her client, allowing for the production of a "centroid" variable. This variable, in other words, provides the average distances providers in each zip code traveled to the clients' zip codes, measured from the center of each of the two zip codes, were calculated.

Tests Used

Several types of statistical tests were run on the quantitative data: chi-square (a non-parametric test of statistical significance for bivariate tabular analysis); ordinary least squares regression; maximum-likelihood logistic regression; and ANOVA (analysis of variance between groups). Some variables were collapsed for the chi-square analysis, such as age (grouped into under 65 and 65 and over), but retained in their interval form for the regression analyses. The regression data reported in the following text and included in Appendices E through H show those relationships that stay significant for the dependent variable while controlling for as many relevant variables as possible. As mentioned, the regression models controlled for relevant variables such as gender, age, race, whether clients and providers lived in the same home, and how far the client could walk without assistance. Perhaps most important, most of the models controlled for car ownership. (See also appendices for more information). The control variables were added in a uniform manner; because so many relationships were examined, not every combination of control variables was tested to create the absolute best fit, and sometimes when the addition of another control variable made the relationship between the variables of interest lose significance, further control variables were not added. The empirical specification primarily took the form of the following model, which estimated the likelihood of whether part of county (zone) was related to whether clients said they could not reach a grocery store in the previous month because they had transportation problems:

$$Inability_i = \beta_0 + \beta_1 Zone_i + \beta_2 Gender_i + \beta_3 Age_i + \beta_4 How\_far_i + \varepsilon_i$$

Where: ε_i = error term; i = subscript denoting observation I; and β_M = estimated coefficient for M = 0, 1, 2, . . . where β_0 is the constant term.

Results

General Consumer Mobility Characteristics

Background information on client mobility precedes the results for the six hypotheses, beginning with what clients identify as their primary transportation problems and ending with a description of their mode choices.

Consumers' primary transportation challenges

Consumers' answers to several questions, as well as insights from providers, help to paint a picture of their most pressing transportation issues.

To begin with, they answered three open-ended questions about mobility. The first question asked them to describe their major transportation challenges. The second asked them to explain what had stopped them from getting where they needed to go in the previous month, if applicable. The third asked them to suggest options that would help them to get where they needed to go. Coding their answers revealed major themes as well as shifting priorities (Table 5).[29] The top five answers for each column are highlighted.

[29] Nineteen categories with fewer than 30 comments in at least one of the three columns were excluded. The following public-transit–related categories were excluded: transfers being difficult; transit being too time-consuming, uncomfortable, or crowded; having to wait too long at stops; schedule mismatch with needs; and no stations located near their homes.

Table 5

Open-ended Consumer Comments about Transportation Challenges (Numbers)

	Biggest Transportation Challenge	Reason for Being Blocked in Last Month	Improvement in Issue Would Be Helpful[a]
Issues Cited			
GENERAL ASSISTANCE (DRIVER UNSPECIFIED)	**65**	**55**	**83**
HEALTH	**55**	**94**	18
COST	**45**	27	**48**
GENERAL TRANSPORTATION	**38**	**30**	8
WALKING	**36**	**39**	13
DRIVING SELF	35	15	14
ENTERING OR EXITING VEHICLES	30	4	1
DRIVER	29	**31**	**69**
OPERATE VEHICLE	27	22	**78**
PARATRANSIT	18	18	**52**
TAXI	10	[b]	29
WHEELCHAIR/SCOOTER/ WALKER	[b]	[b]	28

Note. From provider surveys.
[a] Interpret this column as the number of consumers desiring improvements in the issue cited. [b]The issue was not cited or the category was not used.

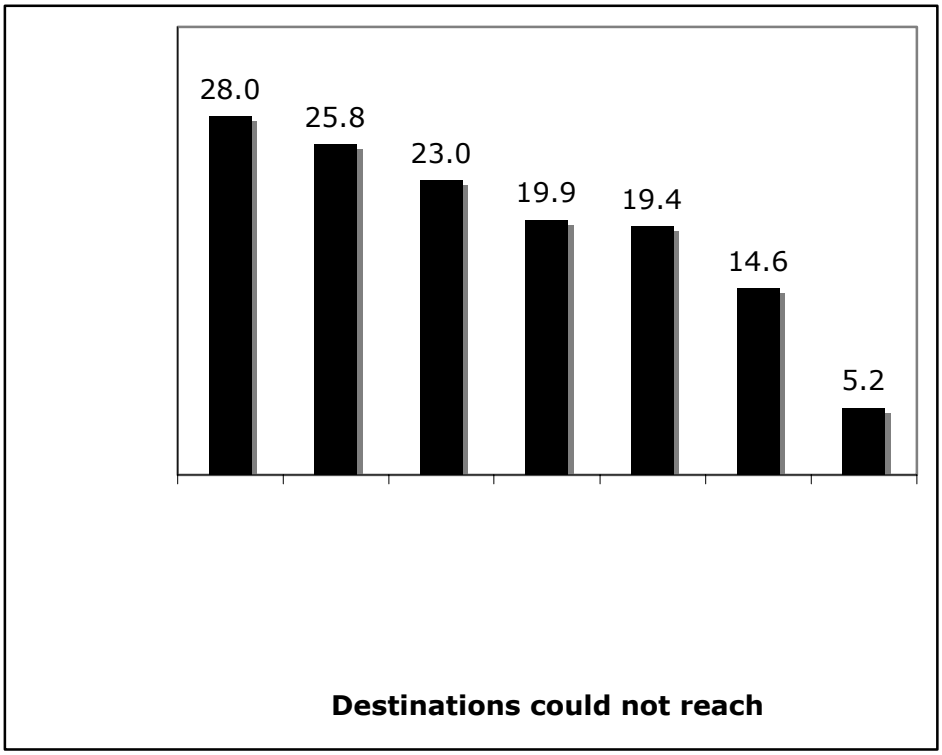
When asked what would help them get where they needed to go more easily, clients most often described various forms of general assistance in their open-ended comments (Table 5). Notably, while health and financial problems were two of their top three major transportation challenges, clients did not name health or financial improvements as part of what would help most. This shift might reflect the fact that clients thought that marked improvements to their health or financial situation were unlikely. As one client wrote, “I’m 89 and I depend on my daughter for assistance in

travel."[30] As a result, throughout their survey comments, clients wrote about wanting more assistance with transportation. "I need my grocery shopper/house cleaner very desperately"; "steep hill in front of my house. I cannot get up with my wheelchair alone"; "I need a strong person to assist me out of my wheelchair and into a car—I have MS and all of my extremities are almost useless"; "I would like to know if I could get more hours of help with my provider where she would be able to take me to my appt., shopping, meetings, etc."; "IHSS providers sometimes unable or unwilling to spend more time at doctors' or opticians' office, etc. We wish somewhere someone willing to take this job, occasionally someone who can translate for us too." Many needed assistance for a single, but crucial, part of the trip: "I have groceries put in my car and then my caregiver gets them from the car the next time she comes, and puts them away."

More than half of clients (53.3%) said that in the last month they had not been able to reach at least one of the following seven destinations because they had no transportation to get there (whether transportation in the form of another person or their own vehicle) (Figure 9).

[30] One could interpret the need for more assistance, of course, as an outgrowth of health and income problems, in the absence of which clients might not need more assistance.

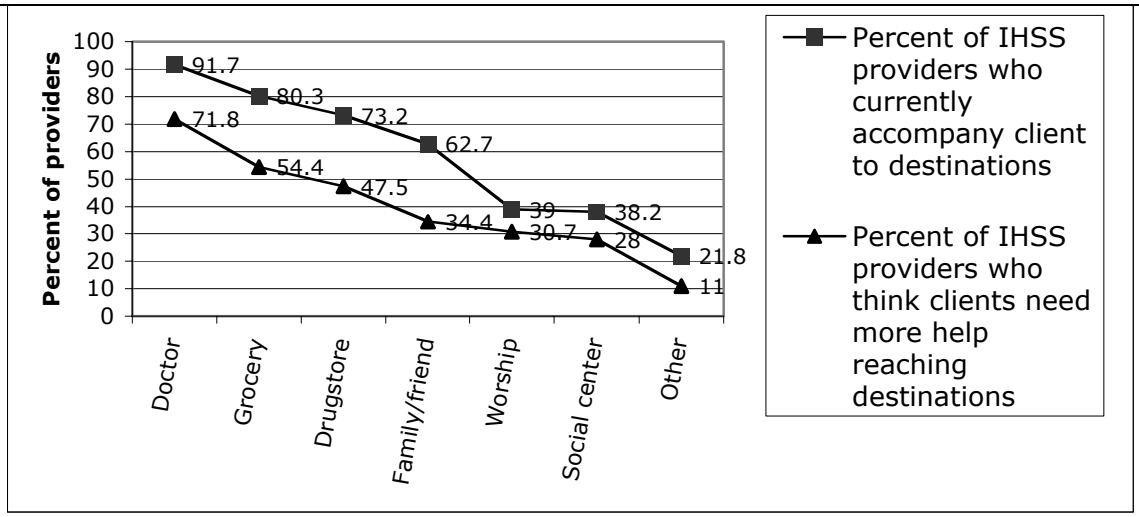
Figure 9. Percentage of consumers who said that they could not reach destinations in the previous month because they had no way to get there



Note. From consumer surveys

A complementary question asked providers where they thought their clients needed more help going: 35.2% thought their primary client needed more help going to 0 to 1 of the eight destinations listed, 41.7% to 2 to 4, and 23.1% to 5 or more destinations. While a high percentage of providers said that they accompanied clients to key destinations, many also wrote that their consumers still needed more transportation help (Figure 10). The total number of places to which providers thought consumers needed more help going was negatively correlated with consumers' age ($p < .01$). In other words, the providers who worked for older consumers thought that they needed to reach fewer destinations. The number of places to which providers currently accompany clients was negatively correlated with age ($p = 0.01$).

Figure 10. Where providers accompany clients and where providers think clients need more help going.



Note. From provider surveys

Consumer mode choice

The following findings suggest that disability, low income, and degree of assistance available, in addition to land use variables, play a strong role in shaping client mobility. For example, clients' ability to walk, the clearest proxy for health and disability status in the dataset, was strongly associated ($p < .05$) with increased use of all modes (driving, bus, walking, and other, with taxi and BART at $p < .10$) except for, as expected, the "driven by others" and "paratransit" modes (significant at $p < .01$)). In other words, those who had the most disability as measured by a walking proxy were the most likely to be passengers or to take paratransit.[31] In terms of income, the client comments support the findings of the transportation literature that poverty can constrain transportation options, forcing individuals to use modes that they might prefer the least. Low income, like poor health, therefore has divergent effects—encouraging the use of certain modes while discouraging the use of others. The clearest results here are that having low income increased how often clients were driven by others and decreased how often they drove themselves. In terms of the other modes, most simply, a client cut down on use when the mode cost too much relative to resources. Of course, clients who had financial problems with one mode often had problems with several. One 91-year-old in central county summed up her problems as follows: "Can't afford taxi, bus, or BART. Can't walk. Don't have a car."

[31] Small cell sizes for the less predominant modes requires caution as far as across-the board significance. But merging categories of "cannot walk without assistance" and "can walk less than a block" solves the cell size problem and keeps the significance, except that "others drive me" becomes more of a trend ($p = .09$).

Being driven by others. Most consumers said that they "always" left home as passengers in their own or other people's vehicles, and they emphasized the importance of this mode throughout their comments (see Table 6 for all the mode choice data):

- "I have a provider who drives me where I have to—or want to—go."
- "I live with my daughter, she takes me where I need to go."
- "Church pastor picks us up."
- "Daughter takes me if it's at the middle of the night (ER)."

Clients were asked which mode they would use more often if they could. The answers confirmed the importance of being driven, with 53.7% citing being driven by others as desirable.

Although being driven was consumers' top mode choice in terms of current and future use, many reported frustrations, such as having to depend on others and, when being so dependant, often feeling stuck without a ride:

- "[I have] to wait for someone to take me where I need to go."
- "I have to wait until a friend has time to take me."
- "Having to line up a friend to free his schedule. IHSS person does not always work on doctor, dentist, or P.T. day."
- "Can't go out without my care provider."
- "I do not go out very much; someone should take me."
- "I would like to go out to plays but no one to go with me."
- "The person I had to take me couldn't fulfill and Dial-A-Ride wouldn't take me because you have to book a ride a day ahead and they also don't work on Sunday."

- "I never get enough IHSS provider hours and miss out on much in life and medical care because of this."
- "No one was available to take me and I had used my homecare hours already."
- "No ride, can't take bus in the rain, no disabled/wheelchair taxi here."

Health problems tend to discourage clients from using other modes, which makes getting a ride the default option. They need door-to-door service because of trouble walking to transit stops, if the neighborhood even has nearby transit and that transit is usable. Consumers also often need help getting in and out of vehicles, help that drivers can provide. They have medical emergencies and need to get to doctors and hospitals more quickly than public transit will allow, but cannot afford taxis.

Age had a strong positive relationship with being driven in someone else's car ($p < .00$). When divided into age groups of under 65 and 65 and older, 72.8% of seniors said that they always or often were driven places in others' cars, versus 58.1% of non-seniors. Age was also significant with bus use (decreasing use with increasing age); with walking (decreasing use with increasing age); taxi use (decreasing use with increasing age); paratransit use (*increasing* use with increasing age); and BART (*increasing* use with increasing age). Age was not significant with driving oneself or the use of "other" modes. A higher percentage of seniors than non-seniors also commented about rides as what would help them get where they needed to go. This difference is notable given that in answer to most open-ended questions seniors commented less frequently than did non-seniors.

Having low income also makes getting a ride a preferred option. But consumers sometimes have to reimburse drivers for gas and time: "I have to pay for gas to my in-

home care worker to get from point A to point B," and "Making sure I have gas money for someone to take me to my doctor appointments, store, etc., because I only get SSI to live on." Clients therefore emphasized that IHSS should "pay employees' driving time and mileage."

Taking the bus. A higher percentage of consumers reported "always" taking the bus (8.0%) than of county commuters (1.9%) (U.S. Census Bureau, 2000), 9.3% use the bus "often," and 25.5% use it "sometimes" (although these rates are not fully comparable because the U.S. Census Bureau data on the countywide habits captures mode for commutes, while the client data does not differentiate between work trips and non-work trips (and a substantial proportion of the consumer population is not in the workforce). Despite, or perhaps because of, their substantial use, clients had more complaints than compliments about this mode. When asked, "What difficulties do you have with buses and BART/trains in your community?" consumers checked the whole range of options provided: about 15% had no difficulty, while 23.1% said they had to wait too long at bus stops; 19.0% said that stops were too far from their homes; 19.0% said that buses or trains did not go where consumers needed to go; 18.7% said that bus and BART are not comfortable for seniors or people with disabilities; 14.4% said that the fares cost too much, 9.3% said that the modes are not safe; and 5.6% had problems with no convenient bus or BART stops being in the community.[32] In their open-ended comments, clients wrote in detail about such difficulties: "Never know when the bus will arrive. Cannot read schedule and no place to sit and wait. No benches." Another wrote, "Too many bus changes required; too much time spent to get to many destinations."

[32] Additionally, 16.1% said "other," 15.8% said that they have no difficulties with either mode, and 24.3% said they do not use bus or BART.

Consumers also wrote in detail about health-related problems with using public transportation, either problems that complicated current use or problems that prevented them from using public transportation altogether: “A bus still runs down our street a few times a day; it feels like a mile when I have arthritis in my knees.” Those who used wheelchairs found that the vehicles were not properly equipped: “I have to travel in a van or bus with a wheelchair lift and tie-downs.” Others had trouble transferring between or within modes, such as climbing stairs in stations and getting wheelchairs on to the vehicle: “I cannot get my scooter on the bus.” For others, the trip is not physically comfortable: “BART is too bumpy, causes extreme back pain.” Still others had difficulty waiting at transit stops, especially in extreme weather.

Less obvious examples of health-related impacts on modes included not understanding how to use the transportation system if a consumer had dementia; fears of not being able to run away from an attacker; administrative hassles (“Don’t have disabled card; too much paperwork”); and problems with crowds (“It’s hard when you are on a wheelchair and there’s too many already on bus and BART. Also a lot of times there’s too many on to even try to ride”). Some clients could not even afford the bus. As mentioned, 14.4% of clients said that cost was a problem with buses and BART. One client wanted “lower fares #1—then I could afford to pay my in-home care worker more to take extra trips with me.”

Using paratransit. Paratransit might have been consumers’ top choice if not for their frustrations with the availability and cost of the service. While only 7.5% of clients who answered the paratransit question said they “always” use this mode, a higher percentage would use it if the option were available (see Table 6). Also, when asked what would

most help them get where they need to go, clients named paratransit over bus and BART. This shift probably reflects the real appeal to elderly and non-elderly disabled (and, indeed, most populations) of door-to-door service as compared with the slower, multimodal nature of other types of public transportation. As clients wrote:

- "I thank paratransit drivers. Most of them are very nice and they help me for I am healing a dislocated arm and need help with the heavy coat."
- "Thank god for Dial-A-Ride—wonderful!"

However, many clients found the reality of paratransit frustrating. In addition to writing about wanting shorter trips, more reliability, and more information about what paratransit actually is, they desired more freedom in their trip-planning:

- "More flexible hours of service."
- "Same-day service instead of waiting three days."

  "To be able to go at the last minute."

Consumers often complained that paratransit cost too much: "Door-to-door paratransit costs $6 per ride. Don't have that kind of $ to spare on a consistent basis." The high cost, in addition to inflexibility, of paratransit led consumers to desire alternate arrangement: for example, "if maybe once or twice a month we were allowed to hire paratransit for a day to do as many errands as we need for one set fee. Like maybe 3–4 hours."

Table 6

Modes of Transportation That Consumers Use and Modes That They Desire

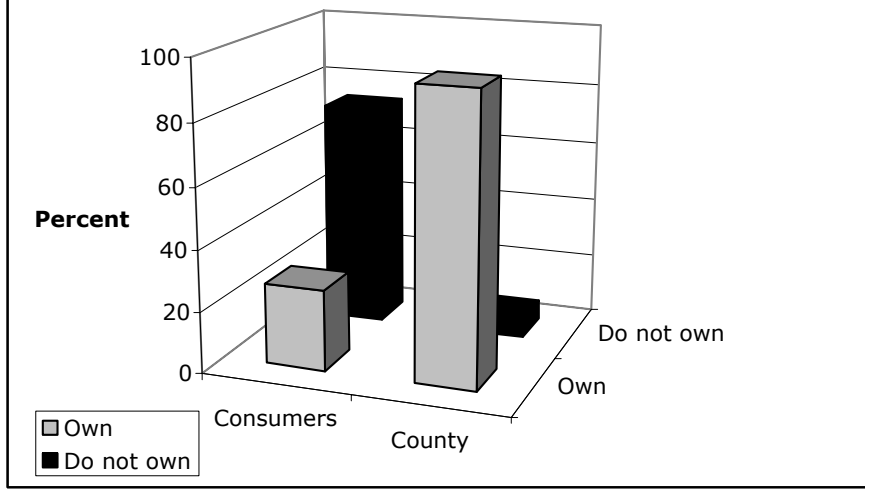
	Consumers who "always" use mode (percentage) (1)	Consumers who "would" use mode (percentage) (II)
Consumer Mode		
OTHER DRIVER		
DRIVER'S CAR	50.8	53.7 (SINGLE OPTION:
CONSUMER'S CAR	10.6	("OTHER DRIVER")
BUS	8.0	14.9
PARATRANSIT	7.5	17.7
DRIVE SELF	6.3	22.0
OTHER	4.7	4.8
BART	3.8	13.3
TAXI	3.6	11.8
WALK	2.6	13.0
TOTAL	97.9	151.2
N	Varies	762

Note. The denominator for the percentages in Column 1 was the total number of consumers who answered how often they used that mode, checking "always," "often," "sometimes," or "never." Also, comparisons within Columns I and II are more useful than between the columns because the questions were asked differently. The percentages in Column I add up to less than 100% because the survey asked about each mode separately. Column II exceeds 100% because it was a check-all-that-apply question.
From Consumer surveys

Driving oneself. As Table 6 shows, less than 10% of consumers "always" drove themselves when they left home. Those who drove did so for "short distances, not far alone" and "almost never—only in extreme emergency and there is no one to drive me." The most striking mode choice difference between the average Contra Costa IHSS consumer and the average American commuter is in their drive-alone rates. While 73.3% of Contra Costa commuters drove alone to work (U.S. Census Bureau, 2000), only 6.3% of consumers "always" drove themselves when they left home (see Table 6) (of course, that is comparing commute trips with all trips, so the categories are not equal). Yet, as

with paratransit, more consumers would like to drive themselves if the option were available (22.0%) than currently do. The gap between actual driving and desire to drive can be attributed partly to disability and partly to poverty, both of which contribute to their low car ownership rate. Of those consumers who "always" drove themselves who answered the car question, four-fifths owned a car (N=27). Yet only one-fourth of consumers owned a car, compared with more than nine-tenths of the Contra Costa population (Figure 11).

Figure 11. Consumer respondent versus Contra Costa–wide car ownership rates



Note. From consumer surveys and U.S. Census Bureau 2000

Car ownership was also significant by

- Age, with 33.7% of non-seniors owning cars versus 20.4% of seniors ($p < .01$).
- Race, between White consumers and "other" race consumers ($p < .05$), but not between White and African American consumers; 30.5% of White consumers owned a car, 26.0% of African American consumers, and 17.7% of "other" race

consumers (for example, at a finer-grained race measurement, 10.9% of Filipino consumers owned a car versus 27.2% of non-Filipinos consumers; and the numbers were too small to measure the other race categories individually);

- Part of county, comparing far west with east, with 20.9% of consumers living in far west owning cars versus 32.6% in east county ($p < .05$); 25.5% of consumers in near west and 26.8% in central owned a car.

Consumers did not write at length about how their health problems affected their ability to drive themselves, but they did note some constraints, such as "I can't use my hands to turn key in car" and "Not always able to drive myself around because of my many health challenges."

Consumers' low drive-alone rates also reflect their low incomes. One consumer in central county wrote: "When I became disabled I lost my home and my car—I had a Hyundai—I'd paid four years with one year left to pay." "Gas prices could be lower." Another consumer wrote, "I know you can't make it so gas is cheaper, but if registration fees could be pro-rated to people like me on SSI/RSDI (low income) that would help *a lot* and the same with car insurance too." Another consumer wanted "finances to get my own vehicle."

Finally, merging the cost and assistance problems: "My car is old & has lots of miles, etc. It won't be running much longer & I have no means of getting another one. I don't have many friends/family in the area with cars to help me & taxis are too expensive." Indeed, when citing what would help them get where they needed to go, consumers mentioned a working vehicle so often that it nearly topped the list (see Table 6), with 68 consumers mentioning needing a car and 10 mentioning needing a van as

what would help them most. Consumers talked about having a license but not a car; wanting a program to help them fix their cars "so I could get around, to have a social life"; and wanting a car to visit relatives. "I need a reliable vehicle and more paid time for caregiver to give me, because I have a lot of appts., hospital is 40 miles away—trouble finding help for all my needs."

Other modes. When asked for "other" ways in which they got around or would like to get around, consumers considered personal assistance its own mode, listing "caretaker's assistant," "my helper carry me sometimes," "my wife push my wheelchair when I go shopping, hospital, church," "IHSS provider," and so on. Consumers also considered mechanical enablers as modes: wheelchairs, with a preference for "powerchairs" and other electric wheelchairs; electric scooters; and the lifts on vans for wheelchairs. Although not modes in any traditional sense, these enablers constitute part of consumers' mobility, resembling most closely private transportation modes such as cars and bicycles. Further highlighting their disabled status, consumers also mentioned as modes ambulances and "special" medical transportation. One woman in her late '50s living in central county wrote a marginal comment that "usually can't get there [doctor/hospital] without calling 911." They also mentioned adaptations of existing modes, such as wheelchair–accessible taxis and modifications to BART, buses, and paratransit for scooters.

As with the being-driven mode, the use of mechanical enablers increases with health problems. Yet scooters, power wheelchairs, and so on cost a lot of money. One consumer wanted to "be able to afford to buy a super-light portable scooter, $2,000."

BART. Fewer consumer respondents take BART when they leave home (3.8%) than county commuters (6.6%). Many do not live close enough to stations to make BART a feasible option. Even those who can use BART have the issues listed above (waiting too long at bus stops, stops being too far from their homes, not going where consumers needed to go, not being comfortable for seniors or people with disabilities, fares costing too much, modes not being safe, and no convenient bus or BART stops being in the community). In east county, which has no stations, the problem was accentuated: "Have a BART station in Antioch," one consumer requested, similar to another: "Have the BART stations in Brentwood as was voted on and at least partially paid for." One said she would "travel a long way on a slow bus to get to the nearest BART station, Bay Point."

Taxi. While only 3.6% of consumers "always" use taxis to get around, 11.8% said that they would use them if the choice were available, which probably means if taxis were affordable. Although taxis would meet consumers' desire for door-to-door, reliable, and speedy service, which their health problems often require, consumers mostly mentioned taxis in the context of their prohibitive cost: "Taxis are very expensive and my only way to go out to doctor or hospital when family members are not able to drive me"; "I can't pay $20 cab fare"; "more reasonable or disabled rates for cabs."

Walking. A small percentage of consumers' trips were "always" by foot (2.6%), similar to that for Contra Costa commuters (1.5%). Health problems clearly affected consumers' decisions about whether or not to walk somewhere. Walking ranked high as a transportation difficulty and correspondingly low as a mode choice. Disability was the primary constraint:

- "On my walks, if I should be dizzy or fall, I cannot get up."

- "I can't walk very far and have trouble with stairs or steps, until I have my other knee replaced."
- "Stairs leaving my house. I can't use my left leg, there's no railing, and I'm unsteady on my feet, plus the incline of the hill makes getting into car most difficult."
- "We need Hwy 4 between Gardinia and Empire to be made *safe* for Silver Oaks Apts and other people to get to shopping center. Several disabled people have been hit by cars and rocks from traffic. The City of Oakley has been asked several times with no answers."

How far consumers could walk was positively related to the frequency with which they left home ($p < .001$). As the distances consumers can walk without assistance increases, so does how often they leave home. Two-thirds of those who can walk more than three blocks without assistance leave home more than 10 times per month, versus 32.5% of those who cannot walk without assistance. The frequency with which consumers leave home, of course, has important implications for their ability to reach desired destinations. Underlying those correlations, though, is just how infrequently the entire consumer population left home. Even of those who could walk more than three blocks without assistance, 33.8% left home 10 or fewer times per month, or less than every other day. Perhaps even more strikingly, 42.1% of consumers left home 5 or fewer times per month.

The most extreme disability (as measured by walking ability) also was correlated with highest level of assistance: 28 of the 36 consumers who spent 168 hours per week (i.e., received all-day care) with their primary IHSS providers answered that they could

not walk without assistance. Moreover, walking problems affected their ability to use other modes, such as public transportation. They could not walk to bus stops, could not board buses, and had coordination troubles on moving vehicles. In sum, as one consumer wrote, "I don't like public transportation because I can't get around very good (walking)." With another population, low income might translate into higher rates of walking. But health constraints as well as distance from destinations probably limit the income effects here.

See also the discussion in Appendix B of the pre-existing relationships between consumers and providers, which affected the assistance available to consumers.

General Provider Mobility Characteristics

The following section provides an overview of providers' main transportation habits through their mode choices, commute patterns, and travel challenges.

Unlike consumers, providers depended on driving themselves as their primary mode. The percentage of providers who "always" (as opposed to often, sometimes, or never) drove to their primary consumer's home was 74.2%, matching the Contra Costa drive-alone commute rate of 73.3% (U.S. Census Bureau, 2000) (Table 7). Nevertheless, a substantially higher percentage of providers "always" used the bus to get to their consumers' homes (20.2%) than of county commuters (1.9%), and a higher percentage of providers "always" walked to their consumers' homes (25.2%) than of county commuters (1.6%). Because some providers therefore answered "always" for more than one mode, these categories should not be seen as independent but rather overlapping.

Table 7

Modes of Transportation That Providers Use

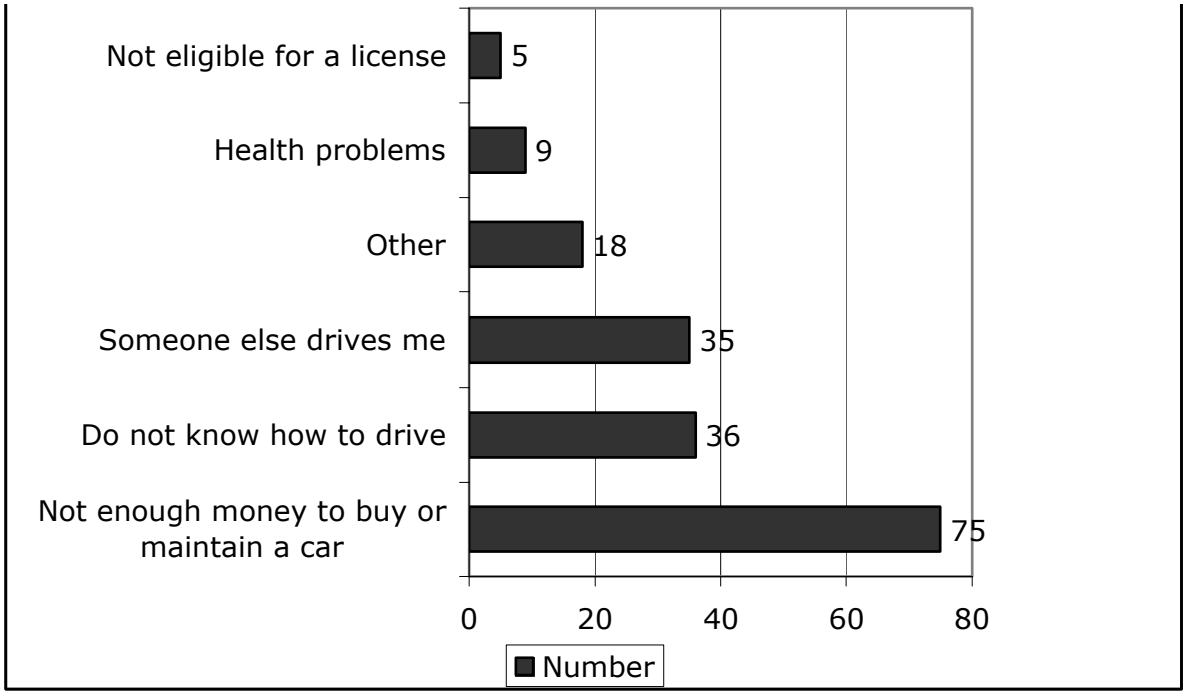
	Providers who "always" use mode (Percentage)
Provider Mode	
DRIVE SELF	74.2
WALK	25.2
BUS	20.2
OTHER DRIVER	14.6
BART	14.8
TAXI	1.3
BICYCLE	0.0

Note. The mode choice data exclude providers living with their clients. The denominator for the percentages was the total number of consumers who answered how often they used that mode, checking "always," "often," "sometimes," or "never." As with the consumer mode choice table, the percentages in Column I exceed 100% because the survey asked about each mode separately. Column I captures the "always" answers, and providers answered that they "always" used a mode more than once. From provider surveys and U.S. Census Bureau (2000).

Car Ownership

The provider car ownership rate was almost 20 percentage points lower than the county average, with 74.6% of providers owning cars versus 93.5% of Contra Costa householders (U.S. Census Bureau, 2000). When asked why they did not own cars, providers named cost as the primary reason (Figure 12). Other reasons included living near their clients, wanting to take public transportation, and not having a driver's license. Car ownership was significantly different by race, with 86.3% of White providers owning cars, 59.7% of African American providers, and 73.7% of "other" race providers. The difference was significant, for example, between Whites and African Americans ($p <$ .05). Car ownership was also significant by part of county, with 66.1% of providers in the far west; 81.0% in near west; 74.5% in central; and 79.6% in east.

Figure 12. Reasons why providers do not own cars (number).



Note. From provider surveys.

Travel Time to Primary Consumer's Home

On average, provider respondents spent less time traveling to their primary consumers' homes than Contra Costa workers did for their commute trips. About 90% of providers took 30 or fewer minutes to get to consumers' homes (excluding those who lived together), compared with the 48% of Contra Costa workers who took 29 or fewer minutes (U.S. Census Bureau, 2000). As another, imprecise, measure, consumers who did not live with their providers were asked to estimate how long it took their primary providers to get to their home; the average estimate was 23 minutes, with a mode of 15 minutes. As a point of comparison, the 2001 NHTS data for average vehicle trip duration was 18.6 minutes (18.2 minutes in urban areas and 20.3 minutes in rural areas).[33]

The journey to consumers' homes forms only part of the total commute burden for the 40% of providers who reported having at least one job in addition to working for their primary client. While 39% worked more than 26 hours per week for their consumers, 33% worked more than 40 hours per week at all their jobs, which included, according to their marginal notes, temporary, part-time, and seasonal positions. A study of the IHSS provider population in the county south of Contra Costa (Alameda County) similarly found that 41% of providers held more than one job and that 45% worked more than 35 hours a week, for an average of 36 hours per week (East Bay Alliance for a Sustainable Community and University of California, Berkeley, Center for Labor Research and Education, 2002). Those extra jobs would translate into additional commute time. Whether or not the Contra Costa provider respondents in the current study lived in east county was associated with whether the providers held jobs in addition to

[33] 2001 NHTS data, January 2004 data set; http://nhts.ornl.gov/2001/index.shtml.

IHSS. More than 40% of providers living in far west, near west, and central county held additional jobs, compared with 27.6% in east county. Provider age also was strongly and positively correlated with working other jobs in addition to IHSS ($p < .01$). When divided into senior/non-senior groups, 43.3% of those under 65 held another job versus 23.3% of providers 65 and older. Working other jobs was not correlated with African American, White, or "other" race, but being Hispanic was correlated with being less likely to hold another job ($p < .10$).

Travel Time for All Trips

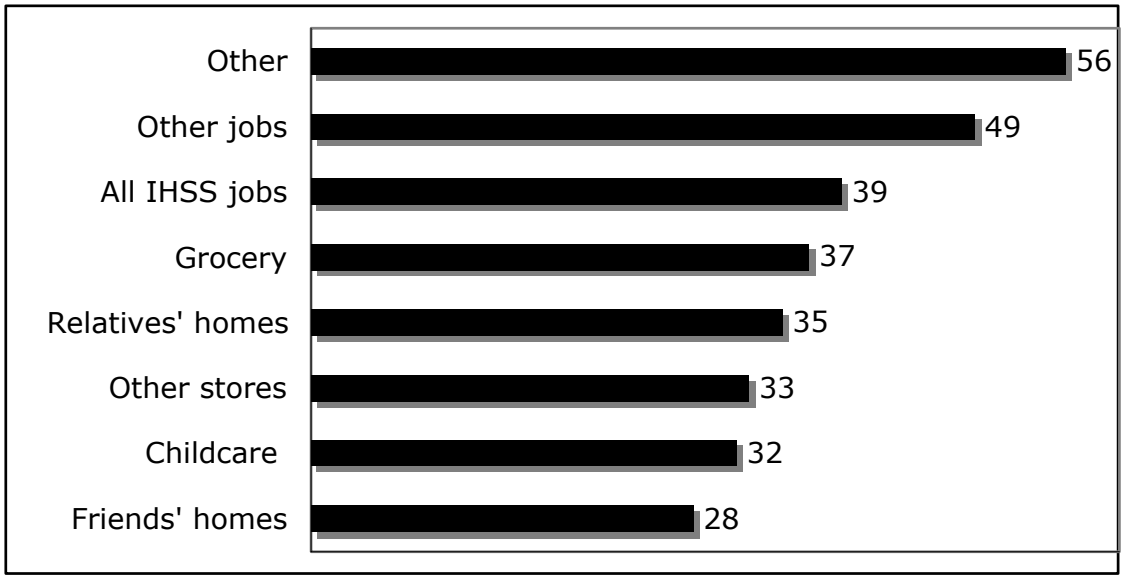
IHSS providers not only commute but also must travel to other destinations, such as grocery stores and childcare, spending an average of 141 minutes per day in travel (Figure 13). As a point of comparison, Americans spend an average of 90 minutes per day in travel (N=140,209).[34] But the IHSS numbers given here should be interpreted with caution, given the following issues:

- Providers were asked to provide their best estimates of daily travel, but some forms of travel happen less frequently (as one provider noted, "I do not go to stores every day"), which makes their daily estimates somewhat suspect. When it was obvious that they were making weekly estimates (from marginal notes or the size of the estimate), the numbers were divided into daily estimates.
- Providers were asked how much time they spent going to and from a set of places, and they might have inflated the figures by including time spent at destinations, or they might have underestimated the time spent in travel if they only answered for a single direction.

[34] With an average trip length of 9.94 miles (N=634,373); 2001 NHTS data, January 2004 data set; http://nhts.ornl.gov/2001/index.shtml.

- The list of destinations was not inclusive. Although an “other” category was offered, these numbers might underestimate providers’ time in travel.
- Finally, note that blanks were not counted as zeros, so the numbers given here only represent the time spent by those who actually go to these destinations.

Figure 13. Average time per day providers spend in travel by destination (minutes).



Note. From provider surveys.

Directness of Commute

Providers' transportation burden related to how often they changed between transportation options. As one provider noted, "If I had to take public transportation and transfer several times I would probably be tired or less energetic." Providers were asked how many times they changed between or within modes, whether it was changing buses, changing from bus to BART, changing between a car and public transit, or some other combination. About one fifth changed between modes (Table 8). Car ownership had a statistically significant relationship with whether or not they had to change between modes, with non-owners much more likely to change one or more times (47.5%) than car owners (9.0%) ($p < .001$).

Table 8

Number of Changes Across or Within Transportation Modes by Providers Traveling to Consumers' Homes by Car Ownership (Percentages)

	Own Car	Do Not Own Car	All Providers
Number of Changes			
USUALLY NONE	91.0	52.5	81.8
ONE	6.9	27.9	11.9
TWO OR MORE	2.1	19.7	6.3
TOTAL	100	100	100
N	189	61	253

Note. The data exclude providers living with their clients. From provider surveys.

A follow-up question asked providers for more details on their transportation transfers. In descending order of frequency, providers said that they changed between buses; between bus and BART; between BART and/or a bus and taxi; between two or

more buses and BART; and between BART and/or bus with additional help from a friend or family member.

- "I get on the BART train and change to one bus. And walk down the street about three blocks to my IHSS client's home."
- "BART, bus, car."
- "Two WestCATs then to El Cerrito Del Norte BART station then wait for the bus I need to take me to my granny's."
- "Walk for a mile, then bus 3 miles, then walk again."
- "I get on BART 'n bus, Monday/Friday, to get to my mom."
- "If I feel well enough, walk to the cheaper store, wait for a ride, whether I call someone or just wait."
- "Without a car I could not work for my current clients. It would involve two buses and BART to get there. Also, their doctors are about 14–16 miles away and neither one is very mobile."

Centroid distances and race

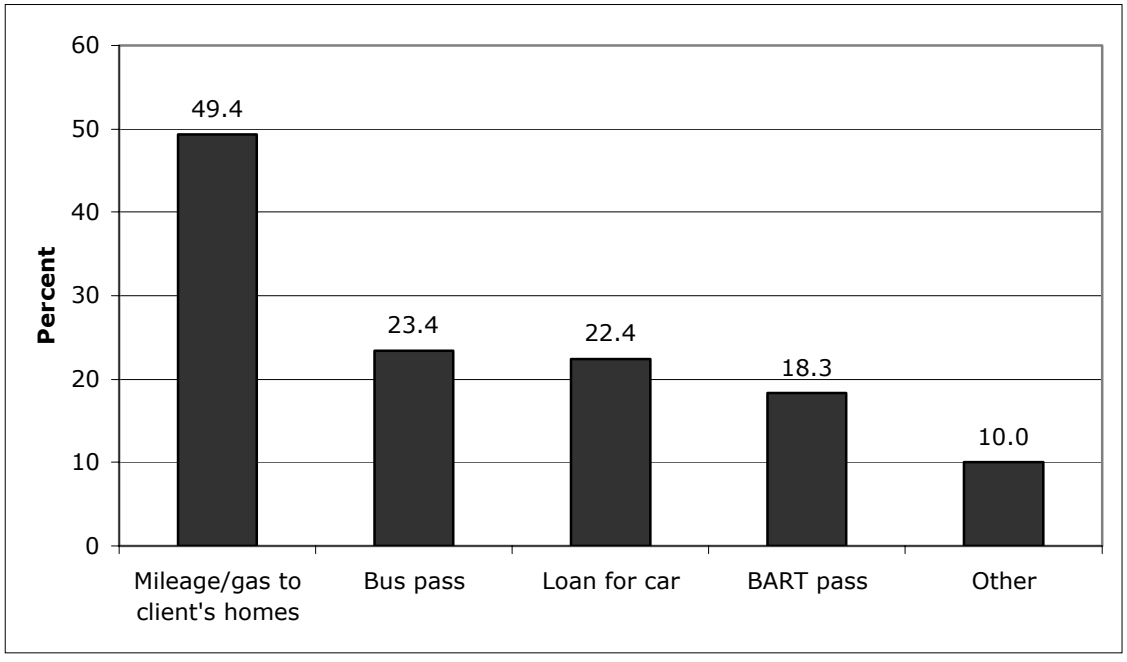
The centroid distances providers traveled (the average distance providers in a given zip code traveled to consumers' home) varied by demographic characteristics of both the provider and client populations. African-American providers on average lived in zip codes from which providers traveled 3.5 centroid miles, compared with White providers, who on average lived in zip codes from which providers traveled 2.7 centroid miles ($p < .01$). Providers categorized as "other race" lived in zip codes from which providers on average traveled 2.4 centroid miles. Provider age was significantly related to distance traveled, with increasing provider age associated with living in zip codes from

which providers traveled reduced distances ($p < .05$). From the consumer perspective, White clients on average lived in zip codes to which providers traveled farther (3.0 centroid miles) than did African American consumers (2.5 centroid miles) ($p < .001$). Clients categorized as "other race" on average lived in zip codes to which providers traveled 2.7 miles.

Desired Transportation Assistance from IHSS

Providers were asked in a check-all-that-apply question which, if any, of five options they would like from IHSS in order to improve their transportation to clients' homes. Almost half of provider respondents picked being reimbursed for mileage and/or gas as most important (Figure 14).

Figure 14. Types of transportation help providers want from IHSS (percent).



Note. From provider surveys.

Providers wrote notes in the margin about each mode.

Paying for mileage or gas to/from clients' homes. Providers noted that gas is "very expensive"; that the help should vary depending on mode used: "If you have a car—36 cents a mile for gas or a gift card for $10–$40 a month for groceries. If you don't have a car—bus vouchers, free BART passes." Others wrote that such help should be contingent on distance: "Help with mileage for those who live more than 15–20 mins. (only)." A provider in far west county wrote that he/she would say yes to mileage or gas "if my client lived farther away." Many wrote about how transportation help was particularly necessary given the salary: "The pay is not so good to be spending in transportation," and, as another wrote, "the work that I do for the client is worth more money. . . . These duties are sometimes mandatory to do, because the client is 73 years old. More money please. At least for gas."

Bus passes. Providers wrote that bus (and BART) passes would help: "because I live in San Leandro and work in El Cerrito," because "riding BART or bus would save gas and wear and tear on my car," because "without a bus pass it's expensive when taking client shopping, dr. visits, and even paying someone to provide transportation services. It causes me to spend . . . at least 10–15 hours more than I'm paid for." Another wrote: "I have a car now, but at one time I didn't. It would have been nice if IHSS did provide bus passes or BART passes. I've been an IHSS provider way back when pay was only $4.00 something an hour. Now it's $10.00. And they are talking about cutting that back. How can we live." One provider wrote: "I would really love to see IHSS look after its providers who use public transportation. I sometimes feel that the client situation is stacked against me when it takes an hour plus to simply *get* to my client's home."

Loans for a car. One provider noted: "My car is old, breaking down, and I need a new/used one . . . so as my daughter has more direct accessibility to me." As noted above, driving was providers' primary means of transportation to clients' homes, so a working vehicle was critical.

BART passes. A provider wanted such passes for additional flexibility: "I would not be so limited in where I work." Another provider, in central county, wrote: "A must . . . IHSS bus & BART discount transportation monthly passes to accompany my client. I spend so much money just to use public transportation to assist/shadow my client to outings (school, family, grocery store, hospital, etc.)."

Other things that IHSS could do to help. Topping the list was reimbursement for gas or mileage used for clients' errands, as opposed to gas or mileage for commute trips. Many providers wrote variations on the following: "Pay mileage driving outside of the home, clients' errands, store, doctor, drugstore, visiting, anything related to clients." Even though technically clients are supposed to reimburse providers for the costs of errands, providers supplement the amount themselves. It is a "stress to clients to reimburse for gas," wrote one provider, mostly because clients have little money themselves.

Hypothesis 1: The Effect of Land Use Variables on Consumer Mobility

The first hypothesis was that consumers' mobility was related to land use variables, with consumers who live in or have providers who live in higher density and more accessible areas experiencing greater mobility.

The independent variable *land use* was measured by part of county ("zone"); housing and population density data at the zip code level; how far respondents had to travel to eight key destinations; the average distance respondents lived from to destinations.

The dependent variable consumer mobility was measured by whether in the past month because of transportation problems consumers could not reach destinations; how often consumers left home; if consumers would want to move to a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services; what difficulties (if any) consumers had with bus stops and BART stations in their communities; and how many places to which providers accompanied their consumers (with a variable constructed for the total number of places to which they accompanied clients), and how many places providers thought their consumers needed more help reaching (with another summary variable constructed).

Land Use Variables and Consumers' Inability to Reach Desired Destinations

As noted, consumers indicated which of several destinations they could not reach in the previous month because they had "no transportation" to get there. The results show that certain land use variables constrained clients' ability to reach desired destinations in the previous month. Consumers' answers are framed in the negative (whether they could

not reach a given destination) because they were asked whether they could *not* get to a place they wanted to go. A blank answer did not indicate necessarily that they were going places successfully; perhaps they were not even trying and therefore did not experience failure.

Density and accessibility by part of county (zone). Decreasing density by part of county is associated with decreasing inability on the part of consumers to reach grocery stores, drugstores, and places of worship in the previous month because of transportation problems (Table 9).[35]

Table 9

Decreasing Density/Accessibility by Zone by Consumer Inability to Reach Destinations in Previous Month Because of Transportation Problems

	Inability to Reach Grocery Store	Inability to Reach Drugstore	Inability to Reach Place of Worship
CHANGE IN ZONE (TOWARD DECREASING DENSITY)	–13%*	–21%**	–15%*
N	650	581	650

Note. From consumer surveys. See Tables E2, E3, and E5 for more detail on these relationships.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Significance of control variables in not reaching destinations: *Grocery store:* Being female and younger was significant (Table E2). *Drugstore:* Being female, younger, Hispanic, and owning housing were significant (not car ownership; Table E3). *Place of worship:* Being younger was significant (Table E5). The relationship between zone and reaching a grocery store or a place of worship stopped being significant once race was

[35] It is useful to remember when interpreting data relating to zone here and elsewhere in the results that the statistical tests represent far west county with the number 1, central county with 2, near west county with 3, and east county with 4, so that the numbers increase as density and accessibility decrease.

added, so car ownership, being Hispanic, and housing type were not used as control variables.

Housing and population density. Increases in both housing and population density are related significantly to increased inability by clients to reach drugstores and places of worship because of transportation problems, and increases in population density were associated with increased inability to get to grocery stores (Table 10). In other words, as density decreased, clients were less likely to say that they could not reach certain destinations in the previous month because of transportation problems—which might mean that they were more able to reach destinations, but not necessarily, for the reasons included above.

Table 10

Increasing Housing and Population Density by Likelihood of Consumers Being Unable to Reach Destinations in Previous Month Because of Transportation Problems

	Increase in Inability to Reach Drugstore	Increase in Inability to Reach Place of Worship	Increase in Inability to Reach Grocery Store
UNIT INCREASE IN HOUSING DENSITY	+0.03%*	+0.03%*	NS
N	586	655	
UNIT INCREASE IN POPULATION DENSITY	+0.01%**	+0.01%*	+0.01%*
N	586	655	655

Note. From consumer surveys. See Tables E2, E3, and E5 for more detail on these relationships.
*indicates significance at the 10% level; **at the 5% level; and *** at the 1% level.

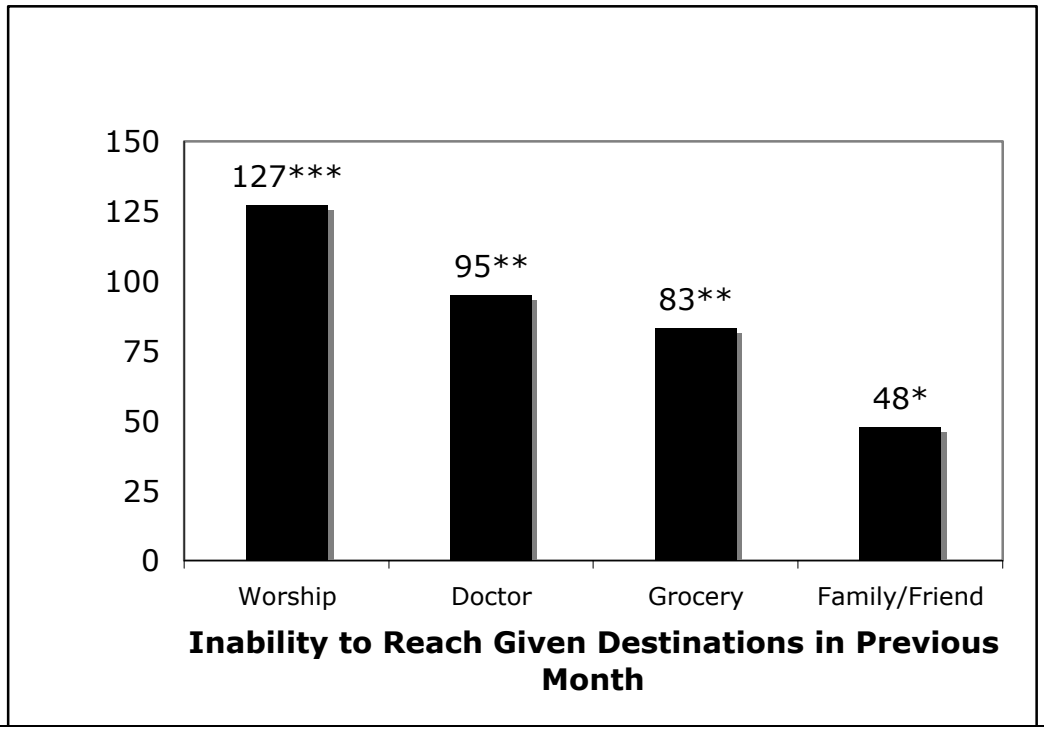
Significance of control variables to not reaching destinations: *Grocery store:* Being female and being younger were significant in the population density model; when

race was added, the relationship between reaching a grocery store and density became insignificant, so Hispanic status, car ownership, and housing type were not controlled for (Table E2). *Drugstore:* Being female, younger, Hispanic, and owning housing were significant (not car ownership; Table E3). *Place of worship:* Being younger was significant, but again, when race was added the relationship became insignificant and so additional control variables, including car ownership, were not added (Table E5).

Average distance to key destinations. As noted, a variable was created from survey data averaging clients' self-reported distances from their homes to the closest of each of eight destinations: doctor's office or hospital, grocery store, drugstore, bus stop, BART station, family or friend's home, social and community center, and place of worship. Although this list does not include all destinations that individual clients might consider important, the "average distance" variable offers a finer-grained picture of neighborhood characteristics than do the zone-level and zip-code–level housing and population density measurements.

Average distance to destinations was an important variable. Increasing average distance was significantly correlated with consumers' inability to reach four destinations in the previous month because of transportation problems (Figure 15). In other words, as neighborhood accessibility decreased, consumers experienced greater problems in reaching desired destinations.

Figure 15. Percent change in likelihood of consumers being unable to reach destinations by increase in average distance to destinations.



Note 1. From consumer surveys. For more detail, see Tables E2, E4, E5, and E6.
Note 2. The number for all the results was 414 except for family/friend's home, which was 484.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Significance of control variables to not reaching destinations: *Grocery store and doctor or hospital:* Being younger and owning housing were significant (car ownership was not significant) (Tables E2 and E4). *Place of worship:* Being younger, owning housing, being African American, and being an "other" race were significant (not car ownership; Table E5). As soon as gender was added the relationship between average distance and reaching the home of family or friends became insignificant, so other control variables were not used, including car ownership (Table E6).

Qualitative findings. The consumers' survey comments support the association between land use variables and inability to reach desired destinations. After responding to the survey question about when in the previous month they could not reach desired destinations because they had no transportation, consumers explained some of these frustrations in terms of land use variables, including distances to destinations. In far west county: "No one to take me and things/shopping are too far away." "The bus does not go on that street and it is too far for me to walk now." "Too far." In near west county "Too far to walk." In central county: "Too far away, too hard to get to." "I go to a temple in Sacramento. It is too far and sometimes my son has to work and he can't take me." "Because family members live outside Concord." "I don't know of any community center located near our home. Being a part of the community and socializing is important." "The social center is far, far away from home." In east county: "Not much in this area." "Too far away. Too many transfers of buses, timing of connecting buses was too inconvenient, also weather, no allow." "Having to travel a long way on a slow bus to get to the nearest BART station (Bay Point)."

Although clients in all parts of the county cited distance as a problem, those in lower density areas seemed to write about longer distances, such as the doctor's office or hospital being "50 millas [miles]-UCSF": "no bus comes out here"; the place of worship was "far, far away"; "far from our home. Martinez"; "Dial-A-Ride and buses closer to the supermarket. Too far now"; "WestCAT Dial-A-Ride or bus service in our area on Sunday"; "BART should be in Antioch period!!!" Such comments though, were too few to be relied on as proof of any trends.

Of course, land use factors constitute only part of the problem for this population. When asked what would help them get places more effectively and efficiently, one client summed up: "Better paratransit; living closer to BART; more frequent buses."

Land Use Variables and How Often Consumers Left Home Every Month

Land use variables were examined in relation to how often clients left home every month. Zone and average distance to destinations were both significant in the predicted direction. A change in zone in the direction of decreasing density and accessibility was associated with a 30% increased likelihood of the client being more likely to almost never leave home as opposed to leaving more than 10 times per month, significant at the 10% level. In other words, consumers living in higher density and accessibility areas left home more often than those in lower density areas, which may reflect some self-selection bias as well.

Of the control variables, being younger, being able to walk farther without assistance, and owning a car were significantly related with consumers leaving home more often (Table E1).

An increase in average distance to destinations was associated with a 70% increased likelihood of the consumer being more likely to leave home 1 to 5 times per month as opposed to leaving more than 10 times per month, significant at the 10% level. Again, those consumers who live farther from key destinations are more likely to stay at home than those who live closer.

Of the control variables, being male, being younger, being able to walk farther without assistance, and not being African American were significantly associated with consumers leaving home more often (not car ownership; Table E1).

Land Use Variables and Whether Consumers Wanted to Move to a Neighborhood . . .

Clients were asked if they would "want to live in a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services." This variable did not measure mobility directly but rather captured the level of consumer satisfaction with their current access to destinations. Just over half of consumer respondents said that they would want to move under those conditions: 52.6% (N = 454).

Zone. Those in lower density parts of Contra Costa were less likely to want to move than those in higher density zones. A change in zone in the direction of decreasing density and accessibility was associated with a 19% decreased likelihood of clients wanting to move to a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services, significant at the 5% level.

Significance of control variables: Being female was associated with being less likely to want to move (Table E8). The relationship between zone and wanting to move lost its significance once race was added, so Hispanic status, car ownership, and housing were not included as control variables.

Average distance to destinations. An increase in average distance to destinations was associated with an 85% increased likelihood of the client wanting to move, significant at the 10% level.

Significance of control variables: Not owning a car, being female, being African American, being an "other race," and renting housing were all associated with the client wanting to move (Table E8).

The qualitative data support this result. When asked to explain why they would want to move, consumers wrote comments reflecting the importance of nearness to desired destinations and access to usable transportation: "Doctors are too far to walk to. Grocery outlet closed down last year." "It was not as bad until they stopped bus service except for weekday mornings and evenings." "Hoping to relocate to a more mobile independent access—shopping without any assistance and feel safe." On the other hand, a few consumers who answered that they did not want to move described their attachments to place: "I am used to living in my family's home and have sentimental ties to this place." "Live here 33 years." One client who did not want to move wrote that it was because she had already arrived at a high-density and high-accessibility place: "I live in disabled complex built for wheelchairs, close to shopping. It's 25 units. There should be more of them."

Land Use Variables and Consumers' Difficulties (If Any) with Bus Stops and BART Stations in Their Communities

The survey also measured clients' mobility by asking whether or not they had any of a number of enumerated problems with bus stops and BART stations in their communities: a lack of stations; stops being too far from their homes; buses or BART not

going where they needed to go; bus and BART not being safe; costing too much; being uncomfortable for seniors/disabled people; having to wait too long at bus stops or BART trains; and "other" problems. They also could answer "not applicable: I have no difficulties with buses or BART" or "not applicable (I don't use buses or BART)," but the "not applicable" answers should be treated cautiously because the answer choices were worded in such a similar manner and therefore might have been confusing.

Zone. As shown in Table 11, decreasing density and accessibility as captured by the zone variable were related to increased complaints about three problems with bus and BART: a lack of stations, stops being too far from their homes, and buses or BART not going where clients needed to go. Decreasing density also was related to consumers saying less frequently that bus and BART are not safe, which could reflect that they actually feel safer on bus and BART or that they are not as familiar with it. Zone was not significantly related to the other enumerated problems with buses or BART, which makes sense: cost, comfort, and wait time, for example, are problems clients across the county would share, given their low incomes and disabilities.

Table 11

Zone by Difficulties with Bus or Bart

Percent change in likelihood that consumers would cite a given difficulty by decrease in density/accessibility (zone)		
Difficulties	*Percent change*	*N*
NO STATIONS IN COMMUNITY	+149***	581
DON'T GO WHERE NEED THEM TO GO	+30**	581
STOPS TOO FAR FROM HOME	+19*	608
NOT SAFE	–23*	581

Note. From consumer surveys. For more detail, see Tables E10, E12, E15, and E16.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

The significant control variables follow. *Having no bus or BART in their community*: Being African American, being an "other" race, and renting housing (not car ownership; Table E10). *Stations too far from consumers' homes:* Owning a car, being female, and being younger (Table E12). *Buses or trains not going where consumers needed to go:* Being female, being an "other" race, and owning housing (not car ownership; Table E15). *Bus or BART not being safe:* Being younger (not car ownership; Table E16).

Housing and population density. As with zone, increasing housing and population density at the zip code level was correlated with consumers citing fewer bus or BART difficulties (Table 12). The exception was safety concerns, which again increased with density. Consumers in higher density areas were more likely to answer that the question was "Not applicable (I don't use buses or BART)."

Table 12

Housing and Population Density by Zip Code by Difficulties with Bus or Bart

	Percent change in likelihood that consumers would cite a given difficulty with bus or BART in their community:				
	None in Community	Don't Go Where Need To Go	Not Safe	Not Comfortable	NA: Don't Use
UNIT INCREASE IN HOUSING DENSITY	–0.09**	–0.04**	+0.03*	–0.03*	+0.04**
UNIT INCREASE IN POPULATION DENSITY	–0.03**	–0.02***	+0.01*	–0.01*	+0.01**

(N = 586 for all except 671 for housing density/not safe)

Note. From consumer surveys. For more detail on these relationships, see Tables E10, E13, E15, E16, and E18.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Following are the significant control variables. *No bus stops or BART stations:* Owning a car, being African American, being younger, being of an "other" race, and renting housing (Table E10). Owning a car was not related to any of the other difficulties with buses or BART in their communities. *Buses or BART not being comfortable:* Being female, being of an "other" race, and owning housing (Table E13). *Buses or trains not going where consumers wanted them to go:* Being female, being of an "other" race, and owning housing (Table E15). *Bus or BART are not safe:* Being younger (Table E16). *"Not applicable" (they do not use buses or BART trains)*: Renting housing (Table E18).

Average distance to destinations. The farther clients lived from key destinations, the more likely they were to answer that they had no stations in their community, buses and BART trains did not go where they needed, stops were too far

from their homes, and buses or BART trains were uncomfortable for seniors or disabled people (Table 13).

Table 13

Average Consumer Distance to Destinations by Difficulties with Bus or Bart

Percent change in likelihood that consumers would cite a given difficulty by increase in average distance to destinations		
	Percent change	N
Difficulties		
STOPS TOO FAR FROM HOME	+146***	414
NOT COMFORTABLE FOR SENIORS/ DISABLED PEOPLE	+100**	414
DON'T GO WHERE NEED THEM TO GO	+61*	459
NOT APPLICABLE: NO DIFFICULTIES	-43*	414

Note. From consumer surveys. For more detail on these relationships, see Tables E9, E12, E13, and E15.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

The significant control variables follow. *Stations were too far from their homes:* Owning a car, being female, and being younger (Table E12). *Bus or BART being uncomfortable:* Renting housing (not car ownership; Table E14). *Not having any problems with bus or BART:* Being able to walk farther (not car ownership; Table E9). The relationship between average distance and bus or BART not going where consumers needed them to go stopped being significant when race was added, so Hispanic status, car ownership, and housing type were not used as control variables (Table E15).

Hypothesis 2: The Effect of Land Use Variables on Provider Travel Challenges

The second hypothesis was that land use variables were related to IHSS providers' travel challenges, with having to travel to or from lower density, lower accessibility areas aggravating the challenges providers already experienced because of having low income.

The independent variable *land use* was measured by part of county (zone); respondents' housing and population density data at the zip code level; how far respondents had to travel to eight key destinations and the average of those distances to destinations

The dependent variable *provider travel challenges* was measured by whether providers perceived their commute to the primary consumers' homes to be "stressful"; how many times providers had to change on transit during their commutes; how much time they spent traveling to consumers' homes; how far they had to go to consumers' homes; whether they would want to move to a higher density neighborhood to be closer to services; the time they spent daily going to and from childcare, a grocery store, non-food stores, all IHSS jobs, other jobs, and other locations; and the average distance providers in a zip code traveled to consumers' homes (the "centroid" measurement). The centroid measurement, again, captures the one-way distances that providers in a given zip code traveled on average to consumers' homes, measured as the distance between the centers of providers' and consumers' zip codes ("centroid") as calculated from countywide IHSS data. The centroid figures reflect average distances for providers in that zip code, not actual pairings of the smaller group of providers and consumers who responded to the present survey.

Whether Providers Perceived Their Commute to Their Primary IHSS Consumer's Home as "Stressful"

Providers who lived in higher housing density zip codes experienced their commute as more stressful. A unit increase in providers' housing density was associated with a 0.04% increase in the provider's likelihood of responding that the commute was stressful instead of saying that it was *not* stressful, significant at a 10% level. (See Table H1 for more detail).

Of the control variables, once being Hispanic was added, the relationship between stress and housing density lost its significance, so car ownership and housing type were not used as control variables.

Similarly, when the data were split into car owners and non-car owners, the relationship between housing density and stress did not remain for either group when controlling for living in the same house, gender, age, and race.

How Many Times Providers Had to Change on Transit During Their Commute to the Primary IHSS Consumer's Home

As overall density and accessibility by zone decreased, so did the chance that the provider would change types of transportation on the way to the client's home—switching between, for example, buses and BART, or walking and bus, or individual buses—with a 55% decreased likelihood that the providers would say that they changed transit once instead of saying that they did not change at all, at a 1% significance level. (See Table H2 for more detail.) This finding makes sense given that lower density zones

have fewer public transportation alternatives. This relationship lost its significance when Hispanic status was added, and so car ownership and housing type were not used as control variables, but being younger was associated with making more changes in transit.

When the data were split into car owners and non-car owners, the relationship remained significant between zone and changes in transit for each set of providers, controlling for gender (the full set of control variables could not be used because splitting the data reduced the number). Splitting the data into car owners and non-car owners did not affect the results for housing and population density and average distance (they remained unrelated to number of changes in transit).

Moreover, providers' car ownership increased as zone density and accessibility decreased ($p < 0.05$) (Table 14), which would be related to decreased use of alternative modes.

Table 14

Provider Car Ownership by Region of County (Percentages)

	Far west	Central	Near west	East
OWNS A CAR	66.1	74.5	81.0	79.6
DOES NOT OWN CAR	33.9	25.5	19.0	20.4
TOTAL	100	100	100	100
N	121	58	145	98

Note. From provider surveys.

Provider Time in Travel to Consumers' Homes

Providers' housing and population density by zip code, the average distance they lived from a set of key destinations, and the average distance providers in their zip code

traveled to consumers' homes (the centroid measurement) were significantly correlated with how long providers spent commuting to clients' homes (Table 15).

Table 15a

Land Use Variables by Likelihood of a Provider Saying It Took More Than 30 Minutes to Get to Consumer's Home Instead of Saying They Lived Together

	Change in likelihood of saying commute took 30+ minutes (percent)	N
Land-use variables (unit increase)		
CENTROID	+29.0*	422
HOUSING DENSITY	+0.04**	383
POPULATION DENSITY	+0.01*	393
AVERAGE DISTANCE	–0.52*	380

Note. From provider surveys. For more information on the relationships, see Table H4.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Table 15a shows that as the average distance providers in a given zip code traveled to consumers' homes (centroid distance) increased, so did the chance that individual providers in those zip codes would cite increased time in travel, even though time in travel and distance traveled do not mirror each other perfectly. This model controlled for gender and age, but when race was added it lost significance and so car ownership was not used as a control.

As housing and population density increased, so did the time that providers spent in travel. In terms of the control variables, the less time the provider spent with the consumer, the more likely it was that the provider spent more than 30 minutes in the commute as opposed to living in the same home as the consumer, and, for housing

density, the older the consumer the more likely the provider was to spend more time in the commute. Car ownership as a control was not significantly related to providers' travel time (Table H4).

Similarly, as the average distance providers lived from destinations decreased, provider time in travel increased. These results could reflect the fact that providers in the far west might take public transit or walk more often, translating into more time in travel. In terms of control variables, the relationship lost its significance when race was added, so car ownership, Hispanic status, hours per week with the consumer, and consumer age were not used as control variables.

Dividing the data set into car owners versus non-car owners did not work for these models because too few providers remained in each individual category.

Distance Providers Live from Consumers' Homes

The data relating land use variables to providers' distance from clients resemble the time in travel data in two ways: as the centroid distances increased so did the distances individual providers in those zip codes lived from their clients; and as housing and population density increased, so did the distances providers lived from clients, perhaps reflecting that transit trips are more circuitous (Table 16). As zones decreased in overall density and accessibility providers were more likely to say that they lived 30 or more miles from consumers' homes than that they lived in the same house. In other words, as housing and population density increased, providers lived farther from consumers, but as density measured by the zone variable increased, providers lived closer to consumers.

Table 16

Land Use Variables by Likelihood of a Provider Saying He or She Lived 30 Miles or More from Consumer's Home Instead of Saying They Lived Together

	Change in likelihood of saying commute was 30 miles or more (percent)	*N*
Land-use variables (unit increase)		
ZONE (DECREASING DENSITY)	+106.00**	366
CENTROID DISTANCE	+35.00*	394
HOUSING DENSITY	+0.05**	381
POPULATION DENSITY	+0.02*	381

Note. From provider surveys. For more information on the relationships, see Table H5.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Significant control variables: Car ownership is not significantly related to the distance the provider lives from the consumer in any of the population and housing density and zone models (Table H5), although the relationship between centroid distance and how far the provider lives from the consumer's home lost significance when car ownership is added as a control. But being female and being younger were correlated with being more likely to travel 30 miles or more instead of living in the same home as the consumer for the density models. Not being of an "other" race is associated with traveling more than 30 miles instead of living in the same house (so those who are of an "other" race are more likely to live in the same house). Being younger and not being of an "other" race are also significantly associated with living farther from the consumer in the average distance tests.

Dividing the data set into car owners versus non-car owners was not possible for these models because the number was too small in the individual categories.

Whether Providers Wanted to Move to a Neighborhood . . .

Providers were asked if they would "want to live in a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services." This variable did not measure mobility directly but rather captured the level of provider satisfaction with current access to destinations. Zone was related significantly in a chi-square test to whether providers wanted to move to be closer to services ($p < .05$). A higher percentage of those in far west would move (50.0%) than in east county (31.7%) (Table 17).

Table 17

Provider Desire to Live Closer to Services Despite Higher Population Density by Zone (Percentages)

	Far west	Central	Near west	East
WOULD DESIRE	50.0	53.8	40.0	31.7
WOULD NOT DESIRE	50.0	46.3	60.0	68.3
TOTAL	100	100	100	100
N	78	80	35	60

Note. From provider surveys.

When the data set was split into car owners and non-car owners, zone was related to wanting to move for car owners, controlling only for living in the same house as the consumer and gender (Table 17a). Car owners were less likely to want to move as the zones decreased in density and accessibility.

Table 17a

Provider Desire to Live Closer to Services Despite Higher Population Density by Zone (Percentages) (Divided into Car Owners and Non-Car Owners and Controlling for Living in the Same House as Consumers and Gender)

	Change in likelihood that would want to move	N
Car owners		
Decreasing density and accessibility by zone	–26%**	165
Non-car owners		
Decreasing density and accessibility by zone	NS	73

Note. From provider surveys. * Indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Providers who said that they would move were asked why. They cited issues such as budget cuts affecting bus services at night and on the weekend and wanting more activities in their neighborhoods. (One provider in central county wrote: "Not at this time, while I can still drive.")

Time Provider Spent Daily Going to a Grocery Store

Another travel challenge was the time providers spent going to various locations each day. An example of travel to a single destination, though not necessarily representative, is how long they spent going to grocery stores. Increasing density and accessibility as measured by zone and population and housing density were associated with more time spent traveling to grocery stores. Decreasing density and accessibility by zone was associated with a 7% decrease in how long providers spent traveling to the

grocery store ($p < .10$) (see Table H6). A unit increase in population density was associated with a 0.01% increased likelihood that providers would say they spent more time per day going to the grocery store ($p < .05$), as was a unit increase in housing density ($p < .10$). In other words, greater density/accessibility was associated with more time in travel. Note that car ownership was not significantly related to providers' time in travel to the grocery store, although being Hispanic was associated with spending less time in travel, as was living in the same house as the consumer for the zone tests.

When data was split by car ownership, car owners were more likely to spend more time going to the grocery store as housing density increased, with similar population density results. As the zone in which they lived decreased in density, car owners spent less time traveling to the grocery store. As the average distance consumers had to travel on average to reach destinations increased, non-car owners spent *more* time traveling to the grocery store.

"Centroid" Travel

Centroid distances providers traveled to consumers' homes (again, calculated based on Contra Costa CMIPS data matching overall provider and consumer zip codes) differed significantly by providers' zones ($p < .001$) (Table 18). As the zone's density and accessibility decreased, centroid distance increased.

Table 18

Average Distances Traveled by Providers from the Center of Their Home Zip Code to the Center of Zip Codes Where Their Consumers Lived by Zone

	Distance Traveled (Miles)		
	Mean	Standard Deviation	N
FAR WEST	1.8	0.21	127
CENTRAL	2.5	0.38	147
NEAR WEST	2.5	1.18	60
EAST	3.1	0.46	99
TOTAL	2.5	0.71	433

Note. From CMIPS data. All figures calculated by author.

In other words, providers living in the lower-density zones on average traveled farther, as measured by the center of their zip codes to the center of their clients' zip codes, than did those in the higher density zones. Since this model does not reflect the experiences of individual providers, dividing by car ownership is not required.

Similarly, the centroid distances providers traveled were negatively correlated with the housing and population density of providers' zip codes. As density increased, the centroid distances traveled went down ($p < .001$ for housing density and $p < 0.001$ for population density).

Hypothesis 3: The Effect of Provider Travel Challenges on Consumer Care

The third hypothesis was that providers with travel challenges cannot provide the same extent of care as do those who have an easier commute to the consumers' homes or an otherwise lighter daily transportation load.

IHSS provider travel challenges were measured by how long they spent traveling to consumers' homes; how far they lived from consumers' homes; whether providers perceived their commute to the primary consumers' home to be "stressful"; how many times providers had to change on transit during that commute; whether consumers lived near a bus or BART station that the providers could use; whether the providers would want to move to a higher density neighborhood to be closer to services; whether the providers held another job; the time providers spent per day going to and from a grocery store; and the distances providers traveled to consumers' homes on average (the "centroid" measurement.

The extent of care variable was measured by: whether consumers thought that the providers' travel challenges affected the care they received from those providers; whether providers thought their travel challenges affected the care they provided; where and to how many places total providers accompanied consumers; and where and to how many places total providers thought their consumers needed help going.

Distance and Time in Travel to Consumers' Homes and Whether Consumers Thought Those Variables Affected the Care Received

Qualitative data reveals the relationship between how far away providers lived from clients (in both miles and minutes) and perceptions of how that distance affected the

care provided. Both providers and clients regularly mentioned effects, in particular that distance diminished the care supplied and that living with or near each other was preferable to living farther away (about 40% of providers lived in the same home as their primary clients; see Appendix B for more information on these relationships).

About 12% of consumers said that distance affected (either positively or negatively) the care that they received. Many answered a follow-up open-ended question asking why they experienced a difference, and one third of those described how their providers could not get to their houses fast enough, or at all. Several wrote that the commute tired the provider.

- "If she has a problem, she can't come."
- "In case I want to go to the [emergency] room I would like to go faster."
- "In the past I have lost workers who didn't have cars because public transportation took too long. The above-mentioned worker would take 1 1/2 hours to get here by bus, and when his car broke he didn't work."
- "She does not drive or have a car. Her mom or boyfriend drops her off and picks her up and sometimes she takes the bus or I go pick her up or take her home."
- "She has been in an accident and it worries me."
- "I don't feel comfortable calling her for sudden, semi-emergencies."
- "The time it takes to get to me and drop me back takes up a large majority of my caretaker's time."
- "She works another job beside mine and all the traveling [results in] wear and tear and [she is] tired."

Consumers explicitly described wanting to live closer to their providers: “My daughter and grandchildren live in San Francisco. I need to move there for more help from them.” Another wrote, “How I wish my caregiver who is an IHSS care provider will stay with me permanently.”

In contrast, clients who lived closer to or with their providers tended to focus on the positive effects of the distance (or lack of distance, more accurately).

- “Live in caregiver works very well. She is always there when I need her.”
- “If she did not [live] here I could not move at all or use the bathroom, and she cooks, cleans, and gives me baths, etc.”
- “All my caregivers must sleep over. I need assistance bathing, dressing, and cannot cook or clean the apt.”
- “Being in the same home lets the caregiver be more comfortable with me. I get better care.”
- “If we didn’t live together she couldn’t help me and I would not have been able to leave assisted care facility.“
- “Couldn’t get as good of care and support if we were not in the same home.”
- “He is here when I am immobile.”
- “Living across the street makes a difference. She is here whenever I need her.”
- “She’s always there when I need her assistance.”
- “She is next door so anytime day or night she can be here.”
- “If I have an emergency my provider gets here quicker.”
- “If I need her right away to go with me to Dr., she can be here . . . 5 minutes.”
- “She’s close and gets here early and can stay late if necessary.”

- "He moved to be closer to the job because he had no transportation."
- "No stressful commute."
- "They don't have to get tired or irritated by traveling so they have a better disposition and more energy."
- "I get my help quicker, things done on time."
- "Always on time."
- "Quick response."
- "Helps me socialize more."

In other words, no clients declared that living near their providers (a closely linked idea in their responses to rapid response time) had drawbacks, while many described the benefits. A Contra Costa IHSS Public Authority survey in 2002 supported these qualitative findings. The researchers concluded, based on client responses, that improving "providers' flexibility to come at times [consumers] needed them to come" was a top five recommendation for an "efficient and effective way to increase overall consumer satisfaction."[36]

Distance and Time in Travel to Consumers' Homes and Whether Providers Thought They Affected the Care Given

Providers made comments similar to consumers' when talking about the effects of time and distance on the care they provided, emphasizing the strains and the risk of leaving clients alone:

[36] People Focus, "Contra Costa County's In-Home Support[ive] Services & Public Authority Consumer Satisfaction Survey 2002" (2003), p. 18.

- "At the time they wish for me to come in, the traffic is heavy."
- "Because I am always exhausted, not getting time to rest."
- "Driving 20 miles each way is tiring. I'd take bus and BART, but it would take 1 1/2 hours each day, plus a 1 mile walk from the closest bus to her house—total 2 hours."
- "The more you drive the more wear and tear you put on your car. I have put many miles on my car over the years I have worked for my client. Three years is a long time."
- "I used to live in the same park as my client, have moved a mile away. She has no showering facilities in home, or park facilities. She has used mine, so two months now [I] have to find a ride to pick her up, shower, and get her back."
- "Not on time because of delayed schedules of bus and BART."
- "If he could live with me, it would be better for both of us. I could tend to his needs more efficiently. He falls frequently and we make extra trips."
- "If my car breaks down it takes too much time and money for me to provide care for my clients."
- "Sometimes [there is an effect] when buses are late."
- "Sometimes I [am] late because of transportation."
- "When my mother lived alone I was not able to make sure she was safe—hadn't fallen."
- "I have only one car. When it breaks down all my clients suffer. They depend on me helping them each week. BART and buses do not cover the last several miles I

would need to walk in order to go to and from my three clients. My only recourse would be to take a taxi, which would cost more in time and money."

As with consumers, providers who live near or with the consumers emphasized the benefits:

- "I am here if she needs me, or can take her to the doctor/care for her on a daily basis."
- "My easy commute is not stressful."
- "I would be too tired if the trip was long."
- "I need to be at home with her at all times, because she can fall down or always needs attention."
- "Direct accessibility to me."
- "Because I don't spend a lot of time on transportation, I have more time to care about my client."
- "Because she lives right next door, I provide a lot more efficient care for her at any time. It's very convenient."
- "Better able to meet needs of client."
- "Grateful they would continue to support our family to be able to keep our father at home and not have to put him away like some discarded shoe. In a rest home they would provide less care and charge more because of bureaucracy."
- "I am married with four daughters. My husband works at a very low paying job. In today's economy a family needs two incomes to survive. IHSS has been a great help to our family. My 24-year-old daughter has the mentality of an 18-month-old baby and has to be tube-fed every three hours. Therefore, I like having her home

where she can be cared for properly and she is deeply loved. . . . [H]ere she has a quality of life that does not exist in nursing homes."

- "If I lived somewhere else my client would not get the night care they need. When there is an emergency I am here/close by."

No providers said that living close together instead decreased the quality of care provided or that they wanted more distance. But, although a separate issue from the extent of care provided, living closer or together might have certain costs for providers, which the literature on caregiving explores in depth. Some providers might prefer more distance, even if they did not express it in their comments. One senior provider noted: "Living in the same house I am always available to take care, so often I'm way over my scheduled hours by IHSS. But that's okay, as my person is my grandson and I am grateful I can be of help." Another wrote: "My client is 72 years old and she needs me to do almost everything for her. She is blind and she is on dialysis. Many nights I have to wake up in the middle of the night to care for her. I am working a lot more hours than I'm being paid for."

A client wrote the following: "IHSS provider lives in home. Paid for current hours now 20/week—unpaid as I need him, which is quite often, mostly night time. . . . That seems to be when things go wrong or more help needed." Without strong motivations, such as being a family member or a close friend, providers might not choose to spend the extra time sometimes expected of those living with or close to clients, with the resulting stress and other burdens.

As predicted, providers who declared that how far they lived from their consumers affected the care provided were more likely to say that their commute was stressful ($p < .001$) (Table 19).

Table 19

Effect of Distance Traveled on Consumer Care by Provider Perception of Commute Stress (Percentages)

	Commute Stressful	Commute Sometimes Stressful	Commute Not Stressful
Effect on Care?			
NO	86.7	82.2	93.3
YES	13.3	17.8	6.7
TOTAL	100.0	100.0	100.0
N	15	90	329

Note. From provider surveys.

Provider Travel Challenges, Where Providers Accompanied Consumers

Providers' travel experiences were related to whether providers answered that they accompanied their clients to various destinations (Table 20). The hypothesis was that if the commute, for example, or other travel experiences were too burdensome, the provider would be less likely to be able to accompany the client to a given destination.

See Appendix G for more detail on the control variables used for the models that do not separate the providers by car ownership. The data separated by car ownership controlled for gender, age, race, and Hispanic status.

Table 20

Percent Change in Likelihood of Provider Accompanying Consumer to Locations by Provider's Travel Challenges

	Percent change of providers accompanying consumers to following places based on provider travel challenges:					
	Doctor	Worship	Social	Family	Grocery	0–2 places (versus 6–7)
	Car and non-car owners					
Provider travel challenges to consumer						
More Transit Changes to Consumer Home	–59**	NS	NS	–60**	NS	NS
More Travel Time to Consumer Home	–42***	–45***	–15*	–40***	NS	+67***
Farther Distance to Consumer Home	–22***	–25***	–8*	–22***	NS	+32***
Farther Distance to Bus (Consumer)	–54*	+67*	–41**	+59*	NS	NS
Farther Distance to BART (Consumer)	NS	NS	+130*	+158**	NS	–80*
Wanting to Move for Increased Accessibility	–58*	NS	+114***	NS	NS	NS
Holds Another Job	NS	NS	NS	NS	+112*	NS
Farther Centroid Distance	NS	+7*	NS	NS	–7*	NS
Commute Is *Not* Stressful	–54*	NS	–31*	NS	NS	NS

Cont.

Cont. Table 20

	Doctor	Worship	Social	Family	Grocery	0–2 places (versus 6–7)
			Car owners			
More Transit Changes to Consumer Home	NS	NS	NS	–55*	NS	NS
More Travel Time to Consumer Home	–30**	–52***	NS	–49***	NS	84**
Farther Distance to Consumer Home	–17*	–30***	NS	–27***	NS	36***
Farther Consumer from Bus	NS	103**	–43*	NS	NS	NS
Farther Consumer from BART	(N small)	NS	NS	199*	NS	NS
Wanting to Move for Increased Accessibility	(N small)	130**	154***	NS	NS	–67*
Holds Another Job	–59*	NS	–32*	NS	NS	NS
Farther Centroid Distance	(not tested)	NS	NS	NS	–7*	NS
Commute Is *Not* Stressful	NS	NS	NS	NS	NS	NS
			Non-car owners			
More Transit Changes to Consumer Home	NS	NS	–53*	NS	NS	NS
More Travel Time to Consumer Home	–57***	–40***	–28*	–29**	NS	70*
Farther Distance to Consumer Home	–34***	–24**	–22**	–18**	NS	51**
Farther Consumer from Bus	NS	NS	NS	NS	NS	NS
Farther Consumer from BART	(N small)	NS	NS	NS	NS	NS
Wanting to Move for Increased Accessibility	(N small)	NS	NS	NS	NS	NS
Holds Another Job	NS	NS	NS	NS	NS	NS
Farther Centroid Distance	(not tested)	16**	NS	NS	NS	NS
Commute Is *Not* Stressful	NS	NS	NS	NS	NS	NS

(For N, see appendices)

Note. From provider surveys. * indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level. "NS" indicates non-significance; "N small" indicates that the number of providers in each category after splitting by car ownership were too small for analysis. For more information on the merged car owner and non-car owner population, see Tables G1–G6. The divided car and non-car owner results controlled for provider gender, age, race, and Hispanic status, and the "0-2" category also controls for hours per week with the consumer.

Number of changes in transit to consumer's home. As Table 20 shows, more changes were associated with decreasing likelihood of accompanying the consumer to a doctor's office or hospital or a family or friend's home.

Significant control variables follow. *Accompanying the consumer to the doctor:* Being of an "other" race and spending more hours per week with the consumer (not car ownership; Table G1a). *Accompanying consumer to family member or friend's home:* Not owning a car and spending more hours per week with the consumer (Table G5b).

When split by car ownership, car owners were less likely to accompany consumers to family or friends' homes as the number of changes increased, and non-car owners less likely to accompany to social or community centers as the number of changes increased (see Table 20).

How long it takes provider to get to consumer's home. As Table 20 shows, more time commuting was associated with not accompanying the consumer to a doctor's office, place of worship, social or community center, or family or friend's home, and, therefore, with being more likely to go with the consumer to 0 to 2 places as opposed to 6 or 7.

Significant control variables follow. *Accompanying consumers to the doctor:* Being male and being older (not car ownership; Table G1b). *To a place of worship:* Being African American, an "other" race, and Hispanic, having a younger consumer and spending more hours per week with the consumer (not car ownership; Table G2b). *To a social or community center:* When same house was added as a control, the relationship between how long the provider spent traveling and accompaniment disappeared, so none of the other control variables was tested, including car ownership (Table G3b). *To a*

family member or friend's home: Being an "other" race, spending more time per week with the consumer, and having a younger consumer (not car ownership; Table G5b). *To fewer places:* Spending less time per week with the consumer and having an older consumer (not car ownership; Table G6b).

When split into car owners and non-car owners, the results were generally the same, with car owners being less likely to accompany consumers places when their commute time increased, and even less likely than non-car owners (see Table 20).

How far providers traveled to consumers' homes. As Table 20 shows, the relationship between how far providers commuted to consumers' homes and where they accompanied consumers closely tracks the time in travel results, with increases in distance associated with the provider not accompanying the consumer to the same destinations as in the travel time tests. The same control variables also were significant to nearly the same degree (see Tables G1b–G6b), except that spending more hours per week with the consumer and owning a car were significantly related to accompanying the consumer to the doctor's office (see Table G1b).

The results for car owners and non-car owners were basically the same, with non-car owners slightly more likely to accompany consumers to 0 to 2 places instead of 6 to 7 places when their travel distance increased. In other words, non-car owners were slightly less likely than car owners to accompany consumers places as their travel distance increased (Table 20).

How far consumer lives from a bus that the provider can use. As Table 20 shows, the farther the consumer lived from a bus stop that the provider could use in commuting to the consumer's home, the less likely the provider was to assist the consumer in going

to a doctor's office/hospital or social/community center, but the more likely he or she was to assist the consumer in going to a place of worship and a family or friend's home.

Significant control variables follow. Car ownership was not significantly related to accompanying consumers to any of the destinations. *Accompanying to the doctor or hospital:* Living in the same house as the consumer, being male, and being African American (Table G1b). *To place of worship:* Living in the same house, being female, being African American, being "other" race, being Hispanic, and having a younger consumer (Table G2b). *To social or community center:* Living in the same house, being an "other" race, and spending more hours per week (Table G3b). *To family or friend's home:* Living in the same house as the consumer, spending more hours per week with the consumer, and having a younger consumer (Table G5b).

When the data were split by car ownership, car-owning providers whose clients lived farther from buses were more likely to accompany clients to a place of worship than those whose clients lived closer to buses, but less likely to accompany them to a social or community center (Table 20).

How far consumer lives from a BART stop that the provider can use. As Table 20 shows, the farther the consumer lived from a BART station that the provider could use in order to get to the consumer's home, the more likely the provider was to accompany the consumer to social centers and family or friends' homes, and therefore the less likely the provider was to say he or she accompanied consumers to 0 to 2 places instead of 6 to 7.

Significant control variables follow. Car ownership was not significantly related to accompanying the consumers to destinations. *Accompany to social or community center:* Living in the same house as the consumer and not being an "other" race (Table

G3c). *To family or friend's home:* Living in the same home as the consumer, being an "other" race, spending more hours per week with the consumer, and having a younger consumer (Table G5c). *To fewer places overall:* Not living in the same home as the consumer and spending fewer hours per week (Table G6c).

When the data were split by car ownership, the car-owning providers whose consumers lived farther from a BART station were more likely to accompany those consumers to social and community centers and places of worship than the car-owning providers whose consumers lived closer to BART stations (Table 20).

Whether provider would want to move to a higher density neighborhood to be closer to services. Providers who would want to move to a higher density neighborhood to be closer to services were less likely to accompany consumers to a doctor, but more likely to accompany them to a social or community center.

Significant control variables follow. *Accompanying to doctor or hospital:* Living in the same house as the consumer, being male, and being African American (Table G1b) (the relationship lost significance when being Hispanic was added, so the other control variables were not tested). *To social or community center:* Being Hispanic (not car ownership; Table G3c).

When divided by mode, the car owners who wanted to move to a more accessible area were more likely to accompany consumers to social or community centers and family or friends' home than those who did not want to move (Table 20).

Table 21 presents these relationships, grouping the number of places in a slightly different way, and adding the results for whether providers thought their consumers needed help reaching places.

Table 21

Extent of Transportation Assistance for Client by Provider Desire to Move to Higher Density Location (Percentages)

	Number of Locations to which Provider Accompanies Client				
	0–1	2–4	5–7	Total	N
Provider Wants to Move?					
NO	10.1	50.3	39.6	100.0	169
YES	10.9	38.0	51.1	100.0	137
	Number of Locations to which Client Needs Assistance				
	0–1	2–4	5–7	Total	N
Provider Wants to Move?					
NO	40.8	39.6	19.5	100.0	169
YES	26.3	44.5	29.2	100.0	137

Note. From provider surveys.

Whether provider holds a job in addition to working for the primary IHSS client. The provider having at least one other job was associated with a greater likelihood of accompanying the consumer to get groceries (Table 20). Of the control variables, being female was associated with accompanying the consumer to the grocery store (but not car ownership; Table G4c).

When the data were split into car owners and non-car owners, car owners were less likely to accompany their clients to doctors' offices or hospitals and social or community centers.

Centroid distance that the average provider in the provider's zip code travels to consumers' homes. Table 20 shows that as the average distance providers in a given zip

code traveled to their consumers' homes increased (measured from the center to the center of their individual zip codes), so did the likelihood that the providers would accompany consumers to places of worship, while the likelihood of going to a grocery store decreased.

Significant control variables follow. *To a place of worship:* Living in the same home, being African American, being an "other" race, being Hispanic, and spending more hours per week with the client (when car ownership was added the relationship between accompaniment and centroid distance lost significance; Table G2b). *To grocery store:* Being younger and having a younger client (not car ownership; Table G4b).

When the data were split by car ownership, non-car owners were more likely to accompany their clients to places of worship as their zip code's centroid distance increased and less likely to accompany consumers to grocery stores (Table 20).

Whether the provider thought the commute to the primary consumer's home was stressful. Providers who did not consider their travel to the consumers' home to be stressful were less likely to accompany consumers to a doctor or hospital or social or community center (Table 20).

Significant control variables follow. *Accompanying to doctor or hospital:* Living in the same house and being male, but when race was added the relationship lost significance, so the other control variables were not tested (Table G1a). *To social or community center:* Living in the same house as the consumer (not car ownership; Table G3a).

The time provider spent per day going to and from various locations by where providers accompanied consumers. The more time providers spent traveling to a series of

locations, except for going to all IHSS jobs, the more likely they would be to accompany consumers where they needed to go (Table 22). As Tables G1 through G6 show, car ownership as a control variable was not significantly related to where providers accompanied consumers in these time in travel models.

The data were not divided by car ownership; doing so might show more differences between car owners and non–car owners.

Table 22

Percent Change in Likelihood of Provider Accompanying Consumer and Saying Consumer Needs Help by Each Additional Hour of Provider's Daily Time in Travel

	Doctor	Social Worship	Family	Grocery	Total places
Each additional hour traveling to given destination					
Likelihood of accompanying consumer to above locations:					
DOCTOR	NS	NS	NS	NS	NS	NS
CHILDCARE	+++	+++	NS	+++	+++	+++
NON-FOOD STORES	+++	+++	NS	+++	NS	+++
GROCERY STORES	NS	+++	+++	+++	+++	+++
ALL IHSS JOBS	NS	+++	+++	NS	——	NS
OTHER JOBS	NS	+++	NS	+++	+++	+++
OTHER LOCATIONS	NS	+++	NS	NS	+++	+++
Likelihood of saying consumer needs help getting to above locations:						
DOCTOR	NS	NS	NS	NS	NS	NS
CHILDCARE	NS	NS	NS	NS	+++	NS
NON-FOOD STORES	+++	+++	+++	+++	+++	+++
GROCERY STORES	+++	+++	+++	+++	+++	+++
ALL IHSS JOBS	NS	+++	+++	+++	NS	NS
OTHER JOBS	NS	NS	NS	NS	NS	NS
OTHER LOCATIONS	NS	NS	NS	NS	+++	+++
(For the N, see appendices)						

Note 1. +++ indicates a positive relationship; —— indicates a negative relationship; NS indicates not significant. From provider surveys. For more information, see Tables G1, G2, G3, G4, and G5.

A simple chi-square test supported these findings, showing that providers' total time in travel per day was positively associated with the total number of places to which they accompanied clients ($p < .001$). Providers' total time in travel per day also was positively associated with the number of places, from a total of seven, to which providers

said consumers needed help going ($p < .05$). Indeed, as Table 22 shows, as providers' time in travel to individual locations increased so did their perception that consumers needed help reaching a series of destinations.

Hypothesis 4: The Effect of Land Use Variables on the Extent of Care that Consumers Received

The fourth hypothesis was that land use variables affect the extent of care provided to consumers, with increasing density and accessibility correlated with increased care as perceived by both providers and consumers.

The independent variable *land use* was measured by part of county (zone); housing and population density data at the zip code level; and how far consumers had to travel to eight key destinations and the average of those distances to destinations.

The dependent variable *extent of care provided* was measured by whether consumers thought the distance between their homes and the homes of their providers affected the care that they received from those providers; where and to how many places providers accompanied consumers; and where and to how many places providers thought their consumers still needed help going.

Land Use Variables and Whether Consumers Thought the Distance to Providers' Homes Affected Care Received

Increasing housing and population density was correlated with fewer clients thinking the distance they lived from providers' homes affected the care they received. A unit increase in housing density was associated with a 0.04% decreased likelihood of consumers saying that the distance between their homes and the homes of their providers affected care ($p < .10$), and a unit increase in population density with a 0.01% decreased likelihood ($p < .10$). None of the control variables, including car ownership, was significant (see Table E7).

Land Use Variables, Where Provider Lived, and Whether Providers Accompanied Consumers to Destinations,

Housing and population density. Increasing housing density was associated with providers being more likely to accompany consumers to a place of worship (Table G2a).

Of the control variables, living in the same house as the client, being older, African American, an "other" race, and Hispanic, and having a younger consumer were correlated with the accompaniment.

When divided into car owners and non-car owners, car owners were more likely to accompany consumers to a place of worship as their housing density increased.

Increasing population density was associated with providers being more likely to accompany consumers to a doctor's office or hospital, family or friend's home, and place of worship (Tables G1a, G2a, and G5a). Correspondingly, increasing population density was correlated with providers being less likely to say that they accompanied consumers to 0 to 2 locations instead of 6 to 7 locations (Table G6).

Significant control variables for population density and accompaniment follow. *Accompaniment to place of worship*: Living in the same house as the client, being older, African American, an "other" race, and Hispanic, and having a younger consumer (not car ownership; Table G2a). *To the doctor or hospital:* Living in the same house as the consumer, but the relationship lost its significance when gender was added, so the other control variables were not included (Table G1a). *To a family member or friend's home:* Living in the same house and having a younger consumer (not car ownership; Table G5a).

When divided into car owners and non-car owners, as population density increased car owners were more likely to accompany consumers to places of worship.

Average distance to destinations. The average distance a provider lived to a set of destinations (the proxy for neighborhood accessibility) had an inconsistent relationship with where they accompanied consumers. Increasing average distance to destinations—or, decreasing accessibility—was associated with being less likely to accompany consumers to a doctor's office (Table G1a), with the only control significantly related to accompaniment being hours per week with the consumer. But increasing average distance also was associated with being more likely to accompany consumers to buy groceries (Table G4a), with, in terms of control variables, being a younger provider and having a younger consumer associated with greater accompaniment.

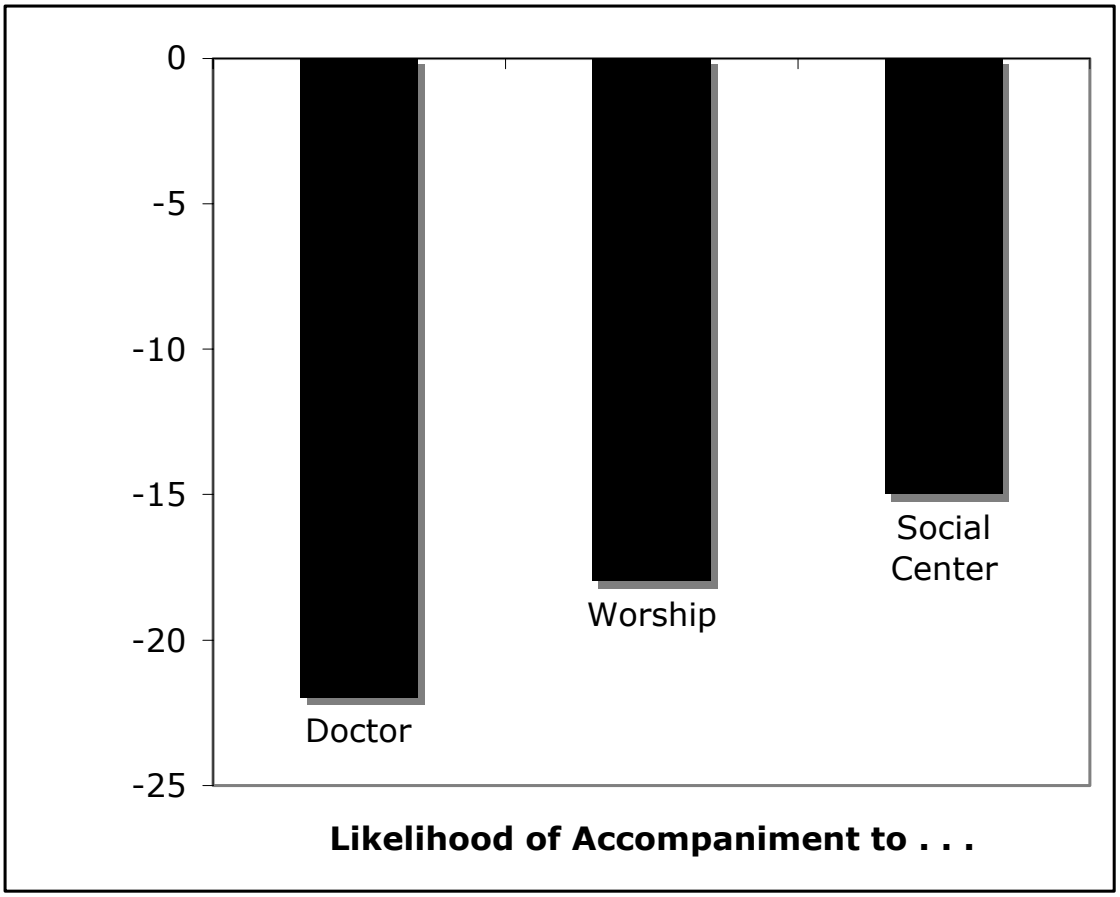
When divided into car owners and non-car owners, increasing average distance for car owners was correlated with accompanying consumers to places of worship and grocery stores.

Zone. As the zone in which the provider lived decreased in density and accessibility from the far west to central, near west, and east county, the likelihood of accompanying consumers to three locations also decreased (Figure 16).

Significant control variables follow. *Accompanying to doctor or hospital:* Living in the same house, but the relationship between zone and accompaniment lost significance when gender was added and so the other control variables were not included (see Table G1a). *To place of worship and social and community centers:* The control variables were similar (Table G2a and G3a).

When dividing by car ownership, as zone decreased in density and accessibility, car owners were more likely to accompany consumers to places of worship.

Figure 16. Percent change in likelihood of provider accompanying consumer to destinations by decreasing density and accessibility of provider's zone.



Note 1. From provider surveys. For more information, see Tables G1a, G2a, and G3a.
Note 2. The findings were significant at the 10% level. The N for the grocery store was 165; doctor/hospital 430; place of worship, 413; and social or community center, 413.

Hypothesis 5: The Effect of Two Provider Travel Challenges on Consumer Mobility

The fifth hypothesis was that providers' commute challenges were related to consumer mobility. The idea, again, was that as providers became more strained by their commutes they would be less likely, for example, to accompany consumers to a variety of destinations.

The independent variable *provider travel challenges* was measured by consumers' estimates for how long their providers spent commuting and the average distance that providers in a given zip code where consumers lived traveled (centroid)

The dependent variable *consumer mobility* was measured by: how often consumers left home per month; whether consumers wanted to move; consumers' difficulties with bus and BART in their communities; and whether consumers were unable to reach desired destinations in the previous month.

How Often Consumers Left Home Each Month

As the average distance increased that providers in a given zip code traveled to consumers living in a given zip code (centroid), those consumers left home less often, being more likely to leave home 1 to 5 times a month than more than 10 times per month (Table E1). Consumer car ownership was not significantly related as a control variable to how often they left home, but being female, being older, being able to walk less far, and being African American were all significantly associated with leaving home less often per month.

Whether Consumers Would Want to Move to a Neighborhood . . .

The more time providers spent traveling to their consumers' homes, as estimated by consumers, the more likely consumers were to want to move to a neighborhood with

more people if it meant being closer to shopping, medical facilities, and social services (Table E8). Not owning a car was significantly related to wanting to move, as well as owning a house.

Consumers' Difficulties (If Any) with Bus and BART in Their Communities

Several consumers' difficulties with bus and BART in their communities were correlated with providers' estimated time in travel to consumers' homes (Table 23). The longer providers spent traveling the more difficulties consumers cited with bus and BART in their communities.

Significant control variables follow. Because the provider commute time estimates come from the consumer surveys, provider car ownership could not be used here as a control and the data could not be divided by provider car ownership. Consumer car ownership was not significantly related to consumers' difficulties with bus and BART, although other control variables were. *Citing cost as a problem:* Being younger (Table E11). *Bus or BART not being comfortable:* Being an "other" race and owning housing (Table E13). *Having to wait too long at stations:* Being female, younger, and an "other" race, although when Hispanic status was added as a control the relationship between provider time in travel and consumers waiting too long was lost, so the other control variables were not used (Table E14). *Unsafe:* Being younger (Table E16).

Table 23

Estimated Provider Time in Travel by Difficulties Consumers Cited with Buses and BART in Their Communities

	Percent increase in citing problem with each additional minute to consumer's home	N
Problems with bus/BART		
COST	+2**	326
NOT COMFORTABLE FOR SENIORS/DISABLED	+1*	326
WAIT TOO LONG AT STOPS	+1*	356
NOT SAFE	+1*	326

Note. From consumer surveys. For more information, see Tables E11, E13, E14, and E16.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

An increase in centroid travel in consumer' zip code also was associated with a 27% increased likelihood of consumers saying that they had an "other" difficulty with buses and BART ($p < .05$) (Table E17). Car ownership was not significant as a control, but being female, being younger, and not being African American were related to having another difficulty.

Consumer Inability to Reach Desired Destinations in the Previous Month Because of Transportation Problems

Estimated provider commute time and centroid data for each zip code had opposing relationships with consumers' ability to reach desired destinations. As commute time increased, consumers were more likely to cite an inability to reach a set of destinations, but as centroid distance increased, the reverse was true (Table 24).

Table 24

Estimated Provider Time in Travel and Increase in Centroid Distance by Places Consumers Could Not Reach in the Previous Month Because They Had No Transportation

	Percent change in inability to reach destinations given:			
	increased travel time to consumer's home	N	increased centroid distance	N
Places not able to reach				
GROCERY STORE	1*	326	–28***	583
DRUGSTORE	2**	326	–28**	583
DOCTOR/HOSPITAL	1*	386	–22**	583
PLACE OF WORSHIP	1*	326	–22**	652
FAMILY/FRIEND'S HOME	2***	326	NS	NA

Note. From consumer surveys. For more information, see Tables E2, E3, E4, E5, and E6.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Significant control variables follow for the estimated provider commute time models. Consumer car ownership was not a significant control variable in any of these models. *Not being able to reach a grocery store:* Being younger, not being able to walk far, and being Hispanic (Table E2). *Drugstore:* the same, as well as owning housing (Table E3). *Doctor or hospital:* Being female, younger, Hispanic, and owning housing (Table E4). *Place of worship:* Being younger, walking less far, being African American, being an "other" race, and being Hispanic (Table E5). *Home of family or friends:* Being younger, an "other" race, and owning housing (Table E6).

Significant control variables follow for the centroid travel models. *Not being able to reach a grocery store:* Being female, being younger, and owning housing (not car ownership; Table E2). *Drugstore:* Being female, being younger, and owning housing (not car ownership; Table E3). *Doctor or hospital:* Being female, younger, Hispanic, and

owning housing (not car ownership; Table E4). *Place of worship:* Being younger (the relationship lost significance when race was added, so car ownership was not used as a control; Table E5).

Hypothesis 6: The Effect of Time with Primary IHSS Provider on Consumer Mobility

The final hypothesis was that how much time providers spent each week with consumers affected consumer mobility, with more hours of care correlated with consumers being able to move around more and not be inhibited in reaching desired destinations because of transportation problems. This hypothesis assumes that more time with the provider translates into more help in planning and executing trips and also that more help with non-travel needs would allow consumers to focus on satisfying their travel needs.

The independent variable of hours of care was based on consumers' estimates.

The dependent variable *consumer mobility* was measured by whether in the past month because of transportation problems consumers could not reach a set of destinations; if consumers would want to move to a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services; what difficulties (if any) consumers had with bus stops and BART stations in their communities.

Whether Consumers Can Reach Desired Destinations

The more hours consumers spent every week with their providers, the less likely they were to not be able to reach desired locations in the previous month because they had no transportation (Table 25).

Table 25

IHSS Provider Time per Week with Consumer and Destinations that Consumer Could Not Reach in Previous Month Because of Transportation Problems

	Percent change in inability to reach destinations with each additional hour per week with provider	N
Places not able to reach		
GROCERY STORE	–1**	245
DOCTOR/HOSPITAL	–1*	264
PLACE OF WORSHIP	–1**	245
FAMILY/FRIEND'S HOME	–1*	248
SOCIAL OR COMMUNITY CENTER	–2***	245
OTHER	–2**	507

Note. From consumer surveys. For more information, see Tables F1, F2, F3, F4, and F5.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Significant control variables follow. *Not being able to reach a doctor or hospital:* Less time with informal caregivers, more time with other paid caregivers, being female, being younger, being an "other" race, and being Hispanic were significant (but not car ownership; Table F1). *Grocery store:* Less time with informal caregivers, more informal caregivers, being female, being younger, and being an "other" race were significant (but not car ownership; Table F2). *Place of worship:* Less time with informal caregivers, more time with other paid caregivers, being female, being younger, walking less far, being African American, and being an "other" race were significant (but not car ownership; Table F3). *Social or community center:* Less time with informal caregivers, more time with other paid caregivers, and walking less far were significant (but not car ownership;

Table F4). *Family or friends' homes:* Being younger was significant (but not car ownership; Table F5). *"Other" places:* Being female, being younger, and not being African American were significant (but not car ownership; Table F5).

Whether Consumers Would Want to Move . . .

Each additional hour per week with the primary IHSS provider was associated with a 1% decreased likelihood of consumers saying they would want to move to a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services ($p < .10$) (Table F6). The hypothesis was that increased time with IHSS providers would translate into consumers' increased satisfaction with their mobility. Being African American and being Hispanic were both significantly associated with wanting to move.

Difficulties (If Any) Consumers Had with Bus Stops and BART Stations in Their Communities

Each additional hour with their primary IHSS provider was associated with consumers being less likely, at generally high significance levels, to cite a series of problems with bus or BART in their communities and more likely to say that they have no difficulties with bus or BART (Table 26). The only exception was that increased time with IHSS providers was correlated with not having stations in the community, which is not a difficulty that time with IHSS providers could cure.

Table 26

Relationship Between Time with Provider and Difficulties Consumers Cited with Buses and BART in Their Communities (Percentages)

	Percent change in likelihood of citing given problem with each additional hour per week with provider	N
Problems with bus/BART		
COST	–2***	245
NOT COMFORTABLE FOR SENIORS/DISABLED	–1**	264
WAIT TOO LONG AT STOPS	–1*	519
DON'T GO WHERE NEED TO GO	–1**	507
NOT SAFE	–2**	245
NO STATIONS IN COMMUNITY	+1*	264
OTHER	–1***	245
NOT APPLICABLE (NO DIFFICULTIES)	+1*	519

Note. From consumer surveys. For more information, see Table F7a–b.
* indicates significance at the 10% level; ** at the 5% level; and *** at the 1% level.

Significant control variables follow (see Table F7a–F7b). *Cost:* Being younger. *Not comfortable:* Living in a zip code with lower housing density, being female, being younger, and being able to walk less far. *Wait too long at stops:* Being female, being younger, being able to walk farther, and owning a home. *Don't go where need to go:* Living in a zip code with lower housing density, being female, being an "other" race, and owning a home. *Not safe:* Having more informal caregivers, living in a higher housing density zip code, being female, and being able to walk less far. *No stations in community:* (none). *Other:* Being female. *No difficulties:* Being male, being older, and being able to walk farther.

Discussion and Conclusion

Overview

This section reviews the hypotheses and results, places them in the context of the existing literature, and concludes with areas for future research. The results above build on the background data establishing that the IHSS client and homecare worker populations experience a range of transportation difficulties. These difficulties are related not only to land use variables but also to a host of demographic and institutional constraints. For example, the consumers' disabilities, from paralysis to vision problems and hearing difficulties and disabling arthritis and diabetes, in combination with their low incomes, create a baseline of transportation need. This study examined how land use variables, transportation resources, and caregiving either accentuated or relieved these obstacles to mobility.

The hypotheses and results

Hypothesis 1

The first hypothesis was that land use variables, measured at the neighborhood scale, at the zip code level, and by regions of the county, were related to IHSS clients' mobility.

Those consumers living in lower density zones with less accessibility cited fewer transportation problems in reaching grocery stores, drugstores, and places of worship. Because the question asked whether transportation problems had frustrated their attempts in the previous month, not citing a problem did not mean that a consumer successfully reached desired destinations; as another test revealed, consumers in lower-density and –accessibility zones left home less often per month, so experiencing less frustration could

reflect fewer attempts. In contrast to the zone findings, consumers who reported living farther from a set of destinations (measured by the "average distance" variable) were more likely to have experienced problems reaching places of worship, doctor's offices, grocery stores, and family or friends' homes. The neighborhood-scale average distance results might be more useful than the regional-level zone data, reflecting consumers' actual experiences with distance. Consumers' comments about living too far from where they wanted to go support the average distance results. The zone and average distance results also differ for whether consumers wanted to move to a higher density and accessibility area, with those living in lower density zones being less likely to want to move while those living farther on average from key destinations being more likely to want to move.

But the zone and average distance data matched on the question of how often consumers left home per month, with decreasing density and accessibility by zone and increasing average distance to destinations being associated with consumers leaving home less often. The zone, average distance, and housing and population density variables were also consistent in terms of consumers' difficulties with bus and BART, with decreasing density and accessibility associated with increased difficulties, such as stations being too far from their homes and the bus or BART not going where clients needed to go. The uniformity of these results suggests that the connection is strong between problems with bus and BART and density and accessibility.

Notably, car ownership as a control variable was not significantly related to any of the client mobility variables except for:

- how often clients left home monthly (in the model testing the effects of zone), with car owners leaving home more often;
- whether clients wanted to move to a higher density location (in the model testing the effect of how far clients lived from destinations), with non–car owners wanting to move more than car owners did;
- whether bus and BART stations were too far from their homes or not in their communities (in a few models), with car owners citing increased difficulties.

Because only a quarter of consumers reported owning cars and only 10% always left home by driving, and because all consumers shared significant disability and income constraints, the fact that car ownership did not determine their degree of mobility here or in the later hypotheses is understandable, although for many populations car ownership influences mobility more dramatically. Other control variables in this hypothesis and further hypotheses were more frequently associated with decreased mobility, such as being female, younger, of color, and Hispanic and not being able to walk far. The correlation between being younger and increased problems requires more analysis; the results might reflect the experiences of the very young consumers dependent on their caregivers as opposed to the fragile elderly who have a degree of independence.

Hypothesis 2

This hypothesis turned the focus to providers' mobility, asking whether land use variables influenced how they experienced commuting to consumers' homes. These tests made many assumptions about what providers find to be "travel challenges." For example, increased time in travel was assumed to be a problem, but sometimes more travel is a good thing, demonstrating increased mobility. Even increased commute time in

travel could reflect being able to choose a client for reasons other than mere proximity, and increased distance could be a neutral factor if the provider has an easy car commute or enjoys the trip. The survey did not directly measure provider satisfaction with time spent in travel or reaching desired destinations.

Many travel challenges increased for providers in higher density and accessibility areas, such as:

- Commute stress (in the housing density model), although the relationship did not hold when more control variables were used.
- Number of transportation changes while commuting (in the zone model).
- Time spent commuting (in the housing and population density, centroid, and average distance to destinations models).
- Distance traveled in the commute (in the centroid and housing and population density models).
- Wanting to move to higher density areas (car owners) (in the zone model).
- Time spent going to the grocery store (car owners) (in the zone and housing and population density models).

These results, although not significantly affected by provider car ownership as a control variable, likely reflect the higher public transit use as well as increased congestion in areas with higher density and accessibility. The only partially conflicting finding was that providers' commute shortened as zones increased in density.

Hypothesis 3

The third hypothesis examined how much assistance homecare workers provided in relation to their commute challenges. The qualitative data uniformly suggested that

living closer to clients was associated with being a more effective caregiver, especially during emergencies. The quantitative data support this finding, with the variable controlling for whether providers lived in the same home as consumers consistently related to whether providers accompanied consumers places. But the proximity story is not necessarily entirely positive: The survey did not ask whether living close to or with clients affected *providers'* own lives negatively, from working extra hours for no pay to losing independence and flexibility. Increased accompaniment also might reflect consumers being less able to take care of themselves, while less accompaniment could reflect greater consumer independence.

Almost without exception, increased provider commute challenges were associated with *not* accompanying consumers to a set of destinations or were insignificant, as opposed to being associated with accompanying consumers to destinations. A few relationships lost significance after the provider population was divided by car ownership. Travel challenges had the most impact on whether providers went with consumers to the doctor's office or hospital, with six of nine travel challenges associated with decreased accompaniment. The overall trend followed the theory that providers with more difficult commutes would be less available to take care of consumers' transportation needs, because they would have fewer resources (time, energy, money for transportation) available.

Only a few travel challenges were associated with greater accompaniment. One was particularly significant: When providers spent more time traveling to their own destinations, such as a doctor, childcare, stores, or other jobs, either they were more likely to accompany their clients places or the relationship was insignificant. In only a

single case was increased time in travel (to all IHSS jobs) associated with *not* accompanying the client somewhere (to the grocery store). This correlation between time in travel and accompaniment might confirm the point mentioned, that increased time traveling is not always a problem. But increased time in travel to destinations was also associated with thinking that consumers needed help reaching destinations. Again, providers who accompany consumers places might be more sensitive to their needs as well as looking for ways to relieve their own burdens.

Hypothesis 4

This hypothesis asked whether land use variables were related to how much care consumers received. Increasing density and accessibility generally were associated with greater care: fewer clients thought that providers' commute distance affected the care they received, and providers were more likely to accompany consumers places, even when controlling or splitting the data by car ownership. The main exception was that as zone decreased in density and accessibility, car owners were more likely to accompany clients to places of worship.

Hypothesis 5

This hypothesis asked whether providers' commute challenges had any relationship with consumers' mobility. Increased provider commute challenges were generally related to decreased consumer mobility:

- the more time providers spent traveling to consumers' homes, the more likely consumers were to want to move; to have difficulties with bus and BART in their communities; and to be unable to reach desired destinations.

- the farther providers in a given provider's zip code traveled to consumers' homes (the centroid distance), the less often consumers left home per month and the more likely they were to have an "other" difficulty with bus or BART in their communities (but the more likely they were to not have problems reaching desired destinations).

Again, these findings suggest that the more difficult providers' own commutes, the less able they were to assist their clients with their transportation challenges.

Hypothesis 6

This final hypothesis asked whether any relationship existed between how much time IHSS providers spent with their clients and their clients' mobility. The results overwhelmingly supported the idea that increased time was associated with increased mobility. As time with their providers increased, consumers cited fewer frustrations in reaching desired destinations; they were less likely to want to move to a higher density neighborhood; and they were less likely to have problems with bus or BART in their communities. These findings go hand in hand with those above about the providers' commute difficulties. A similar theory explains both: The more available providers are for providing care, the more mobile their clients will be.

Findings in the context of existing literature and limitations of study

The results both build on and diverge from previous research. Important work has been done on the mobility of disabled and elderly individuals; the transportation challenges of workers with low incomes; and the relationships between density, transportation networks, and mobility. But few or no studies have focused on the

relationships between homecare worker and client mobility or between those variables and land use patterns.

The results here confirm previous studies about the mobility characteristics of disabled, elderly, and/or poor individuals. The results also confirm findings from the studies, though more limited in number, about the transportation habits of low-income service providers. Both the IHSS clients and homecare workers are disproportionately female, of color, and low income, and have inadequate transportation resources overall, similar to participants in publicly funded homecare services elsewhere. The IHSS clients stressed their need for general assistance in transportation, health difficulties, and desire for door-to-door assistance, such as paratransit and having a driver, as do the disabled and elderly in other studies. They also expressed a desire for more flexibility and independence in receiving such assistance. More than half had experienced problems reaching desired destinations in the previous month (and providers confirmed that their clients needed help going places), constraints similar to the elderly and disabled in other studies. Where this study diverged from those with similar findings was in examining the interaction between the mobility of these two populations.

The high disability and low income level of the client population here also mean that the results will not apply to other populations, just as findings about the mobility of healthy and moderate income populations cannot be applied here without adjustment. While living in a suburban area might be associated with increased mobility for a person who owns a car, has a higher income, and so on, the results here show how, in complex ways, living in that same area for an IHSS client might more of an impediment.

The contribution of this research and areas for future study

This research offers an initial look at the transportation challenges of two populations with increasing visibility. The population of seniors continues to grow. Attempting to keep individuals out of nursing homes and other institutions and in their own homes as long as possible becomes more and more the norm, increasing the demand for homecare workers. Unions such as the Service Employees International Union in Contra Costa County are organizing those homecare worker populations. This research can inform the growing debate about these populations' needs and what public assistance that might be required.

The results here show that the mobility of homecare workers is connected to that of their clients. For example, the destinations that providers most frequently thought their clients needed help reaching were those to which providers most frequently accompanied clients: doctor's offices and hospitals, grocery stores, and drugstores. These results could reflect providers' recognition that their transportation assistance, though important, did not meet all their clients' needs (with gaps in receiving medical care and so on), or it could reflect that providers wanted to share the burden of helping clients reach such critical destinations. These results also could reflect providers' own need for transportation help such as loans for cars, gas and mileage costs, and public transit passes. Providers with long, complicated, and costly commutes, as the results above showed, are less able to offer the transportation assistance their clients need.

Because so many IHSS workers are related to their clients, this research also informs a topic receiving attention from policy makers: how to provide financial and emotional support for family caregivers. As the qualitative research above showed, many family and friends of the IHSS care recipients are offering non-reimbursed hours of care.

This study supports the claim that family caregiving is difficult, often draining, no matter how committed the caregivers might be. Recognizing this fact, Congress has proposed as well as passed several bills in the past few years, offering, for example, tax breaks for family caregivers, funding for family caregiver programs, and other support for the substantial portion of the population that will provide care for a loved one.

But this study is only the beginning. The need for further research is apparent in several areas. For example, the results might differ in rural regions—or in major cities. While Contra Costa was chosen because of its relative diversity of land use, transportation, and demographic factors, findings from Montana or New York City are bound to be different. Including a control group of relatively physically able and moderate or high-income populations in future research would help us identify how much low income and disability levels are responsible for the difficulties at hand. Few people feel perfectly satisfied with their transportation; everyone experiences obstacles in going places, whether because of time in travel, scheduling problems with public transit, or a limited supply of automobiles.

Moreover, although the data here controlled for important demographic factors such as age, race, and gender, and the results above showed when those control variables were related in important ways to the variables of interest, more work could be done interpreting this data and conducting future research based on these variables. The results show that important differences exist by gender, race, age, disability level, and housing type. More work also should be done on the relative influence of car ownership on these findings.

The above discussion indicates how future studies can use even more finely tailored measurements in order to test the relationships of concern here. But even with more finely tailored tools, the results are bound to be mixed, because of the range of factors that affect mobility, from the number of caregivers available and individual travel preferences to demographic factors and the unique nature of disabilities. Moreover, finding the proper level of measurement for land use variables is difficult, as the varying results here show, with both advantages and disadvantages to each option; the choices made here merely add to the ongoing conversation about how transportation and land use are connected.

The next step will be identifying ways to alleviate the problems faced by these populations, from building affordable housing for clients who want to live in higher density communities to helping others stay in their homes, as well as providing increased transportation support to caregivers. While no one experiences perfect mobility, these populations have an especially difficult time. The good news is that researchers, policymakers, family caregiver groups, and others are turning to these issues. This study should contribute to the growing debate.

Bibliography

American Association of Retired People (AARP) Public Policy Institute (with Mathew Greenwald & Associates, Inc). (2003). *These four walls: Americans 45+ talk about home and community.* Washington, D.C.: author

Aranda, M., Knight, B. (1997). Working families and elder care: A national perspective in an aging America. *Social Work,* 35(5), 405–411.

Arno, P. S. (2002, February). *The economic value of informal caregiving*. Paper presented at the annual meeting of the American Association for Geriatric Psychiatry, Orlando, Florida.

Arno, P. S., Levine, C., & Memmott, M. M. (1999). The economic value of informal caregiving. *Health Affairs*, 18(2), p. 7.

Bailey, L. (2004). *Aging Americans: Stranded without options*. Washington, D.C.: Surface Transportation Policy Project (STPP). Retrieved June 19, 2005, from the STPP Web site: http://www.transact.org/report.asp?id=232

Bianco, M., & Lawson, C. (1998). *Trip-chaining, childcare, and personal safety: Critical issues in women's travel behavior.* Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management.

Blumenberg, E. (2003). Transportation costs and economic opportunity among the poor. *Access,* 23, 40–41.

Boarnet, M. & Sarmiento S. (1998). Can land use policy really affect travel behaviour? A study of the link between non-work travel and land use characteristics. *Urban Studies*, 35(7).

Burkhardt, J. E., & Berger, A. M. (1997, January). *The mobility consequences of the reduction or cessation of driving.* Paper presented at the 1997 annual meeting of the Transportation Research Board, Washington, D.C.

Burkhardt, J. E., Berger, A. M., Creedon, M., & McGavock, A. T. (1998). *Mobility and independence: Changes and challenges for older drivers*. Ecosometrics, Inc. (for the U.S. Department of Health and Human Services and the National Highway Traffic Safety Administration). Bethesda, MD.

California Health and Human Services Agency. (1999). *Report on long-term care programs and options for integration.* Sacramento, California: author.

Carp, F.M. (1988). Significance of mobility for the well-being of the elderly. *Transportation in an aging society: A decade of experience. Technical papers and reports from a conference* (Special Report No. 218). Washington, D.C.: Transportation Research Board.

Central Contra Costa Paratransit Coordinating Council. (n.d.) *Recommendation for Paratransit Funding upon Reauthorization [of Measure C]*. Subcommittee on Unmet Paratransit Needs and Measure C Reauthorization. Contra Costa, CA**:** author.

Cervero, R. (1997). Tracking accessibility, *Access*, (11).

Cervero, R. (2001a). California's transportation problems as land-use and housing problems: Towards a sustainable future. In *California's future in the balance: Transportation, housing/land use, public higher education, and water four decades beyond the Pat Brown era*. Report from the California Policy Issues Conference, Los Angeles, CA.

Cervero, R. (2001b). Efficient urbanisation: Economic performance and the shape of the metropolis. *Urban Studies*, 38(10), 1651-1671.

Cervero, R. (2001c). Transport and land use: Key issues in metropolitan planning and smart growth. *Australian Planner,* 38(1), 29-37.

Chapple, K. (2001). Time to work: Job search strategies and commute time for women on welfare in San Francisco. *Journal of Urban Affairs*, 23(2), 155–173.

Churchman, A. (1999). Disentangling the concept of density. *Journal of Planning Literature*, 13(4), 389-411.

CMIPS (Contra Costa Caseload Management, Information and Payroll System), IHSS. In-Home Supportive Services Assessment, SOC 293 Field by Field Description. CMIPS User's Manual.

CMIPS (Contra Costa Caseload Management, Information and Payroll System), IHSS. Provider Eligibility Update, SOC 311 Field by Field Description. CMIPS User's Manual.

Cobb, R. W., & Coughlin, J. F. (2004). Transportation policy for an aging society: Keeping older Americans on the move. *Transportation in an aging society: A decade of experience. Technical papers and reports from a conference.* Conference held November, 1999, Bethesda, MD. Washington, D.C.: Transportation Research Board, pp. 275–289.

Coleman, B. & Pandya, S.M. (2002). *Family caregiving and long-term care*. Washington, D.C.: AARP Public Policy Institute. [Fact Sheet].

Commission on Affordable Housing and Healthy Facility Needs for Seniors in the 21st Century. (2002). *A Quiet crisis in America: A report to congress*, submitted to the Committee on Financial Services, Committee on Appropriations, U.S. House of Representatives, and the Committee on Banking, Housing, and Urban Affairs, Committee on Appropriations, U.S. Senate. Washington, D.C.: author.

Contra Costa County Aging and Adult Services, Employment and Human Services Department. (n.d.). *Medi-Cal program: Healthcare for those in need.* [Brochure].

Contra Costa County Public Transportation Inventory. (2002). *Contra Costa long-term care integration planning project: A collaborative effort of the health services and employment and human service departments.* Contra Costa, CA: author.

Contra Costa County. Synopsis of the Contra Costa County Long-Term Care Development Grant Proposal (Awarded June 2003). Contra Costa Long-Term Care Integration Planning Project/A Collaborative Effort of the Health Services and Employment and Human Service Departments.

Contra Costa Transportation Authority. (2002). *Countywide bicycle and pedestrian plan: Issues and options report, executive summary.* Retrieved June 18, 2005, from www.ccta.net/GM/bikeped/F-IOEXSM.pdf

Crane, R. (2000). The influence of urban form on travel: An interpretive review. *Journal of Planning Literature*, 15(1), 3–23.

DeRobertis, M. (2000). *Neotraditional design: Mobility for all ages.* Conference proceedings from the Urban Street Symposium, Dallas, TX. Washington, D.C.: Transportation Research Board, 2000 (Circular E-C019).

DeSaulnier, M. (2002). *Report on status of the Metropolitan Transportation Commission's study of paratransit in Contra Costa County.* Retrieved June 18, 2005, from www.co.contra-costa.ca.us/ depart/dis4/pdfdocs/BO/2002/bo111202.pdf

Doty, P. (2000). *Cost-effectiveness of home and community-based long-term care services.* Washington, D.C.: U.S. Department of Health and Human Services (DHHS), Office of Disability, Aging and Long-Term Care Policy. Retrieved June 18, 2005, from http://aspe.hhs.gov/daltcp/reports/costeff.htm

Dychtwald, K. (1999). *Age power: How the 21st century will be ruled by the new old.* New York: Joseph P. Tarcher/Penguin Putnam.

East Bay Alliance for a Sustainable Community and University of California, Berkeley. Center for Labor Research and Education. (2002). *Struggling to provide: A portrait of Alameda County homecare workers.* Retrieved June 18, 2005, from the

East Bay Alliance for a Sustainable Economy Web site: http://www.workingeastbay.org/

Employment and Human Services Department. Contra Costa County Aging and Adult Services. (n.d.) *In-home supportive services: The ins and outs of becoming a care provider*. Martinez, CA: author. [Brochure]. p. 4.

Family Caregiver Alliance, National Center on Caregiving. (1997). *Options for Supporting Informal and Family Caregiving: A Policy Paper*. (1999). *Work and eldercare.* [Fact sheet]. (2000). *Family Caregivers: Partners in Long Term Care*. (2001). *Who Will Provide Care? Emerging Issues for State Policymakers.* (2003). *Women and Caregiving: Facts and Figures.* San Francisco, CA: author.

Federal Highway Administration and the Bureau of Transportation Statistics. (2001). *Inklings: Preliminary results from the 2001 NHTS [National Household Travel Survey], changes in demographics and travel.* Washington, D.C.: author.

Fox-Grage, W., Coleman, B., & Blancato, R. B. (2001, October). *Federal and state policy in family caregiving: Recent victories but uncertain future* (Policy Brief No. 2). Brief commissioned by Family Caregiver Alliance for *Who will provide care? Emerging issues for state policymakers,* conference held October, 2001, San Francisco, CA.

Freund, K. (2004). Surviving Without Driving: Policy Options for Safe and Sustainable Transportation for Seniors. *Transportation in an aging society: A decade of experience. Technical papers and reports from a conference.* Conference held November, 1999, Bethesda, MD. Washington, D.C.: Transportation Research Board.

Fulton, W. (1999). *Guide to California planning* (2nd ed.). Point Arena, CA: Solano Press Books.

Gray, L., & Feinberg, L. F. (2003). *Survey of Californians about in-home care services*. San Francisco, CA: Family Caregiver Alliance, National Center on Caregiving.

Giuliano, G. (1995). Land use impacts of transportation investments: Highway and transit. In S. Hanson, (Ed.), *Geography of urban transportation* (2nd ed.) (pp. 271-273). New York: Guilford Press.

Giuliano, G. (2004). Land use and travel patterns among the elderly. *Transportation in an aging society*: *A decade of experience. Technical papers and reports from a conference.* Washington, D.C.: Transportation Research Board, pp. 192–210.

Giuliano G., & Narayan, D. (2003). Another look at travel patterns and urban form: The U.S. and Great Britain. *Urban Studies*, 40(11), 2295-2312.

Glaeser, E. L., & M. E. Kahn. (2003). *Sprawl and urban growth.* Cambridge, Mass.: National Bureau of Economic Research, 2003. Retrieved June 18, 2005, from http://post.economics.harvard.edu/hier/2003papers/2003list.html

Hobson, J., Quiroz-Martinez, J. & Yee, C. (2002). *Roadblocks to health: Transportation barriers to healthy communities*. Oakland, CA: Center for Third World Organizing, People United for a Better Oakland, Transportation and Land Use Coalition.

Holtzclaw, J., Clear, R., Dittmar, H., Goldstein, D., & Haas, P. (2002). Location efficiency: Neighborhood and socioeconomic characteristics determine auto ownership and use, studies in Chicago, Los Angeles, and San Francisco. *Transportation Planning and Technology*, 25, 1–27.

Howes, C. (2002). *The impact of a large wage increase on the workforce stability of IHSS home care workers in San Francisco County.* University of California Institute for Labor and the Economy and the University of California, Berkeley, Center for Labor Education and Research.

Howes, C. (2003). *Making Consumer-Directed Homecare a Good Job*. Research proposal to Robert Woods Johnson Foundation.

Institute of Transportation Studies. *Safety and the Over-65 Driver*. ITS Review, 24(2–4), p. 4.

Johnston, I. (1996, October.) Location, race, and labor force participation: Implications for women of color. *Women's Travel Issues: Proceedings from the Second National Conference.* Conference held October, 1999, Baltimore, MD. Washington, DC.: U.S. Dept. of Transportation, Federal Highway Administration, Office of Highway Information Management.

Kane, R. A., & Penrod, J. D. (Eds.). (1995). *Family caregiver application series: Vol. 5. Family caregiving in an aging society: policy perspectives.* Thousand Oaks: Sage Publications.

Little Hoover Commission. (1996). *Long-term care: Providing compassion without confusion* (Report No. 140). Sacramento, California: author. Retrieved June 19, 2005, from http://www.lhc.ca.gov/lhcdir/140es.html

Lyons, W., & vanderWilden, P. (2002). *Innovative state and local planning for coordinated transportation, final report*. Washington, D.C.: Federal Transit Administration, U.S. Department of Transportation.

McNally, M. G. (1996). How neighborhood design affects travel. *ITS Review*, Nov-Feb, 2,3,6.

MetLife Mature Market Institute, National Alliance for Caregiving & The National Center on Women and Aging. (1999). *The Metlife juggling act study: Balancing caregiving with work and the costs involved*.

Metropolitan Transportation Commission (MTC). (2001). *Regional transportation plan for the San Francisco Bay Area*: *Regional bicycle plan.* Oakland, CA: author. Retrieved June 19, 2005, from the Metropolitan Transportation Commission Web site: http://www.mtc.ca.gov/planning/bicycle/

Metropolitan Transportation Commission (MTC)/Nelson/Nygaard Consulting Associates. (2002). *San Francisco Bay Area older adults transportation study.* San Francisco, CA: author. Retrieved July 9, 2005, from http://www.mtc.ca.gov/library/oats/OATS_FINAL_Report.pdf

Metropolitan Transportation Commission (MTC)/Nelson/Nygaard Consulting Associates. (2003). *Senior mobility toolkit, final report*. San Francisco, CA: author. Retrieved June 19, 2005, from www.mtc.ca.gov/library/oats/Senior_Mobility_Toolkit.pdf

Montgomery, A., & Feinberg, L. F. (2003). *The road to recognition: International review of public policies to support family and informal caregiving*. San Francisco, CA: Family Caregiver Alliance. [Policy Brief].

Murakami, E., & Young, J. (1997, October). *Daily travel by persons with low income.* Paper presented at the symposium of the Nationwide Personal Transportation Survey, Bethesda, MD.

National family caregiver support program: Getting behind our nation's families. (2003). *Proceedings from the U.S. Senate, 2nd Session on examining the implementation of the Administration on Aging's National Family Caregiver Support Program*. Washington, D.C.

Nelson/Nygaard Consulting Associates. (2003a). *Concord senior and youth transportation study, draft final report.* San Francisco, CA: author. Retrieved June 19, 2005, from www.ci.concord.ca.us/citygov/agendas/ committees/rca/2003/09-17-03/rpt09-17-03-2attach1.pdf

Nelson/Nygaard Consulting Associates. (2003b). *Focus groups I and II, Concord, CA: Barriers to mobility*. Focus groups and stakeholder interviews. San Francisco, CA: author.

People Focus (for Contra Costa Employment and Human Services Department). (2003). *Summary report: Contra Costa County's In-Home Support[ive] Services & Public Authority Consumer Satisfaction Survey 2002.* Pleasant Hill, CA: author.

Pisarski, A. E. (1996.) *Commuting in America II: The second national report on commuting patterns and trends.* Lansdowne, VA: Eno Transportation Foundation, Inc.

Ritter, A. S., Straight, A., & Evans, E. (2002). *Understanding senior transportation: Report and analysis of a survey of consumers 50+.* Washington, D.C.: AARP Public Policy Institute. Retrieved June 19, 2005, from the AARP Web site: http://www.aarp.org/research/housing-mobility/transportation/aresearch-import-743-2002-04.html

Rosenbloom, S. (1998.) *Transit markets of the future: The challenge of change* (TCRP Report No. 28). Washington, D.C.: Transportation Research Board.

Rosenbloom, S. (2003). Increasing accessible taxi options for peoples with disabilities. Transportation Research Board Annual Meeting, January 2003. Washington, D.C.

Rosenbloom, S. (2004). Mobility of the elderly: Good news and bad news. *Transportation in an aging society*: *A decade of experience. Technical papers and reports from a conference.* Conference held November, 1999, Bethesda, MD. Washington, D.C.: Transportation Research Board, pp. 3–21.

Rosenbloom, S., & Burns, E. (1994). Why working women drive alone: Implications for travel reduction programs. *Transportation Research Record*, 1459, 39–45.

Ruben, D. (1994). Sociodemographic and health factors in driving patterns after 50 years of age. *American Journal of Public Health,* 84(8), 1327–1329.

Ryan, S. (1999). Property values and transportation facilities: Finding the transportation-land use connection. *Journal of Planning Literature,* 13(4), 412-427.

Scharlach, A. (2001). *Family caregiving for older Californians* (CPRC Brief No. 11). University of California, Berkeley, California Policy Research Center.

Southworth, M., & Ben-Joseph, E. (1996). *Streets and the shaping of towns and cities*. New York: McGraw-Hill.

Stacey, C. (2004). Love's labor's learned: Experiences of home health aides caring for elderly and disabled adults (Doctoral dissertation, University of California, San Francisco, 2004).

Strategic Economics (for the Contra Costa Transportation Authority). (2002). *Contra Costa County employment and real estate overview.* Berkeley, CA: author.

Suen, S. L., & Sen, S. (2004). Mobility options for seniors. *Transportation in an aging society: A decade of experience. Technical papers and reports from a conference.* Conference held November, 1999, Bethesda, MD. Washington, D.C.: Transportation Research Board, pp. 97–113.

Sweeney, M. (2004). *Travel patterns of older Americans with disabilities* (Working paper No. 2004-001-OAS). Washington, D.C.: U.S. Department of Transportation, Bureau of Transportation Statistics.

Systan, Inc. (for the Central Contra Costa Transit Authority). (1989). *Central Contra Costa County Paratransit Plan*. Los Altos, CA: author.

Taylor, B. D. & Mauch, M. (1996, October). Gender, race, and travel behavior: An analysis of household-serving travel and commuting in the San Francisco Bay Area (Transportation Research Record No. 1607). *Women's Travel Issues: Proceedings from the Second National Conference.* Conference held October, 1996, Baltimore, MD. Washington, D.C.: U.S. Dept. of Transportation, Federal Highway Administration, Office of Highway Information Management, 1997.

Taylor, B. D., & Tripodes, S. (2001). The effects of driving cessation on the elderly with dementia and their caregivers. *Accident Analysis and Prevention*, 33, 519–528.

United States. Hearing Before the Special Committee on Aging, United States Senate. *Easing The Family Caregiver Burden: Programs Around the Nation*. One Hundred Fifth Congress, Second Session, Washington, D.C., September 10, 1998. Washington: GPO, 1998.

U.S. Administration on Aging. (1990). *Persons 65 years and over living alone with incomes less than 125% of the poverty level, by sex, by age, and by race: 1990 to 2020*. Washington, D.C.: author. Retrieved June 19, 2005, from the Administration on Aging Web site: http://www.aoa.gov/prof/statistics/future_growth/aging21/table16.asp

U.S. Administration on Aging. (2002). *A profile of older Americans: 2002*. Washington, D.C.: author. Retrieved June 19, 2005, from the Administration on Aging Web site: http://www.aoa.gov/prof/statistics/profile/4_pf.asp and http://www.aoa.gov/prof/statistics/profile/highlights.asp

U.S. Administration on Aging. (2004). *Statistics: Aging into the 21st Century, summary*. Washington, D.C.: author. Retrieved July 9, 2005, from the Administration on Aging Web site: http://www.aoa.gov/prof/statistics/future_growth/aging21/summary.asp

U.S. Administration on Aging. (n.d.). *Projections of the 65+ populations by states, 1995 to 2025*. Washington, D.C.: author. Retrieved June 19, 2005, from the Administration on Aging Web site: http://www.aoa.gov/prof/Statistics/future_growth/Statesto2125.asp

U.S. Census Bureau. (2000). *California: 2000.* Washington, D.C. Retrieved June 19, 2005, from the U.S. Census Bureau Web site: http://www.census.gov/census2000/states/ca.html

U.S. Department of Transportation, Bureau of Transportation Statistics. (2003). *Commuting expenses: Disparity for the working poor.* Washington, D.C.: author. [Issue Brief 1, p. 1.].

University of California, Berkeley, California Policy Research Center. (2001). *Special series: strategic planning on aging in California*.

Wachs, M. (1987). *Men, women, and wheels: The historical basis of sex differences in travel patterns* (Transportation Research Record No. 1135, pp. 10-16). Washington, D.C.: Transportation Research Board.

Wachs, M. (1992). Men, women, and urban travel: The persistence of separate spheres. In M. Wachs & M. Crawford (with S. Wirka & T. Rikala) (Eds.), *The car and the city: The automobile, the built environment, and daily urban life*. Ann Arbor: University of Michigan Press.

Wachs, M. (2001). *Mobility for California's aging population* (CPRC Brief No. 6). University of California, Berkeley, California Policy Research Center.

Weisstub, D. N. (Ed.). (2001). *Aging: Caring for our elders.* Boston: Kluwer Academic Publishers.

Wilbur-Smith Associates (for Contra Costa County Paratransit Coordinating Council). (1990). *Contra Costa County paratransit plan: Final report*. San Francisco, CA: author.

World Health Organization (2002). *Ethical choices in long-term care: What does justice require?* Geneva, Switzerland: author. Retrieved June 19, 2005, from www.who.int/mediacentre/notes/ethical_choices.pdf

Yanochko, P. (2002). *Traffic safety among older adults: Recommendations for California.* San Diego State University, Center for Injury Prevention Policy and Practice, California Task Force on Older Adults and Traffic Safety.

Appendices

Appendix A: Consumer and Provider Race and Ethnicity by Part of County (Percentages)

	Part of county (zone):				
	Far west	Near west	Central	East	
Consumers					
ALL (*N* = 706)	27.1	15.3	39.0	18.7	
Race (*N* = 706)[a]					
WHITE	16.2	52.4	49.1	60.6	
AFRICAN AMERICAN		57.1	11.1	18.6	9.9
OTHER RACE	17.8	33.3	20.7	10.6	
(BLANK)	8.9	3.2	11.6	18.9	
TOTAL	100	100	100	100	
Hispanic (*N* = 648)					
YES	10.6	11.2	14.3	26.7	
NO	89.4	88.8	85.7	73.3	
TOTAL	100.0	100.00	100.0	100.0	
Providers					
ALL (*N* = 433)	29.3	13.9	34.0	22.9	
Race (*N* = 433)[a]					
WHITE	14.2	43.3	46.9	51.5	
AFRICAN AMERICAN		52.0	11.7	13.6	16.2
OTHER RACE	24.4	36.7	25.2	16.2	
(BLANK)	9.4	8.3	14.3	16.1	
TOTAL	100.0	100.00	100.0	100.0	
Hispanic (*N* = 411)					
YES	6.7	7.3	18.6	29.2	
NO	93.3	92.7	81.4	70.8	
TOTAL	100.0	100.00	100.0	100.0	

Note. From consumer and producer surveys and U.S. Census Bureau (2000).

[a] The race percentages for both consumers and providers are not conditional on reporting race, unlike in the text above. In other words, these percentages include the blank responses.

Appendix B: Pre-existing Relationships Between Consumers and Providers

Family Members as Formal and Informal Caregivers

The predominance of the relative-as-provider relationship (see Table 3) blurs the paid and informal caregiver categories, because many family-member IHSS providers play both roles. For example, 7% of consumers picked two or more answers for how they found their providers (see categories in Table 2), even though they were instructed to pick the single best answer.[37] When asked how they found their clients, providers similarly had a hard time with the distinctions, picking multiple categories and writing marginal notes about the complex arrangements. In their survey comments, consumers stressed the importance of family-member caretakers (either paid or informal):

- "My family takes all the burden of my old age and care."
- "I am 91 years old and live in my daughter's house. She takes care of me and has a full-time job. I have dementia and move with the help of a walker."
- "I would like for my daughter to get her hours back that they took from her. I can't do anything without her. I fall often and the lady came out and took 6 hours from her. I'm 88 years old and I have a broken hand."
- "My son is a great helper, doing all the things I can no longer do, such as mowing the yard, doing the washing and drying of clothes, etc. Grocery shopping, taking me wherever we want to go."

[37] Similarly, when asked about their relationship with informal caregivers, 52 clients gave multiple answers.

Although no consumers said that having a family member as a caregiver decreased the quality of care received, one provider did: "I have noticed that clients with relatives as providers don't get as much care as they should. Family claims the hours, yet they don't really earn all the hours. The client isn't comfortable saying anything to the relative because they don't want any conflict."

Just as the providers' roles did not divide cleanly, neither did the hours that providers worked or the hours for which they were paid. Consumers wrote in the margins about their providers' complicated work schedules: 11–15 hours a week and at night; 32 hours in two weeks; 28 hours in two weeks; 3 hours every other week; or, as one consumer wrote, a varying amount, "depending on how many doctors, pharmacists, and other—dieticians, educators, financial counselors—I have to see." Consumers also noted that their providers' official allotted hours did not cover the actual hours they worked: "24 hours a day with her, they only give me 5 to 4 hours daily"; "They get paid for 13.3 per week [but work 20 hours per week]." Another provider wrote about her mother/client: "She really needs 24 hours' care. Also my husband is under medication and is 65. It is very hard to be in all places at once but I still need to work." Another provider wrote: "My client is unable to do anything herself. I do everything for her. She always sick and take her to doctor's office and drugstore. She is wheelchair-bound, but IHSS pays only 40.4 hours per month."

Non-Family Providers

Family members are only part of the total caregiving picture. More than half of consumers had a non-family member as their primary IHSS provider (see Table 2)**.** Indeed, many did not have a family member as an *informal* caregiver either—almost half

(45.4%, n=648) of consumers reported not having *any* informal caregivers who helped them get places.[38] Of the informal caregivers offering transportation assistance to the other half of consumers, presumably some were not family members but rather were volunteers, fellow church members, friends, and so on.

Division of care

Comparing consumers' time spent with three types of caregivers—IHSS, other paid caregivers, and informal caregivers—reveals that consumer respondents spend the most hours per week with their primary IHSS provider. About half spend more than 20 hours a week together (Table A1). Note that while about 20% of consumers said that they spend more than 40 hours a week with their primary IHSS provider, the number could include non-paid hours because so many IHSS providers are family members. This lack of clarity is one example of the blurred boundaries between caregiver types described earlier. IHSS only authorizes a maximum of 283 hours per month, or 70 hours per week. On average, consumer respondents said that they spent 35 hours per week with their primary IHSS provider, while the average allotted to Contra Costa consumers was 28.2 or 23.7 (depending on whether one is using IHSS's functional index hours category or hours authorized to be purchased category).[39] The higher survey hours per week most likely signal that respondents are including unpaid as well as paid time with the individual who works through IHSS, not that the survey population receives more care than the average Contra Costa consumer.

---

[38] "I am 63 going on 64," wrote a consumer in central county. "My husband died four years ago, I have but eight living family members left. All who live too far to visit or help me in any way." An IHSS provider described how consumer isolation from family members affects her: "My client relies upon me almost totally. She has two daughters who never visit. This is my second year with her and I have never met them. Client owns her mobile home that is located far away from everything. . . . You must travel by car. There is no public transit."

[39] Data from the surveys and the CMIPS April 2004 data; calculations by author. Downward adjustments were made to a small percentage of responses, such as when consumers reported spending 168 hours a week with all three types of caregivers. Blanks were not treated as zeros.

Table A1

Number of Hours per Week Consumers Spend with Caregivers by Caregiver Type (Percentages)

	IHSS Primary Provider	Informal Caregivers	Other paid Caregivers
Hours per Week			
0	0.6	31.28	18.53
1 – 20	48.11	45.43	68.66
21 – 40	32.17	7.54	7.09
41+	19.09	15.75	5.72
Average Hours	34.86	22.90	8.06
TOTAL	100	100	100
N	636	438	367

Note. From consumer surveys.

Informal and other paid caregiving were not significant by age. IHSS was significant ($p < .10$). Senior consumers spent less time than non-seniors with their IHSS caregivers (32.9 hours per week vs. 37.2) and less time than non-seniors with other paid caregivers (6.4 hours per week vs. 9.7), but about the same with informal caregivers (22.5 hours per week vs. 23.0). For consumers overall, hours with IHSS caregivers were correlated with hours with other paid caregivers and hours with informal caregivers ($p < .01$ and $p < .001$). Controlling for disability level (by proxy) and gender does not affect these relationships except for the correlation between age and hours with IHSS caregivers. Increasing age was negatively associated ($p < .10$) with the number of informal caregivers seniors had available, who could accompany them to destinations. Increasing age was also strongly and negatively correlated with household size ($p < .001$).

The provider survey similarly measured time spent with the primary consumer. Paralleling the consumer findings above, 50.0% of providers (N=504) said they spent 20 hours or less with their primary client (Table A2). Again, providers reported spending less time with senior consumers, with 48.2% spending more than 21 hours a week with their senior clients vs. 54.2% with non-seniors. Supporting these numbers, increasing consumer age at the continuous variable level (not grouped as non-senior/senior) was negatively correlated with hours per week with providers ($p < .10$).

Table A2

Number of Hours per Week Providers Spend with Consumers by Consumer Age (Percentages)

	Under 65	65 and older	Total
Hours per Week			
1–5	5.8	12.2	9.5
6–10	12.8	12.7	12.5
11–15	13.2	12.7	13.1
15–20	14.0	14.3	14.9
21–25	8.7	13.9	11.11
26+	45.5	34.3	38.9
TOTAL	100.0	100.0	100.0
N	242	245	504

Note. Figures represent provider estimates. All differences significant ($p < .05$). From provider surveys

Other factors relating to availability of informal care included whether consumers were married or in a long-term relationship; whether they lived with their providers (more detail on this is included in the hypotheses); and whether they lived with other people. Only one-fourth of consumer respondents (24.0% of 679) 18 years old or older were married or in a long-term relationship, so three-fourths of consumers did not have

such care available. Being married was significantly correlated with how many people consumers lived with ($p < .001$), including the predictable statistic that 91.9% of those living alone were unmarried. Being married or in a long-term relationship was not correlated with age, but comments about being widowed were. When answering the survey question about marriage/long-term relationships, 35 consumers wrote marginal notes about being widowed ("My wife is dead"; "widow—my husband passed away 1989"; "my spouse is deceased and has been for 20 years"). Of those whose age was known, about nine-tenths of those mentioning being widowed were senior citizens.

A positive and statistically significant relationship was found between being married or in a long-term relationship and living in the same home as the primary IHSS provider, with 47.6% of those who were married or in a long-term relationship living with their provider compared with 33.6% of those who were not married or in a long-term relationship. This 14-point difference might reflect the fact that some consumers had spouses or partners as providers (4.9% of consumers) and that 28.3% of consumers had their children as providers, and those who were married or in a long-term relationship might be more likely to have children. Finally, consumer respondents lived alone at a higher rate (39.9%, n=735) than the countywide population (22.9%) (U.S. Census 2000 data) or Contra Costa IHSS consumers overall (32%) (from April 2004 CMIPS data, calculations by author). The fact that four-tenths of consumers lived alone helps explain some of their care and transportation challenges. Yet, interestingly, neither being married/in a long-term relationship nor living alone was correlated with the number of informal caregivers consumers had to help them get places.

Appendix C: Consumer Summary Statistics for All Variables Tested in the Regression Analyses

	N	Mean	St. Dev.	Minimum	Maximum
CONSUMER DEMOGRAPHICS					
Age	717	64.83	18.73	5 *(years)*	101 *(years)*
Gender	734	0.71	0.45	0 *(male)*	1 *(female)*
Black	*763*	*0.27*	*0.44*	*0* (blank)	*1* (yes; Black only)
White	763	0.42	0.49	0 *(blank)*	1 *(yes; White only)*
Other race	763	0.20	0.40	0 *(blank)*	1 *(yes; includes mixed race)*
Hispanic	688	0.15	0.36	0 *(blank)*	1 *(yes)*
Tenure	686	0.26	0.44	0 *(own)*	1 *(rent)*
LAND USE VARIABLES					
Housing density	712	1116.7	662.1	18.6 *(units/sq. mi.)*	2,862.3 *(units/sq. mi.)*
Population density	712	3083.9	1734.3	52.9 *(persons/sq. mi.)*	7,283.7 *(persons/sq. mi.)*
Zone (part of county)	706	2.26	1.05	1 *(far west)*	4 *(east)*
Distance from consumer's house to the following destinations					
Grocery	729	3.05	0.93	1	4
Drugstore	727	3.22	0.88	1	4
Doctor/hospital	708	3.76	0.57	1	4
Place of worship	647	3.25	0.96	1	4
Social/community	596	3.36	0.94	1	4
Family/friend's home	699	3.18	1.16	1	4
Bus stop	674	1.97	0.91	1	4
BART station	679	3.70	0.59	1	4
Average distance to destinations (constructed variable)	492	3.17	0.47	1.88 *(less than 1 block)*	4 *(1 mile or more)*
CAR OWNERSHIP					
Owns a car?	743	0.26	0.44	0 *(no)*	1 *(yes)*
MOBILITY VARIABLES					
How often leaves home	743	2.85	1.03	1 *(almost never)*	4 *(more than 10 times a month)*
If wants to move to a higher density area with more access to services	454	0.53	0.50	0 *(no)*	1 *(yes)*
How far can walk without assistance	731	1.95	0.99	1 *(cannot)*	4 *(more than 3 blocks)*

Cont.	N	Mean	St. Dev.	Minimum	Maximum
Where consumers could not go but wanted to go in the previous month because they had no transportation to get there					
Grocery store	753	0.26	0.44	0	1
Drugstore	753	0.20	0.40	0	1
Doctor/hospital	753	0.23	0.42	0	1
Place of worship	753	0.19	0.40	0	1
Social/community	753	0.15	0.35	0	1
Family/friend's home	753	0.28	0.45	0	1
Other destinations	753	0.05	0.22	0	1
				(blank)	*(yes; could not go)*
DIFFICULTIES WITH BUS STOPS OR BART STATIONS IN THE COMMUNITY					
No difficulties	753	0.16	0.37	0	1
No stations	753	0.06	0.23	0	1
Cost too much	753	0.15	0.35	0	1
Stations too far	753	0.19	0.40	0	1
Not comfortable for seniors/disabled persons	753	0.19	0.39	0	1
Take too long to get where need to go	753	0.23	0.42	0	1
Wait too long	753	0.19	0.39	0	1
Not safe	753	0.09	0.29	0	1
Other problem	753	0.16	0.37	0	1
NA: don't use bus/BART	753	0.24	0.43	0	1
				(blank)	*(yes; have this problem)*
RELATIONSHIP BETWEEN CONSUMER AND CAREGIVERS					
Time to consumer's home	397	20.63	19.40	0 *(minutes)*	120 *(minutes)*
Centroid	708	2.77	0.86	0.47 *(proxy for distance)*	7.09 *(proxy for distance)*
If distance between provider and consumer homes has an effect on care provided	656	0.12	0.33	0	1
				(no)	*(yes)*
Number of informal caregivers	648	1.89	0.98	1 *(none)*	4 *(3 or more)*
How many people live with	735	2.11	1.12	1 *(none)*	4 *(3 or more)*
Marital status	724	0.24	0.43	0 *(no)*	1 *(yes)*
TIME WITH CAREGIVERS: HOURS PER WEEK WITH . . .					
IHSS provider	636	34.86	39.91	0	168
Other paid caregivers	367	8.07	18.76	0	132
Informal caregivers	438	22.90	41.12	0	168
				(hours)	(hours)

Appendix D: Provider Summary Statistics for All Variables Tested in the Regression Analyses

	N	Mean	St. Dev.	Minimum	Maximum
PROVIDER DEMOGRAPHICS					
Gender	504	0.79	0.41	0 *(male)*	1 *(female)*
Age	502	49.08	14.31	16 *(years)*	88 *(years)*
White	521	0.36	0.48	0 *(blank)*	1 *(yes; White only)*
African American	521	0.28	0.45	0 *(blank)*	1 *(yes; African American only)*
Other race	521	0.24	0.43	0 *(blank)*	1 *(yes; includes mixed race)*
Hispanic	494	0.16	0.36	0 *(no)*	1 *(yes)*
Marital status	502	0.51	0.50	0 *(no)*	1 *(yes)*
LAND USE VARIABLES					
Housing density	448	1221.0	905.8	51.3 *(units/sq. mi.)*	7,208.3 *(units/sq. mi.)*
Population density	448	3369.5	2234.9	137.1 *(persons/sq. mi.)*	17,973.7 *(persons/sq. mi.)*
Zone (part of county)	433	2.30	1.12	1 *(far west)*	4 *(east)*
DISTANCE FROM PROVIDER'S HOUSE TO THE FOLLOWING DESTINATIONS					
Grocery	504	3.20	0.88	1	4
Drugstore	502	3.27	0.84	1	4
Doctor/hospital	494	3.72	0.58	1	4
Place of worship	484	3.15	0.99	1	4
Social/community	441	3.44	0.84	1	4
Family/friend's home	488	3.20	1.09	1	4
Bus stop	485	2.06	0.95	1	4
BART station	492	3.65	0.64	1	4
Average distance to destinations (constructed variable)	401	3.22	0.49	1.88 *(less than 1 block)*	4 *(1 mile or more)*
PROVIDER'S RELATIONSHIP WITH CONSUMER					
Hours per week with primary consumer	504	4.22	1.76	1 *(1 to 5 hrs/wk)*	6 *(26 or more hours)*
Work a non-IHSS job?	505	0.40	0.49	0 *(no)*	1 *(yes)*
Total hours worked at all jobs per week	485	2.06	0.78	1 *(1 to 20 hrs/wk)*	3 *(more than 40 hrs/wk)*
Consumer's age	498	61.76	21.43	7 *(years)*	102 *(years)*

Cont.	N	Mean	St. Dev.	Minimum	Maximum
PROVIDER'S TRANSPORTATION TO PRIMARY CONSUMER'S HOME					
Centroid	444	2.84	2.81	1.25	29.73 *(proxy for distance)*
Live in same house as consumer?	521	0.42	0.49	0 *(blank)*	1 *(yes)*
Does distance to consumer's home affect care provided?	465	0.09	0.28	0 *(no)*	1 *(yes)*
Drives self to consumer's home	240	1.50	0.95	1 *(always)*	4 *(never)*
How far to consumer's house?	10	1.92	2.01	0 *(same house)*	6 *(30 miles or more)*
How long to consumer's house?	512	1.06	1.06	0 *(same house)*	3 *(more than 30 minutes)*
How many times change transit to consumer's home?	253	1.25	0.56	1 *(usually none)*	3 *(2 or more times)*
How far is client from a bus you can use?	366	0.33	0.47	0 *(less than 3 blks)*	1 *(3 or more blks)*
How far is client from a BART you can use?	355	0.91	0.29	0 *(less than 3 blks)*	1 *(3 or more blks)*
Own a car?	508	0.75	0.44	0 (no)	1 (yes)
Is getting to client's home stressful?	468	2.73	0.52	1 *(yes)*	3 *(no)*
Want to move to higher density area w/ more access to services	306	0.45	0.50	0 *(no)*	1 *(yes)*
AVERAGE TIME PROVIDER SPENDS IN TRAVEL ON A WORKDAY, GOING TO AND FROM . . .					
Childcare	176	17.93	25.33	0 *(minutes)*	120 *(minutes)*
Grocery store	358	36.73	25.29	0	120
Non-food stores	291	30.37	25.48	0	180
All IHSS jobs	245	39.07	34.39	0	245
Other jobs	245	32.43	40.79	0	240
Relatives' homes	237	25.73	27.35	0	120
Friends' homes	222	20.58	21.88	0	120
Other destinations	128	43.30	46.38	0	180
Total time in travel	32	170.28	98.60	16	480
WHERE PROVIDER ACCOMPANIES PRIMARY CONSUMER					
Grocery store	518	0.80	0.40	0 *(blank)*	1 *(yes)*
Drugstore	518	0.73	0.44	0	1
Doctor/hospital	518	0.92	0.28	0	1
Place of worship	518	0.39	0.49	0	1
Social/community	518	0.38	0.49	0	1
Family/friends' home	518	0.63	0.48	0	1
Other destination	518	0.22	0.41	0	1
Sum of places where provider accompanies client	518	2.16	1.43	0 *(0 to 2 places)*	4 *(6 to 7 places)*

Cont.	N	Mean	St. Dev.	Minimum	Maximum
WHERE PROVIDER THINKS PRIMARY CONSUMER NEEDS MORE HELP GOING					
Grocery store	518	0.54	0.50	0 *(blank)*	1 *(yes)*
Drugstore	518	0.47	0.50	0	1
Doctor/hospital	518	0.72	0.45	0	1
Place of worship	518	0.31	0.46	0	1
Social/community	518	0.28	0.45	0	1
Family/friends' home	518	0.34	0.48	0	1
Other destination	518	0.11	0.31	0	1
Sum of places where consumer needs help going	518	2.73	2.04	0 *(0 places)*	6 *(6 to 7 places)*

Appendix E: The Effect of Land Use Variables on Consumer Mobility

Table E1

Land Use Variables by How Often Consumer Leaves Home, Showing Their Likelihood to Say They Left Almost Never (Column 1) or 1 to 5 Times per Month (Columns 2 and 3) Instead of Saying They Left More than 10 Times per Month

	(1)	(2)	(3)
ZONE	**1.30***		
	(0.21)		
AVERAGE		**1.70***	
DISTANCE		(0.49)	
CENTROID			**0.78***
			(0.11)
FEMALE	1.35	1.78**	1.87***
	(0.50)	(0.49)	(0.45)
INCREASED AGE	1.04***	1.04***	1.04***
	(0.01)	(0.01)	(0.01)
WALK FARTHER	0.49***	0.64***	0.63***
	(0.10)	(0.08)	(0.07)
BLACK	1.58	2.47***	1.60*
	(0.70)	(0.79)	(0.44)
OTHER RACE	0.73	0.996	1.03
	(0.36)	(0.35)	(0.30)
HISPANIC	1.32	1.52	1.30
	(0.63)	(0.59)	(0.43)
OWN CAR	0.49*	0.77	0.73
	(0.21)	(0.22)	(0.18)
RENT HOUSING	0.74	0.66	0.68
	(0.28)	(0.20)	(0.17)
N	579	414	581

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring how often consumers leave their homes. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. In column 1 (zone), the coefficients represent marginal effects for category 1 of how often the consumer leaves his or her home (category 1 being that he or she almost never leave home) relative to category four (he or she leaves home more than 10 times a month). In columns 2 and 3 (average distance and centroid), the coefficients represent the marginal effects for category 2 (he or she leaves home 1 to 5 times per month) relative to category 4 because that is where the significant relationship was found. Since 4 is the comparison group, the numbers above represent the likelihood of choosing those categories instead of category 4.

* Coefficients significant at the .10 level. ** Coefficients significant at the .05 level. *** Coefficients significant at the .01 level.

Table E2

Land Use Variables by Whether Consumers Could Not Reach a Grocery Store in the Previous Month Because of Transportation Problems

	(1)	(2)	(3)	(4)	(5)
ZONE	**0.87***				
	(0.07)				
POPULATION DENSITY		**1.0001***			
		(0.00)			
AVERAGE DISTANCE			**1.83****		
			(0.50)		
PROVIDER COMMUTE TIME				**1.01***	
				(0.01)	
CENTROID					**0.72*****
					(0.09)
FEMALE	1.61**	1.66**	1.50	1.65	1.90***
	(0.36)	(0.37)	(0.43)	(0.54)	(0.46)
INCREASED AGE	0.99***	0.99***	0.98***	0.98**	0.98***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
WALK FARTHER	0.90	0.90	0.92	0.76**	0.89
	(0.08)	(0.08)	(0.11)	(0.10)	(0.09)
BLACK		1.07	1.37	1.12	1.02
		(0.23)	(0.41)	(0.35)	(0.25)
OTHER RACE		1.41	1.08	1.74	1.39
		(0.34)	(0.39)	(0.66)	(0.38)
HISPANIC			1.47	2.54**	1.47
			(0.56)	(0.98)	(0.41)
OWN CAR			0.64	0.74	0.84
			(0.18)	(0.24)	(0.19)
RENT HOUSING			0.47**	0.64	0.60**
			(0.15)	(0.24)	(0.15)
N	650	655	414	326	583

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether consumers could not reach the grocery store. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. Housing density was NS.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E3

Land Use Variables by Whether Consumers Could Not Reach a Drugstore in the Previous Month Because of Transportation Problems

	(1)	(2)	(3)	(4)	(5)
ZONE	**0.79****				
	(0.09)				
HOUSING		**1.0003***			
DENSITY		(0.00)			
POPULATION			**1.0001****		
DENSITY			(0.00)		
PROVIDER				**1.02****	
COMMUTE TIME				(0.01)	
CENTROID					**0.72****
					(0.10)
FEMALE	1.71**	1.71**	1.71**	1.57	1.75**
	(0.47)	(0.47)	(0.47)	(0.54)	(0.48)
INCREASED AGE	0.98***	0.98***	0.98***	0.98**	0.98***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
WALK FARTHER	0.88	0.87	0.87	0.73**	0.89
	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)
BLACK	0.99	1.18	1.13	1.01	1.09
	(0.29)	(0.31)	(0.30)	(0.35)	(0.29)
OTHER RACE	1.11	1.20	1.17	1.33	1.14
	(0.33)	(0.36)	(0.35)	(0.55)	(0.34)
HISPANIC	1.70*	1.72*	1.69*	2.34**	1.59
	(0.51)	(0.51)	(0.50)	(0.95)	(0.48)
OWN CAR	0.95	0.91	0.91	0.70	0.89
	(0.24)	(0.23)	(0.23)	(0.25)	(0.22)
RENT HOUSING	0.56**	0.57**	0.57**	0.45*	0.54**
	(0.15)	(0.15)	(0.15)	(0.20)	(0.15)
N	581	586	586	326	583

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether consumers could not reach the drugstore. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E4

Land Use Variables by Whether Consumers Could Not Reach a Doctor or Hospital in the Previous Month Because of Transportation Problems

	(1)	(2)	(3)
AVERAGE	**1.95****		
DISTANCE	(0.56)		
PROVIDER		**1.01***	
COMMUTE TIME		(0.01)	
CENTROID			**0.78****
			(0.09)
FEMALE	1.40	1.27	1.84**
	(0.41)	(0.37)	(0.47)
INCREASED AGE	0.98**		0.98***
	(0.01)		(0.01)
WALK FARTHER	0.94		0.96
	(0.11)		(0.09)
BLACK	1.36		1.08
	(0.40)		(0.27)
OTHER RACE	1.16		1.38
	(0.45)		(0.40)
HISPANIC	1.66		1.81**
	(0.64)		(0.52)
OWN CAR	0.78		0.90
	(0.22)		(0.21)
RENT HOUSING	0.27***		0.36***
	(0.10)		(0.10)
N	414	386	583

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers are able to reach the doctor or hospital. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E5

Land Use Variables by Whether Consumers Could Not Reach a Place of Worship in the Previous Month Because of Transportation Problems

	(1)	(2)	(3)	(4)	(5)	(6)
ZONE	**0.85***					
	(0.08)					
HOUSING		**1.0003***				
DENSITY		(0.00)				
POPULATION			**1.0001***			
DENSITY			(0.00)			
AVERAGE				**2.27*****		
DISTANCE				(0.65)		
PROVIDER					**1.01***	
COMMUTE TIME					(0.01)	
CENTROID						**0.78****
						(0.09)
FEMALE	1.32	1.34	1.33	1.60	1.59	1.35
	(0.32)	(0.32)	(0.32)	(0.48)	(0.56)	(0.32)
INCREASED AGE	0.98***	0.99***	0.99***	0.98***	0.98***	0.98***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
WALK FARTHER	0.88	0.87	0.88	0.82	0.75*	0.89
	(0.09)	(0.09)	(0.09)	(0.11)	(0.12)	(0.09)
BLACK				2.01**	1.87*	
				(0.59)	(0.61)	
OTHER RACE				2.16**	2.33**	
				(0.77)	(0.95)	
HISPANIC				1.04	2.61**	
				(0.45)	(1.06)	
OWN CAR				0.71	0.57	
				(0.22)	(0.22)	
RENT HOUSING				0.46**	0.74	
				(0.16)	(0.31)	
N	650	655	655	414	326	652

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers are able to reach the place of worship. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E6

Land Use Variables by Whether Consumers Could Not Reach the Home of Family or Friends in the Previous Month Because of Transportation Problems

	(1)	(2)
AVERAGE	**1.48***	
DISTANCE	(0.33)	
PROVIDER		**1.02*****
COMMUTE TIME		(0.01)
FEMALE		1.26
		(0.40)
INCREASED AGE		0.97***
		(0.01)
WALK FARTHER		0.91
		(0.12)
BLACK		0.74
		(0.24)
OTHER RACE		2.22**
		(0.85)
HISPANIC		1.92*
		(0.72)
OWN CAR		0.83
		(0.25)
RENT HOUSING		0.52*
		(0.20)
N	484	326

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers are able to reach the homes of family and friends. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E7

Land Use Variables by Whether Consumers Think That Distance Between Their Homes and the Homes of Their Providers Has an Effect on the Care They Receive

	(1)	(2)
HOUSING	**0.9996***	
DENSITY	(0.00)	
POPULATION		**0.9999***
DENSITY		(0.00)
FEMALE	0.79	0.79
	(0.24)	(0.24)
INCREASED AGE	0.99	0.99
	(0.01)	(0.01)
WALK FARTHER	0.88	0.88
	(0.13)	(0.13)
BLACK	0.61	0.63
	(0.23)	(0.24)
OTHER RACE	0.84	0.85
	(0.33)	(0.34)
HISPANIC	1.26	1.28
	(0.47)	(0.48)
OWN CAR	1.14	1.14
	(0.36)	(0.36)
RENT HOUSING	1.35	1.35
	(0.42)	(0.42)
N	523	523

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers think the distance their providers live from their homes affects the care they receive. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys. * Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E8

Land Use Variables by Whether Consumers Want to Move to a Neighborhood with More People if It Meant Being Closer to Shopping, Medical Facilities, and Social Services

	(1)	(2)	(3)
ZONE	**0.81****		
	(0.08)		
AVERAGE		**1.85***	
DISTANCE		(0.61)	
PROVIDER			**1.01***
COMMUTE TIME			(0.01)
FEMALE	0.69*	0.51**	0.61
	(0.16)	(0.16)	(0.24)
INCREASED AGE	0.99	0.99	0.98
	(0.01)	(0.01)	(0.01)
WALK FARTHER	1.01	0.99	1.01
	(0.11)	(0.14)	(0.17)
BLACK		2.31***	1.78
		(0.75)	(0.67)
OTHER RACE		2.74**	1.14
		(1.13)	(0.52)
HISPANIC		1.02	1.14
		(0.44)	(0.53)
OWN CAR		0.48**	0.23***
		(0.15)	(0.09)
RENT HOUSING		0.39***	0.32***
		(0.14)	(0.14)
N	398	252	187

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers want to move to a neighborhood with more people if it meant being closer to shopping, medical facilities, and social services. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E9

Land Use Variables by Whether Consumers Say That They Have No Difficulties with Buses and BART in Their Communities

	(1)
AVERAGE	**0.57***
DISTANCE	(0.17)
FEMALE	0.66
	(0.18)
INCREASED AGE	1.01
	(0.01)
WALK FARTHER	1.79***
	(0.25)
BLACK	0.84
	(0.28)
OTHER RACE	0.58
	(0.23)
HISPANIC	0.74
	(0.28)
OWN CAR	1.37
	(0.39)
RENT HOUSING	1.48
	(0.49)
N	414

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers say that they have no difficulties with buses and BART in their communities. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E10

Land Use Variables by Whether Consumers Cite the Difficulty of Having No Bus Stops or BART Stations in Their Community

	(1)	(2)	(3)	(4)
ZONE	**2.49*** **			
	(0.47)			
HOUSING DENSITY		**0.9991** **		
		(0.00)		
POPULATION DENSITY			**0.9997** *	
			(0.00)	
AVERAGE DISTANCE				**NS**
FEMALE	0.79	0.86	0.88	
	(0.37)	(0.37)	(0.38)	
INCREASED AGE	0.99	0.99*	0.99*	
	(0.01)	(0.01)	(0.01)	
WALK FARTHER	0.87	0.84	0.84	
	(0.18)	(0.17)	(0.17)	
BLACK	5.26***	2.34*	2.50*	
	(2.98)	(1.17)	(1.26)	
OTHER RACE	3.62**	2.50*	2.58**	
	(1.90)	(1.20)	(1.24)	
HISPANIC	2.29	2.28	2.35	
	(1.32)	(1.23)	(1.27)	
OWN CAR	1.81	1.93*	1.94*	
	(0.74)	(0.78)	(0.78)	
RENT HOUSING	2.25**	2.11**	2.09**	
	(0.92)	(0.80)	(0.79)	
N	581	586	586	

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers say that they have the difficulty of there being no bus or BART stops in their community. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E11

Land Use Variables by Whether Consumers Cite Cost as One of Their Difficulties with Bus or BART in Their Community

	(1)
PROVIDER	**1.02****
COMMUTE TIME	(0.01)
FEMALE	2.01*
	(0.82)
INCREASED AGE	0.98***
	(0.01)
WALK FARTHER	0.91
	(0.13)
BLACK	0.93
	(0.33)
OTHER RACE	2.00
	(0.86)
HISPANIC	1.92
	(0.84)
OWN CAR	1.28
	(0.45)
RENT HOUSING	0.61
	(0.27)
N	326

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers cite cost as one of their difficulties with bus or BART in their community. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E12

Land Use Variables by Whether Consumers Cite Stations Being Too Far from Their Homes as a Difficulty with Bus or BART in Their Communities

	(1)	(2)
ZONE	**1.19***	
	(0.12)	
AVERAGE		**2.46*****
DISTANCE		(0.81)
FEMALE	1.72**	2.15**
	(0.43)	(0.69)
INCREASED AGE	0.98***	0.98***
	(0.01)	(0.01)
WALK FARTHER	1.002	1.01
	(0.10)	(0.12)
BLACK	0.96	0.75
	(0.27)	(0.26)
OTHER RACE	1.39	1.26
	(0.40)	(0.49)
HISPANIC	0.93	1.31
	(0.28)	(0.50)
OWN CAR	1.74**	1.68*
	(0.40)	(0.48)
RENT HOUSING		0.68
		(0.20)
N	608	414

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers cite bus and BART stations being too far from their homes as one of their problems with bus and BART in their communities. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E13

Land Use Variables on Whether Consumers Say That Not Being Comfortable for Seniors and the Disabled Is One of Their Difficulties with Bus or BART in Their Community

	(1)	(2)	(3)	(4)
HOUSING	**0.9997***			
DENSITY	(0.00)			
POPULATION		**0.9999***		
DENSITY		(0.00)		
AVERAGE			**2.00****	
DISTANCE			(0.57)	
PROVIDER				**1.01***
COMMUTE TIME				(0.01)
FEMALE	1.82**	1.83**	1.53	1.30
	(0.47)	(0.47)	(0.44)	(0.43)
INCREASED AGE	0.99	0.99	0.995	0.99
	(0.01)	(0.01)	(0.01)	(0.01)
WALK FARTHER	0.84	0.84	0.86	0.90
	(0.09)	(0.09)	(0.11)	(0.12)
BLACK	1.20	1.24	1.06	1.17
	(0.31)	(0.32)	(0.32)	(0.38)
OTHER RACE	1.60*	1.63*	1.25	2.42**
	(0.46)	(0.47)	(0.46)	(0.95)
HISPANIC	0.99	1.004	0.88	1.02
	(0.31)	(0.31)	(0.36)	(0.45)
OWN CAR	1.14	1.14	0.83	1.65
	(0.28)	(0.28)	(0.25)	(0.52)
RENT HOUSING	0.36***	0.36***	0.29***	0.45*
	(0.11)	(0.11)	(0.11)	(0.19)
N	586	586	414	326

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers think that buses and BART not being comfortable for the seniors or disabled is one of their difficulties with bus and BART in their communities. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.
Note 2. Zone NS.

Table E14

Land Use Variables by Whether Consumers Say That Having to Wait Too Long at Stations Is One of Their Difficulties with Bus or BART in Their Community

	(1)
PROVIDER	**1.01***
COMMUTE TIME	(0.01)
FEMALE	2.10**
	(0.67)
INCREASED AGE	0.97***
	(0.01)
WALK FARTHER	1.20
	(0.15)
BLACK	0.85
	(0.24)
OTHER RACE	1.79*
	(0.65)
N	356

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers say that having to wait to long at stations is one of their difficulties with bus or BART in their communities. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E15

Land Use Variables by Whether Consumers Say That Buses or Trains Not Going Where Consumers Need To Go Is One of Their Difficulties with Bus or BART in Their Community

	(1)	(2)	(3)	(4)
ZONE	**1.30****			
	(0.14)			
HOUSING		**0.9996****		
DENSITY		(0.00)		
POPULATION			**0.9998*****	
DENSITY			(0.00)	
AVERAGE				**1.61***
DISTANCE				(0.45)
FEMALE	1.62*	1.62*	1.62*	1.38
	(0.43)	(0.43)	(0.43)	(0.39)
INCREASED AGE	0.996	0.996	0.996	0.996
	(0.01)	(0.01)	(0.01)	(0.01)
WALK FARTHER	1.06	1.06	1.06	1.02
	(0.11)	(0.11)	(0.11)	(0.11)
BLACK	0.98	0.81	0.86	
	(0.29)	(0.22)	(0.23)	
OTHER RACE	1.70*	1.55	1.60*	
	(0.49)	(0.43)	(0.45)	
HISPANIC	1.11	1.12	1.14	
	(0.34)	(0.34)	(0.35)	
OWN CAR	1.03	1.05	1.05	
	(0.26)	(0.26)	(0.26)	
RENT HOUSING	0.50***	0.50***	0.50***	
	(0.14)	(0.13)	(0.13)	
N	581	586	586	459

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers say that buses and BART not going where they need them to go is one of their problems with buses and BART in their communities. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E16

Land Use Variables by Whether Consumers Say That Buses or BART Trains Not Being Safe Is One of Their Difficulties with Bus or BART in Their Community

	(1)	(2)	(3)	(4)
ZONE	**0.77***			
	(0.12)			
HOUSING		**1.0003***		
DENSITY		(0.00)		
POPULATION			**1.0001***	
DENSITY			(0.00)	
PROVIDER				**1.01***
COMMUTE TIME				(0.01)
FEMALE	1.23	1.10	1.23	1.36
	(0.41)	(0.34)	(0.42)	(0.60)
INCREASED AGE	0.99*	0.99*	0.99*	0.98*
	(0.01)	(0.01)	(0.01)	(0.01)
WALK FARTHER	1.04		1.04	0.95
	(0.13)		(0.13)	(0.17)
BLACK	0.65		0.74	0.77
	(0.25)		(0.27)	(0.34)
OTHER RACE	1.14		1.21	1.41
	(0.43)		(0.46)	(0.70)
HISPANIC	1.07		1.08	0.56
	(0.44)		(0.44)	(0.36)
OWN CAR	1.19		1.15	1.15
	(0.36)		(0.35)	(0.45)
RENT HOUSING	1.31		1.33	1.64
	(0.40)		(0.41)	(0.71)
N	581	671	586	326

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers say that buses or BART not being safe is one of their problems with buses or BART in the community. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E17

Land Use Variables by Whether Consumers Say That They Have "Other" Problems with Buses and BART Trains in Their Community

	(1)
CENTROID	**1.27****
	(0.15)
FEMALE	1.82**
	(0.53)
INCREASED AGE	0.98***
	(0.01)
WALK FARTHER	1.02
	(0.12)
BLACK	0.53*
	(0.18)
OTHER RACE	0.999
	(0.32)
HISPANIC	0.94
	(0.31)
OWN CAR	0.85
	(0.23)
RENT HOUSING	0.93
	(0.25)
N	583

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers say that they have "other" problems with buses and BART trains in their community. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table E18

Land Use Variables by Whether Consumers Say That the Question About Difficulties Was Not Applicable Because They Do Not Use Buses or BART Trains in Their Community

	(1)	(2)
HOUSING	**1.0004****	
DENSITY	(0.00)	
POPULATION		**1.0001****
DENSITY		(0.00)
FEMALE	1.10	1.09
	(0.26)	(0.26)
INCREASED AGE	1.02**	1.02**
	(0.01)	(0.01)
WALK FARTHER	0.67***	0.67***
	(0.08)	(0.08)
BLACK	1.11	1.08
	(0.29)	(0.29)
OTHER RACE	1.29	1.26
	(0.36)	(0.35)
HISPANIC	1.05	1.02
	(0.33)	(0.32)
OWN CAR	1.34	1.33
	(0.33)	(0.33)
RENT HOUSING	2.19***	2.19***
	(0.49)	(0.49)
N	586	586

Notes: All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers say that the question is not applicable because they do not use buses or BART trains in their community. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Appendix F: The Effect of Time with IHSS Provider on Consumer Mobility

Table F1

Time with IHSS Provider and Whether Consumers Could Not Reach a Doctor or Hospital in the Previous Month Because of Transportation Problems (Showing Model Build-Up)

	(1)	(2)
TIME WITH IHSS PROVIDER	**0.995*** (0.003)	**0.99*** (0.01)
TIME WITH INFORMAL		0.98*** (0.01)
NUMBER OF INFORMAL		
TIME WITH PAID		1.02** (0.01)
HOUSING DENSITY		0.9997 (0.00)
FEMALE		2.43** (0.93)
INCREASED AGE		0.98** (0.01)
WALK FARTHER		0.996 (0.16)
BLACK		1.48 (0.56)
OTHER RACE		3.12*** (1.31)
HISPANIC		2.48** (1.12)
OWN CAR		1.02 (0.34)
N	636	264

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers said that they had difficulty in the past month reaching a doctor or hospital because they had no transportation. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table F2

Time with IHSS Provider and Whether Consumers Could Not Reach a Grocery Store in the Previous Month Because of Transportation Problems (Showing Model Build-Up)

	(1)	(2)	(3)	(4)	(5)
TIME WITH	**0.997**	**0.99**	**0.99****	**0.99****	**0.99****
IHSS PROVIDER	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
TIME WITH		0.99*	0.99	0.99**	0.99**
INFORMAL		(0.00)	(0.00)	(0.01)	(0.01)
NUMBER OF				1.30*	1.29*
INFORMAL				(0.18)	(0.20)
TIME WITH		1.001	1.003	1.01	1.01
PAID		(0.01)	(0.01)	(0.01)	(0.01)
HOUSING				0.9999	0.9998
DENSITY				(0.00)	(0.00)
FEMALE			1.90**	1.80*	1.89*
			(0.57)	(0.60)	(0.71)
INCREASED AGE				0.99*	0.98**
				(0.01)	(0.01)
WALK FAR THER				0.77*	0.78
				(0.11)	(0.13)
BLACK					1.29
					(0.50)
OTHER RACE					2.42**
					(1.05)
HISPANIC					1.79
					(0.84)
OWN CAR					0.99
					(0.35)
RENT HOUSING					0.58
					(0.24)
N	636	307	302	263	245

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers said that they had difficulty in the past month reaching a grocery store because they had no transportation. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table F3

Time with IHSS Provider and Whether Consumers Could Not Reach a Place of Worship in the Previous Month Because of Transportation Problems (Showing Model Build-Up)

	(1)	(2)	(3)	(4)	(5)
TIME WITH	**1.0009**	**0.99**	**0.99****	**0.997**	**0.99***
IHSS PROVIDER	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
TIME WITH		0.99**	0.99**		0.99**
INFORMAL		(0.00)	(0.00)		(0.01)
NUMBER OF					1.27
INFORMAL					(0.24)
TIME WITH		1.01	1.01*		1.01*
PAID		(0.01)	(0.01)		(0.01)
HOUSING				0.9999	0.9996
DENSITY				(0.00)	(0.00)
FEMALE		2.57**	3.26***	1.54	3.84***
		(1.06)	(1.42)	(0.43)	(1.71)
INCREASED AGE		0.98**	0.97***	0.98***	0.97***
		(0.01)	(0.01)	(0.01)	(0.01)
WALK FARTHER		0.73*	0.69**	0.84	0.63**
		(0.13)	(0.13)	(0.11)	(0.13)
BLACK		1.88*	1.75	2.61***	2.59**
		(0.67)	(0.65)	(0.71)	(1.07)
OTHER RACE		2.30**	2.47**	2.49***	2.90**
		(0.96)	(1.03)	(0.77)	(1.32)
HISPANIC			1.01	1.37	0.65
			(0.57)	(0.48)	(0.41)
OWN CAR				0.95	1.33
				(0.26)	(0.53)
RENT HOUSING				0.76	0.96
				(0.22)	(0.47)
N	636	279	268	507	245

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers said that they had difficulty in the past month reaching a place of worship because they had no transportation. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. Showing results when controlling for most variables with the independent variable remaining significant.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table F4

Time with IHSS Provider and Whether Consumers Could Not Reach a Social or Community Center in the Previous Month Because of Transportation Problems (Showing Model Build-Up)

	(1)	(2)	(3)	(4)	(5)
TIME WITH	**0.9996**	**0.997**	**0.996**	**0.98****	**0.98*****
IHSS PROVIDER	(0.003)	(0.00)	(0.01)	(0.01)	(0.01)
TIME WITH			0.99**	0.99**	0.99*
INFORMAL			(0.01)	(0.01)	(0.01)
NUMBER OF					1.18
INFORMAL					(0.26)
TIME WITH			1.02**	1.02**	1.02**
PAID			(0.01)	(0.01)	(0.01)
HOUSING					0.9998
DENSITY					(0.00)
FEMALE		0.75		0.80	0.90
		(0.18)		(0.29)	(0.38)
INCREASED AGE					0.998
					(0.01)
WALK FARTHER					0.72*
					(0.14)
BLACK					1.28
					(0.58)
OTHER RACE					0.92
					(0.49)
HISPANIC					0.92
					(0.59)
OWN CAR					0.64
					(0.34)
RENT HOUSING					1.23
					(0.60)
N	636	624	307	302	245

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers said that they had difficulty in the past month reaching a social or community center because they had no transportation. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Showing results when controlling for most variables with the independent variable remaining significant.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table F5

Time with IHSS Provider and Whether Consumers Could Not Reach the Homes of Family and Friends and Other Places in the Previous Month Because of Transportation Problems (Showing Model Build-Up)

	Homes of Family and Friends (1)	Other Places (2)
TIME WITH IHSS PROVIDER	**0.99*** (0.00)	**0.98**** (0.01)
TIME WITH INFORMAL	0.99 (0.01)	
NUMBER OF INFORMAL	1.17 (0.17)	
TIME WITH PAID	0.999 (0.01)	
HOUSING DENSITY		1.0002 (0.00)
FEMALE	1.47 (0.49)	6.57*** (4.19)
INCREASED AGE	0.98*** (0.01)	0.96*** (0.01)
WALK FARTHER	0.89 (0.13)	0.71 (0.15)
BLACK	0.61 (0.22)	0.37* (0.22)
OTHER RACE	1.37 (0.56)	0.77 (0.49)
HISPANIC	0.93 (0.44)	0.71 (0.46)
OWN CAR	0.85 (0.28)	1.38 (0.59)
RENT HOUSING	0.83 (0.30)	1.48 (0.63)
N	248	507

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variables were dichotomous response variables measuring whether or not consumers said that they had difficulty in the past month reaching the homes of family and friends or "other" places because they had no transportation. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table F6

Time with IHSS Provider and Whether Consumers Think the Distance They Live from Providers Has an Effect on the Care They Receive and Whether They Would Want to Live in a Neighborhood with More People if It Meant Being Closer to Shopping, medical facilities, and social services

	Distance Affected Care (1)	Want to Move Closer (2)
TIME WITH	**0.99*** **	**0.99***
IHSS PROVIDER	(0.01)	(0.00)
TIME WITH	1.004	1.003
INFORMAL	(0.01)	(0.01)
NUMBER OF	1.13	
INFORMAL	(0.24)	
TIME WITH	0.999	1.0001
PAID	(0.01)	(0.01)
HOUSING	0.9995	0.9996
DENSITY	(0.00)	(0.00)
FEMALE	1.04	0.89
	(0.46)	(0.33)
INCREASED AGE	0.98	0.99
	(0.01)	(0.01)
WALK FARTHER	0.79	1.10
	(0.20)	(0.19)
BLACK	0.91	4.31***
	(0.50)	(1.86)
OTHER RACE	1.90	2.56**
	(1.02)	(1.24)
HISPANIC	2.86**	0.79
	(1.40)	(0.41)
OWN CAR	1.36	1.44
	(0.62)	(0.60)
RENT HOUSING	1.83	0.63
	(0.91)	(0.26)
N	225	160

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variables were dichotomous responses variable measuring whether or not consumers thought the distance between their homes and those of their providers affected the care they received and whether they would want to move to a neighborhood with more access. Cell values represent transformations of the estimated coefficients of the form $\exp(\beta)$ and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table F7a

Time with IHSS Provider and What Difficulties Consumers Cite with Buses and BART in Their Communities

	NA: No difficulties	No Stations	Cost	Stations Too Far from Home	Not Comfortable for Seniors/ Disabled
	(1)	(2)	(3)	(4)	(5)
TIME WITH	**1.01***	**1.01***	**0.98*****	**NS**	**0.99****
IHSS PROVIDER	(0.003)	(0.00)	(0.01)		(0.00)
TIME WITH		1.003	1.01		0.999
INFORMAL		(0.01)	(0.01)		(0.01)
NUMBER OF			1.05		0.997
INFORMAL			(0.24)		(0.01)
TIME WITH		1.01	0.99		0.997
PAID		(0.01)	(0.01)		(0.01)
HOUSING		0.999	0.9999		0.9995*
DENSITY		(0.00)	(0.00)		(0.00)
FEMALE	0.60*	0.44	1.83		3.39***
	(0.16)	(0.25)	(0.79)		(1.33)
INCREASED AGE	1.01**	0.99	0.97***		0.99*
	(0.01)	(0.01)	(0.01)		(0.01)
WALK FARTHER	1.75***	0.69	1.28		0.86*
	(0.24)	(0.20)	(0.24)		(0.15)
BLACK	0.76	1.92	1.49		1.17
	(0.25)	(1.37)	(0.64)		(0.41)
OTHER RACE	0.69	1.70	1.89		1.00
	(0.24)	(1.58)	(1.05)		(0.44)
HISPANIC	0.66	2.22	1.58		0.69
	(0.25)	(2.04)	(0.95)		(0.32)
OWN CAR	1.22		1.75		1.13
	(0.33)		(0.73)		(0.39)
RENT HOUSING	0.99		0.54		
	(0.30)		(0.29)		
N	519	264	245		264

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers had a particular problem with buses and BART in their communities. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table F7b

Time with IHSS Provider and What Difficulties Consumers Cite with the Buses and BART in Their Communities

	Have to Wait Too Long at Stations (6)	Don't Go Where I Need To Go (7)	Buses and BART Are Not Safe (8)	Other (9)
TIME WITH IHSS PROVIDER	**0.99*** (0.00)	**0.99**** (0.00)	**0.98**** (0.01)	**0.99***** (0.01)
TIME WITH INFORMAL			0.996 (0.01)	1.003 (0.01)
NUMBER OF INFORMAL			3.12*** (1.07)	1.001 (0.18)
TIME WITH PAID			0.98 (0.01)	1.01 (0.01)
HOUSING DENSITY		0.9996* (0.00)	1.0007** (0.00)	1.0002 (0.00)
FEMALE	1.51* (0.39)	1.57* (0.44)	9.89*** (6.07)	3.64*** (1.67)
INCREASED AGE	0.97*** (0.01)	0.99 (0.01)	0.98 (0.01)	0.98 (0.01)
WALK FARTHER	1.22* (0.13)	1.01 (0.11)	0.42*** (0.13)	0.88 (0.17)
BLACK	0.71 (0.19)	0.87 (0.25)	0.97 (0.57)	0.59 (0.27)
OTHER RACE	1.39 (0.41)	1.92** (0.57)	2.08 (1.32)	1.88 (0.89)
HISPANIC	0.93 (0.30)	1.22 (0.39)	0.59 (0.50)	1.08 (0.57)
OWN CAR	0.75 (0.19)	1.16 (0.31)	1.49 (0.85)	1.87 (0.74)
RENT HOUSING	0.35*** (0.11)	0.61* (0.18)	1.57 (0.96)	0.77 (0.34)
N	519	507	245	245

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not consumers had a particular problem with buses and BART in their communities. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Appendix G: The Relationship Between Provider Travel Challenges and Land Use Variables and Where Providers Accompany Consumers

Table G1a

Provider Travel Challenges and Land Use Variables and Whether Provider Accompanies Consumer to the Doctor

	(1)	(2)	(3)	(4)	(5)
COMMUTE	**0.46***				
NOT STRESSFUL	(0.22)				
POPULATION		**1.0002***			
DENSITY		(0.00)			
AVERAGE			**0.38***		
DISTANCE			(0.21)		
ZONE				**0.78***	
				(0.12)	
CHANGES					**0.41****
					(0.17)
SAME HOUSE	7.98***	9.05***		9.10***	
	(4.91)	(5.55)		(5.62)	
FEMALE	0.36*		0.59		0.47
	(0.22)		(0.50)		(0.37)
INCREASED AGE			1.02		1.05
			(0.02)		(0.03)
BLACK			1.03		2.28
			(0.69)		(1.85)
OTHER RACE			1.99		4.30*
			(1.39)		(3.60)
HISPANIC			1.13		0.87
			(0.94)		(0.75)
HOURS			1.29*		1.47**
PER WEEK			(0.19)		(0.26)
OWN CAR			2.68		1.46
			(1.68)		(1.01)
CONSUMER			1.02		1.01
INCREASED AGE			(0.02)		(0.02)
DRIVE SELF			0.81		0.84
			(0.19)		(0.22)
N	454	445	162	430	165

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Housing density and centroid NS.
Note 3. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G1b

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to the Doctor

	(6)		(7)		(8)	(9)	(10)
How Long to Client	**0.58*** **						
	(0.10)						
How Far to Client			**0.89*** **				
			(0.07)				
How Far Client from Bus					**0.46***		
					(0.19)		
How Far Client from BART						NS	
Want to Move Closer?							**0.42***
							(0.22)
Same House					3.96**		14.40**
					(2.31)		(15.20)
Female	0.23**		0.23**		0.15*		0.19*
	(0.17)		(0.17)		(0.15)		(0.19)
Increased age	1.03*		1.03*		1.02		1.01
	(0.02)		(0.02)		(0.02)		(0.02)
Black	1.84		1.75		3.38*		4.43**
	(0.96)		(0.92)		(2.21)		(3.21)
Other race	2.43		1.95		1.20		2.03
	(1.48)		(1.12)		(0.64)		(1.42)
Hispanic	0.56		0.53		0.71		
	(0.26)		(0.25)		(0.37)		
Hours	1.16		1.23*		1.15		
Per Week	(0.13)		(0.13)		(0.13)		
Own Car	1.70		2.18*		1.96		
	(0.77)		(0.991)		(0.995)		
Consumer	1.003		1.0003				
Increased age		(0.01)		(0.01)			
N	435		433		333		287

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G1c

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to the Doctor

	(11)	(12)	(13)	(14)
OTHER JOB?	NS			
TIME TO CHILDCARE		**1.07***** (0.02)		
TIME TO GROCERY			NS	
TIME TO NON-FOOD SHOPS				**1.20***** (0.06)
TIME TO OTHER				
FEMALE				3.46 (3.64)
INCREASED AGE				1.05 (0.04)
BLACK				1.37 (1.53)
OTHER RACE				DROPPED
HISPANIC				0.19 (0.30)
HOURS PER WEEK				2.07*** (0.55)
OWN CAR				1.14 (1.46)
CONSUMER INCREASED AGE				1.04* (0.03)
DRIVE SELF				0.34*** (0.12)
N		176		107

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Time going to all IHSS jobs also significant. Time going to "other locations" has too small of an N.
Note 3. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G2a

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Place of Worship

	(1)	(2)	(3)	(4)	(5)
COMMUTE NOT STRESSFUL	NS				
POPULATION DENSITY		**1.0001**** (0.00)			
HOUSING DENSITY			**1.0003**** (0.00)		
AVERAGE DISTANCE				**NS**	
ZONE					**0.82*** (0.09)
SAME HOUSE		4.27*** (1.06)	4.32*** (1.08)		5.93*** (1.36)
FEMALE		0.92 (0.27)	0.93 (0.27)		1.06 (0.30)
INCREASED AGE		1.02* (0.01)	1.02* (0.01)		1.01 (0.01)
BLACK		2.40*** (0.78)	2.47*** (0.79)		
OTHER RACE		2.74*** (0.91)	2.78*** (0.92)		
HISPANIC		2.18** (0.78)	2.21** (0.79)		
HOURS PER WEEK		1.11 (0.08)	1.11 (0.08)		
OWN CAR		1.10 (0.30)	1.10 (0.30)		
CONSUMER INCREASED AGE		0.98*** (0.01)	0.98*** (0.01)		
DRIVE SELF					
N		385	385		413

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G2b

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Place of Worship

	(6)	(7)	(8)	(9)	(10)
CENTROID	**1.07***				
	(0.04)				
CHANGES		**NS**			
TO CLIENT'S HOME					
HOW LONG			**0.55*****		
TO CLIENT'S HOME			(0.06)		
HOW FAR				**0.75*****	
TO CLIENT'S HOME				(0.05)	
HOW FAR CLIENT					**1.67***
FROM BUS					(0.46)
SAME HOUSE	5.23***				4.36***
	(1.28)				(1.17)
FEMALE	0.93		0.77	0.79	0.82
	(0.27)		(0.20)	(0.20)	(0.25)
INCREASED AGE	1.01		1.01	1.01	1.02**
	(0.01)		(0.01)	(0.01)	(0.01)
BLACK	2.36***		2.37***	2.17***	2.74***
	(0.70)		(0.67)	(0.61)	(0.90)
OTHER RACE	2.39***		2.80***	2.88***	2.14**
	(0.74)		(0.86)	(0.87)	(0.80)
HISPANIC	1.80*		2.00**	2.03**	1.90*
	(0.61)		(0.65)	(0.66)	(0.74)
HOURS	1.13*		1.17**	1.17**	1.10
PER WEEK	(0.08)		(0.08)	(0.08)	(0.08)
OWN CAR			1.06	1.09	1.22
			(0.28)	(0.28)	(0.37)
CONSUMER			0.98***	0.98***	0.98***
INCREASED AGE			(0.00)	(0.00)	(0.01)
N	398		435	433	323

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G2c

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Place of Worship

(11)	(12)	(13)	(14)	(15)
How Far Client from BART	**NS**			
Want to Move Closer?		**NS**		
Other job?				
Time to Childcare			**1.01***	
			(0.01)	
Time Going to Grocery				**1.02****
				(0.01)
Same House			4.07***	3.31***
			(1.66)	(0.92)
Female			0.53	0.79
			(0.28)	(0.25)
Increased age			1.02	1.002
			(0.02)	(0.01)
Black			3.27**	2.29**
			(1.63)	(0.79)
Other race			3.14**	2.97***
			(1.60)	(1.11)
Hispanic			0.64	1.78
			(0.45)	(0.75)
Hours			1.23*	1.24**
Per Week			(0.15)	(0.10)
Own Car			2.14	1.29
			(1.08)	(0.42)
Consumer				0.99**
Increased age				(0.01)
N			161	311

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G2d

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Place of Worship

	(16)	(17)	(18)	(19)
TIME TO NON-FOOD	**1.02***** (0.01)			
TIME TO ALL IHSS JOBS		**1.01**** (0.00)		
TIME TO OTHER JOB			**1.01**** (0.00)	
TIME TO OTHER LOCATIONS				**1.01*** (0.00)
SAME HOUSE	3.10*** (0.96)	11.32*** (10.46)	2.90*** (0.94)	2.87** (1.22)
FEMALE	0.70 (0.24)	0.71 (0.36)	0.98 (0.38)	0.73 (0.36)
INCREASED AGE	1.01 (0.01)	0.995 (0.01)	1.01 (0.01)	0.98 (0.01)
BLACK	3.47*** (1.36)	2.31* (1.09)	1.64 (0.69)	1.61 (0.83)
OTHER RACE	4.62*** (1.95)	2.77** (1.40)	2.50** (1.07)	1.57 (0.78)
HISPANIC	1.93 (0.96)	2.10 (1.17)	3.01** (1.53)	1.21 (0.71)
HOURS PER WEEK	1.45*** (0.14)	1.31** (0.15)	1.24** (0.12)	1.20 (0.16)
OWN CAR	1.34 (0.48)	0.84 (0.37)	1.07 (0.42)	1.07 (0.54)
CONSUMER INCREASED AGE	0.98*** (0.01)		0.98*** (0.01)	
N	254	214	219	120

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G3a

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Social or Community Center

	(1)	(2)	(3)	(4)	(5)
COMMUTE NOT STRESSFUL	**0.69*** (0.14)				
POPULATION DENSITY		**NS**			
HOUSING DENSITY			**NS**		
AVERAGE DISTANCE				**NS**	
ZONE					**0.85*** (0.08)
SAME HOUSE	1.47* (0.34)				1.53** (0.32)
FEMALE	0.88 (0.23)				0.92 (0.23)
INCREASED AGE	1.001 (0.01)				0.997 (0.01)
BLACK	1.09 (0.28)				
OTHER RACE	0.82 (0.23)				
HISPANIC	0.69 (0.22)				
HOURS PER WEEK	1.08 (0.07)				
OWN CAR	0.85 (0.21)				
N	411				413

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G3b

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Social or Community Center

	(6)	(7)	(8)	(9)	(10)
CENTROID	**NS**				
CHANGES TO CLIENT'S HOME		**NS**			
HOW LONG TO CLIENT'S HOME			**0.85***		
			(0.08)		
HOW FAR TO CLIENT'S HOME				**0.92***	
				(0.04)	
HOW FAR CLIENT FROM BUS					**0.59****
					(0.15)
SAME HOUSE					1.78**
					(0.45)
FEMALE					0.996
					(0.28)
INCREASED AGE					1.004
					(0.01)
BLACK					1.08
					(0.33)
OTHER RACE					0.50**
					(0.17)
HISPANIC					0.78
					(0.27)
HOURS PER WEEK					1.13*
					(0.08)
OWN CAR					0.74
					(0.20)
CONSUMER INCREASED AGE					0.998
					(0.01)
N			512	510	323

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G3c

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Social or Community Center

	(11)	(12)	(13)	(14)	(15)
HOW FAR CLIENT FROM BART	**2.30*** (1.10)				
WANT TO MOVE CLOSER?		**2.14***** (0.62)			
OTHER JOB?			**NS**		
TIME TO CHILDCARE				**NS**	
TIME GOING TO GROCERY					**1.01*** (0.00)
SAME HOUSE	1.67** (0.43)	1.06 (0.29)			1.21 (0.31)
FEMALE	0.84 (0.24)	0.79 (0.26)			0.80 (0.23)
INCREASED AGE	1.004 (0.01)	0.99 (0.01)			0.996 (0.01)
BLACK	1.13 (0.34)	0.80 (0.27)			1.31 (0.40)
OTHER RACE	0.56* (0.20)	0.70 (0.28)			0.94 (0.32)
HISPANIC	0.56 (0.21)	0.48* (0.21)			0.55 (0.21)
HOURS PER WEEK	1.12 (0.08)	1.10 (0.09)			1.10 (0.08)
OWN CAR	0.72 (0.20)	1.13 (0.36)			0.78 (0.22)
CONSUMER INCREASED AGE	1.002 (0.01)	0.99 (0.01)			0.998 (0.01)
N	314	256			311

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G3d

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Social or Community Center

	(16)	(17)	(18)
TIME TO NON-FOOD	**NS**		
TIME TO ALL IHSS JOBS		**1.01***	
		(0.00)	
TIME TO OTHER LOC.			**NS**
SAME HOUSE		3.65*	
		(2.69)	
FEMALE		1.08	
		(0.44)	
INCREASED AGE		1.01	
		(0.01)	
BLACK		1.19	
		(0.41)	
OTHER RACE		1.13	
		(0.47)	
HISPANIC		0.72	
		(0.32)	
HOURS PER WEEK		1.05	
		(0.09)	
N		218	

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G4a

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Grocery Store

	(1)	(2)	(3)	(4)	(5)
COMMUTE NOT STRESSFUL	**NS**				
POPULATION DENSITY		**NS**			
HOUSING DENSITY			**NS**		
AVERAGE DISTANCE				**1.68***	
				(0.49)	
ZONE					NS
SAME HOUSE				0.74	
				(0.24)	
FEMALE				1.40	
				(0.52)	
INCREASED AGE				0.98*	
				(0.01)	
BLACK				1.58	
				(0.64)	
OTHER RACE				1.25	
				(0.51)	
HISPANIC				2.03	
				(1.03)	
HOURS PER WEEK				0.94	
				(0.09)	
OWN CAR				0.997	
				(0.40)	
CONSUMER INCREASED AGE				0.98***	
				(0.01)	
DRIVE SELF					
N				337	

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G4b

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Grocery Store

	(6)	(7)	(8)	(9)	(10)
CENTROID	**0.93***				
	(0.04)				
CHANGES TO CLIENT'S HOME		**NS**			
HOW LONG TO CLIENT'S HOME			**NS**		
HOW FAR TO CLIENT'S HOME				**NS**	
HOW FAR CLIENT FROM BUS					**NS**
SAME HOUSE	0.75				
	(0.24)				
FEMALE	1.50				
	(0.53)				
INCREASED AGE	0.98**				
	(0.01)				
BLACK	1.46				
	(0.59)				
OTHER RACE	0.80				
	(0.29)				
HISPANIC	1.88				
	(0.82)				
HOURS	0.93				
PER WEEK	(0.08)				
OWN CAR	1.15				
	(0.42)				
CONSUMER	0.98***				
INCREASED AGE	(0.01)				
N	381				

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G4c

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Grocery Store

	(11)	(12)	(13)	(14)	(15)
How Far Client from BART	**NS**				
Want to Move Closer?		**NS**			
Other job?			**2.12***		
			(0.95)		
Time Taking a Child				**1.02***	
				(0.01)	
Time Going to Grocery					**1.01***
					(0.01)
Same House				0.77	0.77
				(0.38)	(0.28)
Female			3.91***	1.68	1.98*
			(1.96)	(0.95)	(0.74)
Increased age			0.998	0.98	0.99
			(0.02)	(0.02)	(0.01)
Black			1.02	0.84	1.20
			(0.53)	(0.47)	(0.52)
Other race			1.18	1.03	1.24
			(0.72)	(0.60)	(0.53)
Hispanic			1.22	0.90	2.11
			(0.71)	(0.59)	(1.25)
Hours			0.999	0.88	0.94
Per Week			(0.11)	(0.12)	(0.09)
Own Car			0.80	1.35	0.85
			(0.57)	(0.68)	(0.38)
Consumer			0.999	0.98	0.99
Increased age			(0.01)	(0.01)	(0.01)
Drive Self			0.87		
			(0.21)		
N			202	158	311

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G4d

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Grocery Store

	(16)	(17)	(18)	(19)
TIME TO NON-FOOD	**NS**			
TIME TO ALL IHSS JOBS		**0.99****		
		(0.01)		
TIME TO OTHER JOBS			**1.01****	
			(0.01)	
TIME TO OTHER LOC.				**1.03****
				(0.02)
SAME HOUSE		2.36	0.55	0.54
		(3.10)	(0.22)	(0.40)
FEMALE		2.83**	2.77**	1.70
		(1.43)	(1.23)	(1.35)
INCREASED AGE		0.997	0.98	0.96*
		(0.02)	(0.01)	(0.02)
BLACK		1.26	1.47	3.17*
		(0.73)	(0.79)	(2.24)
OTHER RACE		1.37	2.11	0.76
		(0.85)	(1.06)	(0.60)
HISPANIC		1.40	2.94	5.31
		(0.81)	(2.04)	(5.83)
HOURS		0.94	0.86	0.63**
PER WEEK		(0.11)	(0.10)	(0.13)
OWN CAR		0.59	1.52	2.00
		(0.40)	(0.73)	(1.52)
CONSUMER		0.99	0.97**	0.98
INCREASED AGE		(0.01)	(0.01)	(0.01)
N		206	219	120

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G5a

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Family Member or Friend's Home

	(1)	(2)	(3)	(4)	(5)
COMMUTE NOT STRESSFUL	**NS**				
POPULATION DENSITY		**1.0001*** (0.00)			
HOUSING DENSITY			**NS**		
AVERAGE DISTANCE				**NS**	
ZONE					**NS**
SAME HOUSE		4.81*** (1.26)			
FEMALE		0.84 (0.26)			
INCREASED AGE		1.001 (0.01)			
BLACK		1.02 (0.33)			
OTHER RACE		1.31 (0.44)			
HISPANIC		1.15 (0.39)			
HOURS PER WEEK		1.12 (0.08)			
OWN CAR		1.18 (0.34)			
CONSUMER INCREASED AGE		0.98*** (0.01)			
N		385			

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G5b

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Family Member or Friend's Home

	(6)	(7)	(8)	(9)	(10)
CENTROID	**NS**				
CHANGES		**0.40****			
TO CLIENT'S HOME		(0.16)			
HOW LONG			**0.60*****		
TO CLIENT'S HOME			(0.06)		
HOW FAR				**0.78*****	
TO CLIENT'S HOME				(0.04)	
HOW FAR CLIENT					**1.59***
FROM BUS					(0.44)
SAME HOUSE					5.79***
					(1.82)
FEMALE		0.71	0.66	0.67	0.83
		(0.34)	(0.18)	(0.18)	(0.27)
INCREASED AGE		1.01	1.004	1.004	1.002
		(0.01)	(0.01)	(0.01)	(0.01)
BLACK		1.09	1.17	1.11	1.15
		(0.44)	(0.32)	(0.30)	(0.38)
OTHER RACE		1.45	1.71*	1.60	1.31
		(0.75)	(0.52)	(0.48)	(0.50)
HISPANIC		1.26	1.03	1.07	0.96
		(0.59)	(0.32)	(0.34)	(0.36)
HOURS		1.19*	1.15**	1.16**	1.21**
PER WEEK		(0.12)	(0.07)	(0.07)	(0.09)
OWN CAR		0.10***	0.96	1.11	0.89
		(0.07)	(0.25)	(0.28)	(0.27)
CONSUMER		0.99	0.98***	0.98***	0.99**
INCREASED AGE		(0.01)	(0.00)	(0.00)	(0.01)
DRIVE SELF		0.71			
		(0.17)			
N		165	435	433	323

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G5c

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Family Member or Friend's Home

	(11)	(12)	(13)	(14)	(15)
How Far Client from BART	2.58** (1.23)				
Want to Move Closer?		NS			
Other job?			NS		
Time to Childcare				1.02* (0.01)	
Time Going to Grocery					1.01* (0.01)
Same House	4.89*** (1.44)			4.13*** (1.87)	3.19*** (0.93)
Female	0.63 (0.21)			0.68 (0.37)	0.66* (0.22)
Increased age	1.01 (0.01)			0.98 (0.01)	0.99 (0.01)
Black	1.52 (0.50)			0.85 (0.42)	1.32 (0.44)
Other race	1.89* (0.74)			2.08 (1.11)	1.93* (0.73)
Hispanic	1.01 (0.41)			0.94 (0.53)	1.30 (0.50)
Hours Per Week	1.18** (0.09)			1.17 (0.13)	1.21** (0.09)
Own Car	1.06 (0.34)			0.71 (0.40)	0.92 (0.30)
Consumer Increased age	0.98*** (0.01)			0.99 (0.01)	0.98** (0.01)
N	314			158	311

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G5d

Provider Travel Challenges and Land Use Variables and Whether Providers Accompany Consumers to a Family Member or Friend's Home

	(16)	(17)	(18)	(19)
TIME TO NON-FOOD	**1.01***			
	(0.01)			
TIME TO ALL IHSS JOBS		**NS**		
TIME TO OTHER JOBS			**1.01****	
			(0.01)	
TIME TO OTHER LOC.				**NS**
SAME HOUSE	3.55***		3.20***	
	(1.11)		(1.11)	
FEMALE	0.76		0.90	
	(0.27)		(0.36)	
INCREASED AGE	0.99		0.998	
	(0.01)		(0.01)	
BLACK	1.06		1.30	
	(0.38)		(0.53)	
OTHER RACE	1.39		1.94	
	(0.54)		(0.82)	
HISPANIC	1.43		1.43	
	(0.61)		(0.64)	
HOURS PER WEEK	1.15*		1.03	
	(0.09)		(0.09)	
OWN CAR	0.80		0.74	
	(0.30)		(0.31)	
CONSUMER INCREASED AGE			0.98**	
			(0.01)	
N	260		219	

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers accompany consumers to a given destination. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. Significant results for whether providers thought consumers needed help going to these locations are provided in the text for hypothesis 3.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G6a

Provider Travel Challenges and Land Use Variables and How Many Total Places Providers Accompany Consumers (Accompanying to 0 to 2 Places Instead of 6 to 7 Places)

	(1)	(2)	(3)	(4)	(5)
COMMUTE NOT STRESSFUL	NS				
POPULATION DENSITY		**0.9999*** (0.00)			
HOUSING DENSITY			**NS**		
AVERAGE DISTANCE				**NS**	
ZONE					**NS**
SAME HOUSE		0.29*** (0.11)			
FEMALE		0.89 (0.36)			
INCREASED AGE		1.01 (0.01)			
BLACK		1.02 (0.49)			
OTHER RACE		0.99 (0.46)			
HISPANIC		0.96 (0.46)			
HOURS PER WEEK		0.84* (0.09)			
OWN CAR		0.91 (0.39)			
CONSUMER INCREASED AGE		1.02*** (0.01)			
N		385			

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring the total number of listed places to which providers accompanied consumers. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. The coefficients for the number of places to which providers accompany consumers represent marginal effects for category 0 (the provider accompanies the consumers to 0 to 2 places) relative to category 4 (the provider accompanies the consumer to 6 to 7 places; see Appendix D). The findings on the number of places to which providers think consumers need help going, not included in this appendix but discussed in the text, would represent marginal effects for category 0 (category 0 being that consumers need help going to 0 places) relative to category 6 (the consumer needs help going to 6 to 7 places).

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G6b

Provider Travel Challenges and Land Use Variables and How Many Total Places Providers Accompany Consumers (Accompanying to 0 to 2 Places Instead of 6 to 7 Places)

	(6)	(7)	(8)	(9)	(10)
CENTROID	**NS**				
CHANGES TO CLIENT'S HOME		**NS**			
HOW LONG TO CLIENT'S HOME			**1.67***** (0.26)		
HOW FAR TO CLIENT'S HOME				**1.32***** (0.11)	
HOW FAR CLIENT FROM BUS					**NS**
SAME HOUSE					
FEMALE			1.10 (0.41)	1.11 (0.42)	
INCREASED AGE			1.003 (0.01)	1.002 (0.01)	
BLACK			0.75 (0.31)	0.79 (0.33)	
OTHER RACE			0.72 (0.30)	0.81 (0.34)	
HISPANIC			0.83 (0.37)	0.84 (0.38)	
HOURS PER WEEK			0.84* (0.08)	0.81** (0.08)	
OWN CAR			0.82 (0.31)	0.69 (0.26)	
CONSUMER INCREASED AGE			1.03*** (0.01)	1.03*** (0.01)	
N			435	433	

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring the total number of listed places to which providers accompanied consumers. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. The coefficients for the number of places to which providers accompany consumers represent marginal effects for category 0 (the provider accompanies the consumers to 0 to 2 places) relative to category 4 (the provider accompanies the consumer to 6 to 7 places; see Appendix D). The findings on the number of places to which providers think consumers need help going, not included in this appendix but discussed in the text, would represent marginal effects for category 0 (category 0 being that consumers need help going to 0 places) relative to category 6 (the consumer needs help going to 6 to 7 places).
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G6c

Provider Travel Challenges and Land Use Variables and How Many Total Places Providers Accompany Consumers (Accompanying to 0 to 2 Places Instead of 6 to 7 Places)

	(11)	(12)	(13)	(14)	(15)
HOW FAR CLIENT FROM BART	**0.20*** (0.17)				
WANT TO MOVE CLOSER?		**NS**			
OTHER JOB?			**NS**		
TIME TAKING A CHILD				**0.96***** (0.01)	
TIME GOING TO GROCERY					**0.97***** (0.01)
SAME HOUSE	0.15*** (0.06)			0.28** (0.18)	0.43** (0.18)
FEMALE	1.24 (0.55)			1.29 (1.04)	1.07 (0.48)
INCREASED AGE	0.995 (0.01)			1.01 (0.02)	1.02 (0.01)
BLACK	0.64 (0.31)			0.48 (0.33)	0.64 (0.33)
OTHER RACE	1.09 (0.59)			0.29* (0.21)	0.55 (0.30)
HISPANIC	1.70 (0.96)			1.07 (0.92)	0.69 (0.41)
HOURS PER WEEK	0.80* (0.10)			0.80 (0.15)	0.79* (0.10)
OWN CAR	1.23 (0.58)			0.98 (0.74)	0.96 (0.48)
CONSUMER INCREASED AGE				1.02* (0.01)	1.02** (0.01)
N	321			158	311

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring the total number of listed places to which providers accompanied consumers. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. The coefficients for the number of places to which providers accompany consumers represent marginal effects for category 0 (the provider accompanies the consumers to 0 to 2 places) relative to category 4 (the provider accompanies the consumer to 6 to 7 places; see Appendix D). The findings on the number of places to which providers think consumers need help going, not included in this appendix but discussed in the text, would represent marginal effects for category 0 (category 0 being that consumers need help going to 0 places) relative to category 6 (the consumer needs help going to 6 to 7 places).

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table G6d

Provider Travel Challenges and Land Use Variables and How Many Total Places Providers Accompany Consumers (Accompanying to 0 to 2 Places Instead of 6 to 7 Places)

	(16)	(17)	(18)
TIME TO NON-FOOD	**0.98***		
	(0.01)		
TIME TO OTHER JOBS		**0.98*****	
		(0.01)	
TIME TO OTHER LOC.			**0.95*****
			(0.01)
SAME HOUSE	0.49	0.45	0.35
	(0.22)	(0.22)	(0.29)
FEMALE	0.96	0.56	0.99
	(0.45)	(0.32)	(1.07)
INCREASED AGE	1.01	1.02	1.02
	(0.02)	(0.02)	(0.03)
BLACK	0.49	0.59	0.49
	(0.27)	(0.38)	(0.49)
OTHER RACE	0.32**	0.28**	0.75
	(0.18)	(0.18)	(0.65)
HISPANIC	0.62	0.48	0.31
	(0.41)	(0.35)	(0.30)
HOURS PER WEEK	0.81	0.85	0.93
	(0.11)	(0.13)	(0.26)
OWN CAR	0.89	0.87	1.17
	(0.46)	(0.56)	(1.18)
CONSUMER INCREASED AGE	1.04***	1.03***	1.03*
	(0.01)	(0.01)	(0.02)
N	254	219	120

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring the total number of listed places to which providers accompanied consumers. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. The coefficients for the number of places to which providers accompany consumers represent marginal effects for category 0 (the provider accompanies the consumers to 0 to 2 places) relative to category 4 (the provider accompanies the consumer to 6 to 7 places; see Appendix D). The findings on the number of places to which providers think consumers need help going, not included in this appendix but discussed in the text, would represent marginal effects for category 0 (category 0 being that consumers need help going to 0 places) relative to category 6 (the consumer needs help going to 6 to 7 places).

Note 3. Time going to other IHSS had too small of an N.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Appendix H: The Effect of Land Use Variables on Provider Travel Challenges

Table H1

Effects of Land Use Variables on Whether Provider's Commute to the Consumer's Home Is Stressful

	(1)	(2)	(3)	(4)
POPULATION DENSITY	**NS**			
HOUSING DENSITY		**1.0004***		
		(0.00)		
ZONE			**NS**	
AVERAGE DISTANCE				**NS**
SAME HOUSE		0.38		
		(0.28)		
FEMALE		1.26		
		(1.06)		
INCREASED AGE		0.98		
		(0.02)		
BLACK		0.13		
		(0.17)		
OTHER RACE		0.86		
		(0.73)		
N		386		

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring provider commute stress. Cell values represent transformations of the estimated coefficients of the form exp(*β*) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. The coefficients for whether the provider's commute to the consumer's home was stressful represent marginal effects for category 1 (the commute was stressful) relative to category 3 (the commute is not stressful). See Appendix D. In other words, the coefficients show the likelihood of picking comparison group 1.
Note 3. Centroid has too small of an N for inclusion.
Note 4. Only 16 providers answered that their commutes were stressful, which might affect the reliability of these and other commute stress findings.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table H2

Effects of Land Use Variables on How Many Changes in Transit Provider Makes on the Way to Consumer's Home

	(1)	(2)	(3)	(4)	(5)
POPULATION DENSITY	**NS**				
HOUSING DENSITY		**NS**			
ZONE			**0.45***** (0.12)		
AVERAGE DISTANCE				**NS**	
CENTROID					**NS**
SAME HOUSE					
FEMALE			0.57 (0.36)		
INCREASED AGE			0.96* (0.02)		
BLACK			0.70 (0.44)		
OTHER RACE			1.99 (1.23)		
N			189		

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring how many changes providers make in transit. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
Note 2. The coefficients for the number of changes in transit made by providers represent marginal effects for category 2 (provider changes transit 1 time) relative to category 1 (providers usually does not change) (see Appendix D). These numbers represent the likelihood of choosing 2.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table H3

Effect of Land Use Variables on Whether Provider Would Want to Live in a Neighborhood with More People If It Meant Being Closer to Shopping, Medical Facilities, and Social Services

	(1)	(2)	(3)	(4)
POPULATION DENSITY	**NS**			
HOUSING DENSITY		**NS**		
ZONE			**0.76****	
			(0.11)	
AVERAGE DISTANCE CENTROID				**0.91***
				(0.05)
SAME HOUSE			0.68	0.63
			(0.24)	(0.22)
FEMALE			0.87	0.93
			(0.35)	(0.36)
INCREASED AGE			0.99	0.99
			(0.01)	(0.01)
BLACK			1.48	1.77
			(0.63)	(0.67)
OTHER RACE			6.05***	6.56***
			(2.76)	(3.02)
HISPANIC			1.32	1.25
			(0.64)	(0.61)
HOURS			1.20*	1.15
PER WEEK			(0.11)	(0.11)
OWN CAR			0.31***	0.29***
			(0.11)	(0.11)
CONSUMER			0.99	0.99
INCREASED AGE			(0.01)	(0.01)
N			213	219

Note. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a dichotomous response variable measuring whether or not providers would want to move to a higher density area. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as odds ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table H4

Effects of Land Use Variables on How Long It Takes Provider to Get to Consumer's Home (Measured by Minutes Grouped into Four Categories)

	(1)	(2)	(3)	(4)	(5)
POPULATION DENSITY	**1.0001*** (0.00)				
HOUSING DENSITY		**1.0004**** (0.00)			
ZONE			**NS**		
AVERAGE DISTANCE				**0.48*** (0.19)	
CENTROID					**1.29*** (0.19)
FEMALE	1.62 (0.70)	1.65 (0.75)		1.15 (0.49)	1.18 (0.52)
INCREASED AGE	0.99 (0.01)	0.98 (0.01)		0.99 (0.01)	0.98 (0.01)
BLACK	1.76 (0.79)	1.57 (0.71)			
OTHER RACE	0.59 (0.31)	0.48 (0.27)			
HISPANIC	0.53 (0.42)	0.49 (0.39)			
HOURS PER WEEK	0.80** (0.08)	0.80** (0.08)			
OWN CAR	0.76 (0.29)	0.69 (0.26)			
CONSUMER INCREASED AGE		1.02** (0.01)			
N	393	383		380	422

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring how long it takes providers to get to consumers' homes. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. The coefficients for how long the provider's commute to the consumer's home represent marginal effects for category 3 (more than 30 minutes) relative to category 0 (the provider lives in the same home as the consumer). These numbers represent the likelihood of choosing 3 instead of 0.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table H5

Effects of Land Use Variables on How Far Provider Lives from Consumer's Home (Measured by Groups of Miles)

	(1)	(2)	(3)	(4)	(5)
POPULATION	**1.0002***				
DENSITY	(0.00)				
HOUSING		**1.0005****			
DENSITY		(0.00)			
ZONE			**2.06****		
			(0.66)		
AVERAGE				**NS**	
DISTANCE					
CENTROID					**1.35***
					(0.25)
FEMALE	6.03*	6.16*	3.61		7.89
	(6.51)	(6.68)	(4.41)		(11.85)
INCREASED AGE	0.96**	0.96*	0.95		0.96*
	(0.02)	(0.02)	(0.03)		(0.02)
BLACK	1.06	1.03	0.84		0.60
	(0.73)	(0.70)	(0.76)		(0.49)
OTHER RACE	0.35	0.36	0.18*		0.15*
	(0.25)	(0.26)	(0.17)		(0.15)
HISPANIC	1.93	2.02	1.14		1.31
	(1.44)	(1.51)	(0.99)		(1.06)
HOURS	0.77	0.78	0.75		0.80
PER WEEK	(0.14)	(0.14)	(0.19)		(0.16)
OWN CAR	1.33	1.26	0.84		
	(0.98)	(0.92)	(0.56)		
CONSUMER	1.02	1.02	1.02		
INCREASED AGE	(0.02)	(0.01)	(0.02)		
N	381	381	366		394

Note 1. All estimates were generated using maximum-likelihood logistic regression. The dependent variable for each model is a multinomial response variable measuring distance to the consumer's home. Cell values represent transformations of the estimated coefficients of the form exp(β) and should be interpreted as relative risk ratios. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys.

Note 2. The coefficients for how far the provider's commute to the consumer's home represent marginal effects for category 6 (30 miles or more) relative to category 0 (the provider lives in the same home as the consumer). These numbers represent the likelihood of choosing 6 instead of 0.

* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.

Table H6

Effects of Land Use Variables on How Long Provider Spends Going to the Grocery Store (Example Destination)

	(1)	(2)	(3)	(4)	(5)
POPULATION DENSITY	**0.0001**** (0.00)				
HOUSING DENSITY		**0.0001*** (0.00)			
ZONE			**-0.07*** (0.04)		
AVERAGE DISTANCE				**NS**	
CENTROID					**NS**
SAME HOUSE	0.14 (0.10)	0.14 (0.10)	0.18* (0.10)		
FEMALE	-0.01 (0.11)	-0.01 (0.11)	-0.01 (0.11)		
INCREASED AGE	-0.0002 (0.00)	-0.001 (0.00)	-0.001 (0.00)		
BLACK	0.10 (0.13)	0.13 (0.13)	0.07 (0.13)		
OTHER RACE	-0.07 (0.13)	-0.06 (0.13)	-0.13 (0.13)		
HISPANIC	0.35*** (0.12)	0.34*** (0.13)	0.28** (0.12)		
HOURS PER WEEK	0.003 (0.03)	0.01 (0.03)	0.02 (0.03)		
OWN CAR	-0.15 (0.11)	-0.12 (0.11)	-0.12 (0.11)		
CONSUMER INCREASED AGE		0.001 (0.00)	0.002 (0.00)		
N	278	272	262		

Note 1. All estimates were generated using ordinary least squares regression. The dependent variable for each model is the natural logarithm of a response variable indicating how long providers spend going to the grocery store. Therefore, cell values represent (approximately) proportional marginal effects. Standard errors (in parentheses) are computed using the Huber-White robust estimate of variance. From consumer surveys. Coefficients significant at the .10 level are marked with *; at the .05 level with **; at the .01 level with ***.
Note 2. Similar data is available on the time providers spent traveling for other reasons that was excluded for reasons of space: such as traveling to all their IHSS clients, to non-food stores, and to other jobs.
* Coefficients significant at the 10% level. ** Coefficients significant at the 5% level. *** Coefficients significant at the 1% level.